AI in Project Management

The Landscape, the Opportunity, and the Limits[1]

Prasad S. Kodukula and Guz Vinueza[2]

Project management has always been a race between complexity and clarity—and between activity and value.

Every project generates a continuous stream of requirements, assumptions, estimates, decisions, risks, issues, changes, communications, and performance data. Project professionals must convert that information into plans and actions while navigating uncertainty, organizational constraints, competing stakeholder expectations, and limited resources. As projects become larger, more complex, and more interconnected, the volume and speed of information can exceed the ability of any individual or team to process it effectively.

But processing more information is not the ultimate objective. Neither is producing more reports, automating more tasks, or completing project-management processes more quickly. The ultimate objective is to generate value—for customers, sponsors, project stakeholders, and the organization as a whole.

Any use of artificial intelligence (AI) in project management must therefore be judged by the same standard: Does it help the organization make better decisions, use resources more effectively, manage uncertainty, deliver promised outcomes, and create sustainable stakeholder value?

Artificial intelligence offers a powerful response to these challenges. It can analyze large volumes of information, identify patterns, forecast possible outcomes, generate project artifacts, explore alternatives, and help project professionals determine what actions to consider. More recently, AI systems have begun moving beyond producing answers and

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[2] Dr. Prasad Kodukula and Guz Vinueza are the authors of the best-selling book titled *The Project Management AI Handbook: Leveraging Generative Tools in Waterfall and Agile Environments, published in 2025 by J. Ross Publishing*.

documents toward using tools, completing connected steps, interacting with other systems, and performing work on behalf of users.

This progression creates enormous opportunities for project management.

This article introduces the landscape of AI in project management, examines the opportunities across project and portfolio work, and explains the limits organizations must understand before attempting to integrate and scale AI.

What Do We Mean by Artificial Intelligence?

AI is a broad field encompassing technologies that enable computers to perform tasks commonly associated with human intelligence. These tasks may include recognizing patterns, learning from experience, understanding language, solving problems, making predictions, recommending decisions, generating content, and, increasingly, taking actions within defined boundaries.

Figure 1 illustrates the progression of AI capabilities from analyzing and predicting to generating, acting, and coordinating, accompanied by increasing autonomy and a corresponding need for human oversight.

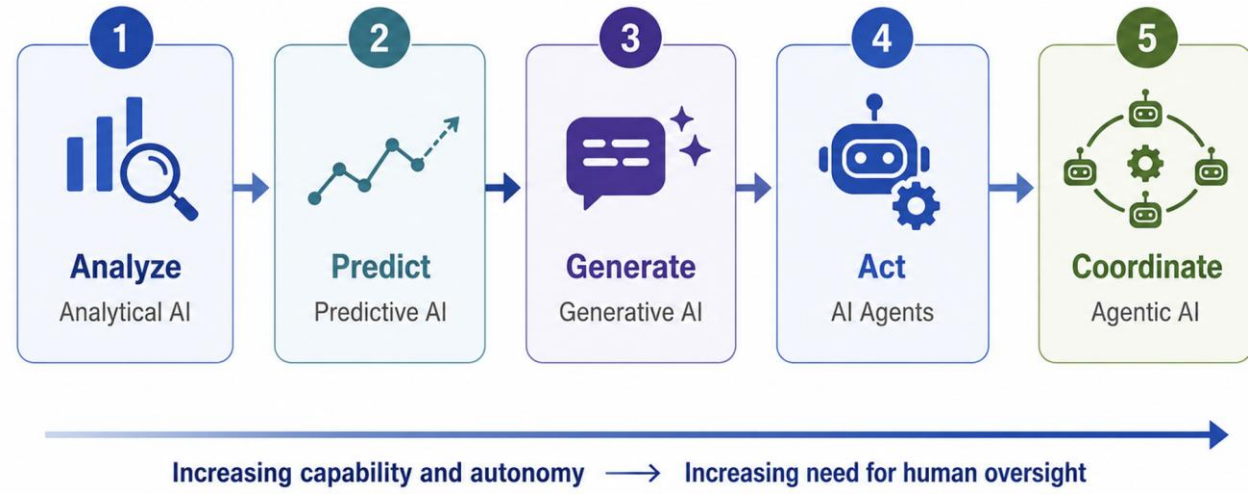

Figure 1: Evolution of AI

The term *artificial intelligence* is often used as though it refers to one technology. In practice, it covers several forms of capability. Four are especially relevant to project management: analytical and predictive AI, Generative AI (Gen AI), AI agents, and agentic AI.

These forms are not always separate. A single application may combine several of them. However, distinguishing among them helps project professionals understand what each system can do, what information it requires, and what level of human oversight is appropriate.

Analytical and Predictive AI

Analytical AI examines data to identify patterns, relationships, anomalies, and trends. Predictive AI uses historical and current data to estimate what is likely to happen next.

In project management, these capabilities may be used to forecast schedule delays, estimate cost overruns, identify high-risk work packages, detect unusual performance patterns, predict resource constraints, or estimate the probability of meeting schedule or cost targets.

For example, a predictive model may examine supplier performance, procurement lead times, schedule status, and current issues and estimate that a critical component has a 65 percent probability of arriving late.

The output is an analysis or prediction. People still decide what the result means and what action should follow.

Generative AI

Gen AI creates new content in response to human instructions. It can draft text, summarize documents, structure information, generate alternatives, explain concepts, create preliminary analyses, and support brainstorming.

In project management, for example, it may help prepare a project charter, develop a work breakdown structure, draft a risk register, summarize a meeting, create stakeholder communications, propose risk responses, generate user stories, or prepare an initial progress report.

Using the same supplier-risk example, Gen AI could convert the predictive result into a clearly written risk statement, identify possible schedule and cost impacts, suggest mitigation alternatives, and draft a communication for the project sponsor.

Gen AI can be highly useful, but it does not automatically know whether its output is accurate, complete, practical, or appropriate for the organization. Human review remains essential.

AI Agents

An AI agent is designed to pursue a defined objective by performing multiple connected activities, often using tools, data sources, and other systems. Unlike a single Gen AI interaction, an agent may retrieve information, analyze it, take a permitted action, evaluate the result, and continue until it completes its assigned task or reaches a condition requiring human intervention.

In the supplier-risk example, an AI agent might retrieve current procurement information, review the supplier's delivery history, examine the schedule activities affected by the component, update the risk register, prepare a revised forecast, and notify the assigned risk owner.

The agent operates within a defined role and set of permissions. It should have clear goals, boundaries, escalation conditions, approval requirements, and stopping rules.

Agentic AI

Agentic AI extends this concept by coordinating multiple agents, tools, data sources, and decisions toward a broader objective. It may monitor conditions, adapt its approach, evaluate alternatives, coordinate specialized agents, and initiate permitted actions within defined governance boundaries.

In the supplier example, an agentic system could coordinate a procurement agent, a schedule agent, a cost agent, a risk agent, and a resource agent. Together, they could evaluate the integrated effect of the delay, compare response scenarios, identify the best available option, and route a recommendation to the appropriate decision-maker for approval.

Agentic AI therefore introduces a higher level of autonomy and coordination. It also introduces greater risk. An error in one component can influence other agents, systems, and decisions. The more autonomy the system has, the more important governance, monitoring, traceability, and human decision rights become.

Table 1 compares the four forms of AI through a common project-risk example, showing how their capabilities, actions, and human-accountability requirements differ.

Table 1: Four Forms of AI*—
A Project Risk Management Comparison

Form of AI	Primary Capability	Supplier-Delay Risk Example	Human Role and Accountability
Analytical and Predictive AI	Analyzes historical and current data to identify patterns, estimate probabilities, and forecast likely outcomes.	Examines supplier performance, procurement lead times, schedule status, and current issues and estimates a 65 percent probability that a critical component will arrive late.	Project professionals assess the reliability of the data and model, interpret the forecast, and determine whether action is warranted.
Generative AI	Creates new content, explanations, analyses, and alternatives in response to human instructions.	Converts the prediction into a clearly written risk statement, identifies potential schedule and cost impacts, suggests mitigation alternatives, and drafts a communication for the project sponsor.	Project professionals provide context, evaluate the accuracy and practicality of the output, refine the recommendations, and approve any communication or response plan.
AI Agent	Pursues a defined objective by performing multiple connected activities using approved tools, data sources, and systems.	Retrieves current procurement information, reviews supplier history, examines affected schedule activities, updates the risk register, prepares a revised forecast, and notifies the assigned risk owner.	Humans define the agent's objective, permissions, boundaries, approval points, escalation conditions, and stopping rules and remain accountable for its actions.
Agentic AI	Coordinates multiple agents, tools, data sources, and decisions toward a broader objective, adapting its approach within defined boundaries.	Coordinates procurement, schedule, cost, risk, and resource agents; evaluates the integrated impact of the delay; compares response scenarios; and routes a recommended course of action to the appropriate decision-maker.	Leaders establish governance, decision rights, autonomy limits, monitoring, and approval requirements. Significant decisions and high-consequence actions remain subject to human judgment and accountability.

**These forms of AI are not always separate. A single AI-enabled application may combine analytical, predictive, generative, agent-based, and agentic capabilities.*

All four forms of AI operate within or contribute to workflows, but their roles differ. Analytical AI supplies insight to a workflow. Gen AI creates content within it. AI agents perform connected activities within it. Agentic AI may coordinate across multiple workflows and systems.

A workflow defines how work moves from information to analysis, decisions, actions, and feedback. An agent is not the workflow itself; it is a participant in the workflow, although an agentic system may help coordinate and adapt portions of it.

The Opportunity: AI Across Project and Portfolio Management

The opportunity for AI is not limited to one project phase or one type of delivery method. It extends across predictive or waterfall projects, agile and hybrid environments, portfolios, PMOs, and enterprise-level decision-making.

AI applications can also be viewed according to the organizational level at which they support project work. Table 2 summarizes representative operational, tactical, and strategic applications.

Table 2: Representative Operational, Tactical, and Strategic* Applications of AI in Project Management

Application Level	Primary Focus	Representative AI Applications
Operational	Improving efficiency in routine, day-to-day project work	Task and report automation; schedule and resource coordination; document and knowledge retrieval; team and stakeholder communications; backlog, sprint, and action-item management
Tactical	Supporting project-level analysis and short- to medium-term decisions	Risk assessment and response planning; project health monitoring and forecasting; critical-path, dependency, and capacity analysis; quality and change-impact analysis; stakeholder, customer, and supplier analysis
Strategic	Aligning projects and portfolios with long-term organizational value	Project selection, prioritization, and portfolio optimization; strategic alignment and resource allocation; enterprise risk and scenario analysis; market, competitive, sustainability, and long-term impact analysis; innovation, transformation, and product-roadmap planning

**The categories may overlap. An application can move from operational to tactical or strategic depending on its scope, the decisions it supports, and the level of organizational impact.*

Organizing the opportunities around how projects are actually performed provides a clearer picture than simply listing disconnected AI use cases.

Predictive and Waterfall Project Delivery

In predictive and waterfall environments, AI can support the full project lifecycle—from initiation and planning through risk management, execution, monitoring and control, and closeout. Its role may range from generating initial project artifacts and analyzing historical data to forecasting performance, identifying emerging issues, supporting corrective actions, and capturing lessons learned. The following sections highlight representative applications across these major stages of project delivery.

Project Initiation

Project initiation establishes why a project should exist, what it is expected to accomplish, who has an interest in it, and whether it deserves further investment.

AI can help project professionals analyze strategic objectives and proposed project ideas, identify stakeholders and their likely interests, summarize business needs and high-level requirements, develop preliminary business cases, compare project alternatives, identify assumptions and constraints, recognize early risks, and draft project charters and approval documents.

The value is not merely faster document preparation. AI can help teams examine more alternatives, expose gaps in the initial logic, and improve the quality of early discussions.

However, initiation involves judgment about strategy, value, feasibility, and organizational priorities. AI may support these decisions, but it should not determine them independently.

Project Planning and Design

Planning translates an approved idea into an executable approach.

Gen AI can support the development of scope statements, work breakdown structures, activity lists, milestone plans, cost estimates, resource plans, responsibility assignments, procurement strategies, communications plans, and stakeholder-engagement approaches.

Analytical and predictive AI can use historical data to improve estimates, identify unrealistic assumptions, compare alternative schedules, anticipate resource bottlenecks, and assess whether the proposed plan is consistent with similar work.

AI agents may retrieve relevant historical information, assemble draft planning artifacts, check consistency across them, and flag gaps for human review. For example, an agent could compare the scope statement, WBS, schedule, budget, and risk register and identify work packages that appear in one artifact but not the others.

AI can accelerate planning, but it does not replace the need for a valid technical approach, sound estimating, realistic sequencing, stakeholder involvement, or management judgment. A poorly conceived plan can still be produced quickly and presented attractively.

Project Risk Management

Risk management deserves separate attention because it is both a critical planning discipline and a continuing responsibility throughout the project lifecycle.

AI can support risk identification by examining project documents, historical records, assumptions, external information, and current conditions. It can help structure risk statements, categorize risks, identify causes and effects, and suggest response strategies.

Analytical and predictive AI can assist with probability and impact assessment, scenario analysis, sensitivity analysis, simulation, and the identification of emerging risk patterns. Generative AI can help draft response plans, contingency actions, escalation communications, and risk-review summaries.

AI agents can monitor risk indicators, gather updated information, remind owners of response actions, and flag conditions that exceed defined thresholds. Agentic AI may coordinate information across schedule, cost, procurement, technical, and stakeholder domains to evaluate the combined effect of a threat or opportunity.

The danger is false precision. A sophisticated model may produce an exact-looking probability without having reliable data or a defensible causal basis. AI-supported risk analysis must therefore remain transparent, reviewable, and grounded in professional judgment.

Project Execution, Monitoring, and Control

During execution, AI can help project teams turn large volumes of current information into timely insight and action.

It can support progress reporting, stakeholder communications, meeting preparation and follow-up, issue and action tracking, change-request analysis, schedule and cost monitoring, variance and trend analysis, resource coordination, quality reviews, contract administration, forecasting, and corrective-action planning.

Project controls fit naturally within this part of the lifecycle. AI can help identify schedule slippage, cost deterioration, unusual performance patterns, delayed decisions, and inconsistencies among project-control systems. It can also support methods such as Earned Value Management (EVM) and Earned Time Management (ETM) by assisting with data preparation, analysis, interpretation, and forecasting.

The more important contribution is not describing what has already happened. It is helping teams understand where the project may be headed and what can still be done.

When a project becomes seriously troubled, AI can also support recovery. It may help diagnose root causes, identify the activities and decisions driving the problem, compare corrective-action scenarios, and prepare a recovery plan. Recovery is not a separate project-management discipline; it is a focused application of analysis, planning, controls, leadership, and decision-making when performance has deteriorated materially.

Project Closeout and Organizational Learning

Project closeout is often treated as an administrative ending, but it is also an opportunity to capture knowledge and protect future value.

AI can help prepare completion reports, summarize performance, organize lessons learned, identify recurring causes of success or failure, support contract closeout, prepare handover materials, and create searchable knowledge for future projects.

Gen AI can convert large volumes of project records into concise summaries. Analytical AI can compare outcomes with the original business case and identify patterns across similar projects. AI agents may help assemble missing closeout information and route required actions to the appropriate owners.

The greatest long-term value may come from making project knowledge easier to retrieve and reuse. Lessons learned create little value when they are stored in static files that future teams cannot find or apply.

Agile and Hybrid Project Delivery

AI can also support agile and hybrid environments, although it should not undermine the collaboration, experimentation, and direct stakeholder engagement on which those approaches depend.

Gen AI can assist with user stories, acceptance criteria, backlog refinement, sprint planning, review preparation, retrospective summaries, and stakeholder communications. Analytical AI can examine velocity, cycle time, defect trends, work-in-progress, dependencies, and delivery patterns.

AI agents may update boards, identify blocked work, retrieve related requirements, summarize team activity, and help coordinate dependencies across teams. In hybrid environments, AI can help connect iterative delivery with milestones, budgets, contracts, governance reviews, and predictive reporting requirements.

The objective should not be to automate human interaction out of agile work. AI should reduce low-value administrative work and improve insight so that teams can devote more attention to collaboration, learning, customer needs, and adaptation.

Project Portfolio Management

Portfolio management concerns whether the organization is investing in the right work—not merely whether individual projects are being managed efficiently.

AI can help evaluate project proposals, apply scoring models, compare strategic alignment, assess risk and value, identify dependencies, analyze resource capacity, simulate portfolio alternatives, and support portfolio balancing and optimization.

Predictive AI can estimate likely portfolio outcomes under different assumptions. Gen AI can summarize trade-offs and prepare decision materials. AI agents can collect up-to-date project information and identify items requiring portfolio-level attention. Agentic AI may eventually coordinate scenario analysis across strategy, finance, resources, risk, and delivery systems.

AI can also support decisions to continue, redirect, pause, accelerate, or terminate projects as strategic priorities and operating conditions change.

Human leadership remains essential. Portfolio decisions reflect strategic priorities, risk appetite, stakeholder commitments, and values that cannot be reduced to an algorithm alone.

PMO and Enterprise Coordination

The PMO can serve as an important integration point for AI-enabled project management.

At a basic level, AI can help the PMO standardize templates, improve reporting, organize knowledge, support training, and analyze performance across projects. At a more advanced level, AI agents may monitor compliance with governance requirements, consolidate portfolio information, identify cross-project dependencies, and route issues to the appropriate decision-makers.

Agentic AI could support a future Agentic PMO by coordinating specialized agents across schedules, risks, costs, resources, contracts, and portfolios. The PMO's role would not disappear. It would shift toward designing the system, establishing decision rights, ensuring data and workflow quality, monitoring performance, and preserving human accountability.

Table 3 summarizes representative AI capabilities and potential value across project and portfolio management while emphasizing the human accountability that must accompany each application.

Table 3: AI Opportunities Across Project and Portfolio Management—Capability, Value, and Human Accountability*

Project or Management Area	Representative AI Capabilities	Potential Value	Essential Human Accountability
Project Initiation	Analyze business needs, identify stakeholders, compare alternatives, and draft business cases and charters	Better-informed project selection, clearer objectives, and faster initiation	Confirm strategic alignment, feasibility, assumptions, and authorization
Project Planning and Design	Develop WBSs, schedules, estimates, resource plans, responsibility assignments, and communication plans	Faster planning, improved consistency, and earlier identification of gaps and conflicts	Validate scope, logic, estimates, constraints, commitments, and plan realism

Project or Management Area	Representative AI Capabilities	Potential Value	Essential Human Accountability
Project Risk Management	Identify risks, assess probability and impact, simulate scenarios, recommend responses, and monitor indicators	Broader risk identification, earlier warning, and more proactive responses	Challenge assumptions, validate probabilities, select responses, and assign risk ownership
Execution, Monitoring, and Control	Analyze progress, variances, trends, changes, issues, EVM and ETM metrics, and forecast outcomes	Timelier insight, stronger project controls, and earlier corrective action	Verify status data, interpret causes, approve changes, and direct corrective actions
Project Closeout and Organizational Learning	Prepare closeout reports, summarize performance, organize lessons learned, and preserve project knowledge	More efficient closeout and greater reuse of experience across future projects	Confirm completion, validate lessons, approve handover, and ensure accountability for unresolved items
Agile and Hybrid Delivery	Refine backlogs and user stories, support sprint planning, analyze delivery metrics, and coordinate dependencies	Reduced administration, faster feedback, and improved adaptation	Preserve team collaboration, validate priorities, engage customers, and make product and delivery decisions
Project Portfolio Management	Score and prioritize proposals, analyze dependencies, optimize resource allocation, and model portfolio scenarios	Stronger strategic alignment, portfolio balance, and investment decisions	Establish decision criteria, evaluate trade-offs, and approve project selection, continuation, redirection, or termination
PMO and Enterprise Coordination	Consolidate project information, standardize reporting, monitor governance, identify cross-project issues, and coordinate specialized agents	Greater consistency, enterprise visibility, and coordinated decisions and actions	Define standards, decision rights, escalation paths, autonomy limits, and organization-wide governance

**Risk management, stakeholder engagement, communications, governance, and organizational learning span multiple lifecycle stages. The table places them where their contribution is most visible rather than implying that they occur only in one stage.*

Applications Across Industries and Physical Environments

The same underlying AI capabilities can be applied across construction, engineering, manufacturing, healthcare, pharmaceuticals, energy, transportation, financial services, government, information technology, and many other fields.

Sustainability is not a separate industry; it is a cross-cutting value objective. AI can help projects evaluate energy use, resource consumption, emissions, waste, lifecycle costs, environmental impacts, and trade-offs among economic, social, and environmental goals. The same caution applies: AI can support better analysis, but leaders must decide what outcomes matter and how competing forms of value should be balanced.

In physical project environments, drones, sensors, cameras, digital twins, robotics, and computer vision can connect field conditions with digital project information. These technologies may help verify progress, inspect quality, monitor safety, detect defects, compare actual conditions with plans, and provide more current data for project controls.

Across these applications, AI offers several opportunities for project and portfolio management. The broader impacts of AI integration include improved stakeholder engagement and more effective coordination across organizational boundaries. It also provides greater visibility into physical project environments, supports sustainability objectives through better lifecycle value analysis, and facilitates more coordinated decisions and actions across the enterprise.

The application will differ by industry, but the management questions remain similar: Is the data reliable? Is the workflow clear? Who validates the result? What action may the system take? Who remains accountable?

Figure 2 illustrates how data from physical work environments can flow through AI analysis and project controls into human decisions and field actions, creating a continuous feedback loop between real-world execution and digital project management.

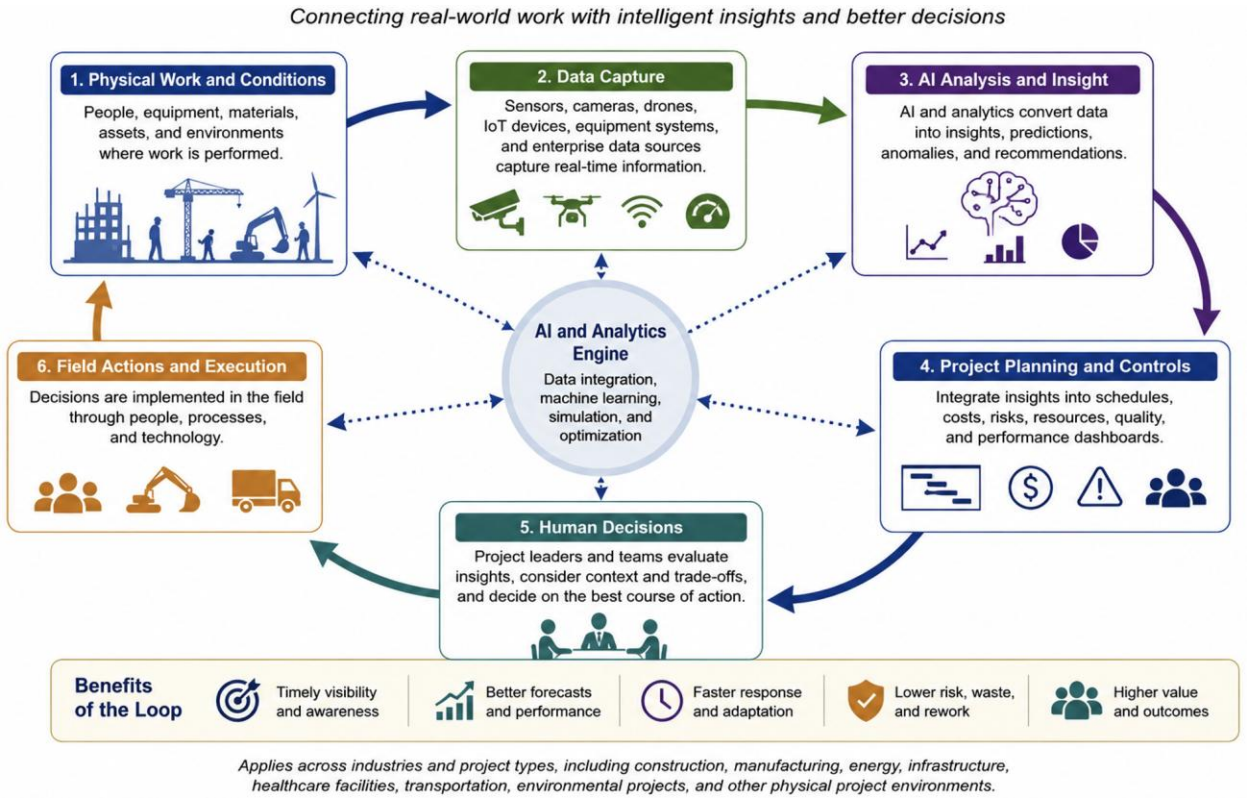

Figure 2: The Physica-to-Digital Project Delivery and Control Loop

From Isolated AI Tasks to Integrated Workflows

As Figure 3 illustrates, organizations typically progress from isolated AI tasks to repeatable AI-enabled workflows, integrated organizational applications, and eventually enterprise scale.

Many organizations begin their AI journey with isolated tasks. A project manager asks a Gen AI tool to draft a status report, summarize a meeting, or create a risk register. These uses can save time, but they are not yet integrated AI-enabled management.

Consider project status reporting. In an isolated application, the project manager may copy information into a prompt and ask AI to prepare a summary.

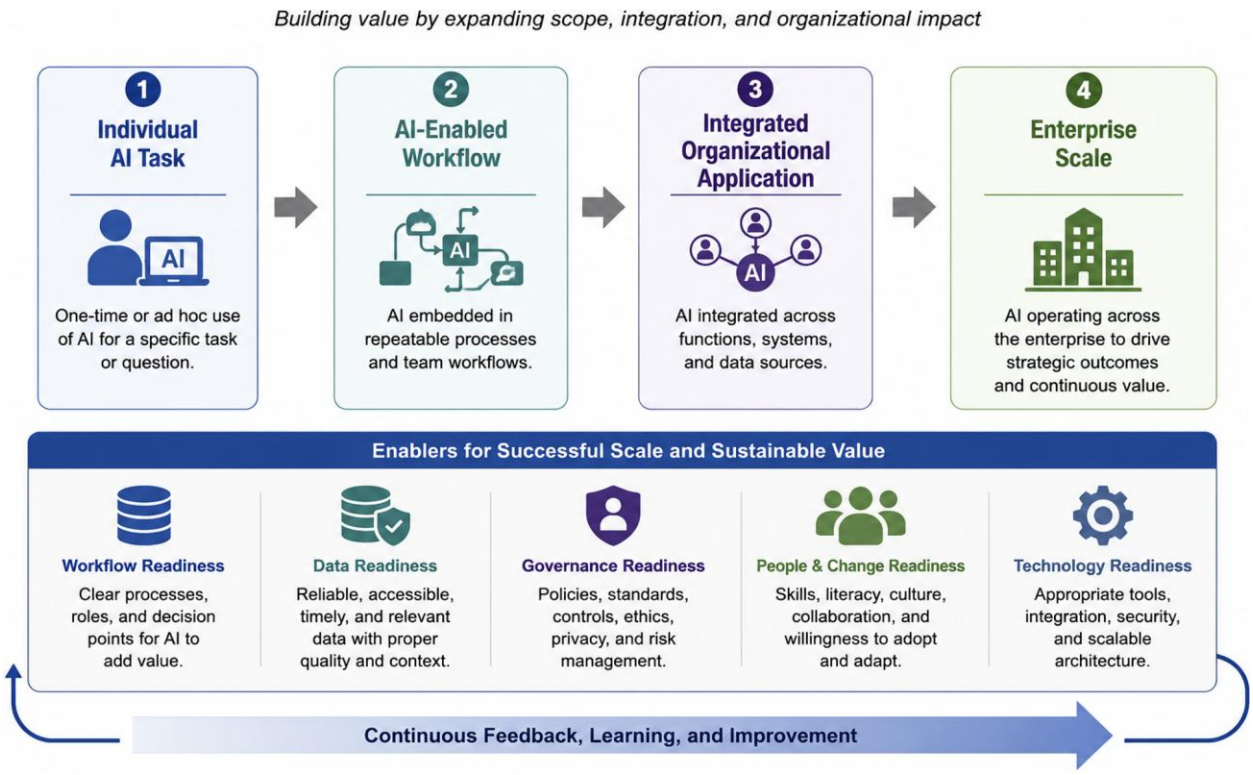

Figure 3: From Individual AI Task to Integrated Workflow and Enterprise Scale

In an integrated workflow, the system begins by retrieving approved schedule, cost, risk, issue, and change data, while simultaneously identifying any missing, outdated, or inconsistent information. Once the data is prepared, the AI analyzes trends, comparing current results against established baselines to pinpoint significant variances and emerging project concerns.

Following this analysis, the system drafts a status report tailored to the intended audience, explicitly highlighting assumptions and areas that require human judgment. The draft is then routed to the project manager for review, and after incorporating approved revisions, it is distributed through authorized channels, ensuring that all subsequent decisions and follow-up actions are captured for the next reporting cycle.

The difference is not simply that more tasks are automated. The AI is embedded in a defined process that connects data, analysis, judgment, decisions, communications, and feedback.

Analytical AI may support the analysis. Gene AI may prepare the narrative. Agents may retrieve information, perform checks, and route actions. Agentic AI may coordinate the full process across several systems and roles.

The workflow still requires human purpose, decision rights, validation, accountability, and control.

From Adoption to Integration and Scale

Demonstrating an isolated AI task is relatively easy. Embedding AI into an operational workflow and scaling it across an organization is much harder.

The history of project-management software provides a useful analogy. Purchasing Microsoft Project or Primavera P6 does not create a valid schedule. The organization still needs a sound work breakdown structure, logical activity sequencing, realistic estimates, disciplined updating, capable users, management attention, and meaningful use of the resulting information.

The tool is not the management system.

AI is no different. Acquiring an AI platform or giving employees access to a chatbot is only the beginning.

Adoption means that people are using the technology.

Integration means that AI is connected with real workflows, data, systems, roles, and decisions.

Scale means that the organization can repeat successful applications across projects and business units while maintaining quality, security, governance, and measurable value.

Four forms of readiness are especially important. These could be considered preconditions for AI to be well integrated into project management practice. Readiness dimensions are: Workflow, Data and Knowledge, Governance, and Organizational.

Workflow Readiness

Organizations should understand how the work is currently performed before introducing AI.

The workflow should identify activities, roles, handoffs, decision points, approvals, information requirements, exceptions, and escalation paths. It should also be examined for unnecessary steps, delays, duplication, ambiguity, and weak controls.

Automating a poorly designed workflow may simply produce the wrong result faster.

Workflow readiness also includes determining where AI adds value. Not every activity should be automated. Some decisions require negotiation, empathy, ethical judgment, leadership, or accountability that should remain human.

Data and Knowledge Readiness

AI depends on the information available to it.

Project data should be accurate, relevant, sufficiently complete, current, authorized for use, and accessible in an appropriate form. Organizations also need clarity about authoritative sources, ownership, security, definitions, lineage, and retention.

Knowledge readiness includes more than structured data. Policies, procedures, technical documents, business rules, lessons learned, and expert knowledge may all be needed to provide context.

Data does not always need to be real-time. It must be timely enough for the decision or action the AI is expected to support. A system cannot provide reliable current insight from stale or contradictory information.

Governance Readiness

Organizations must determine which AI use cases are permitted, what data may be used, which tools are authorized, how much autonomy is acceptable, and what controls are required.

Governance should define human decision rights, approval requirements, validation standards, documentation expectations, privacy and security protections, monitoring responsibilities, and escalation procedures.

The level of governance should be proportionate to the risk. A tool used to draft an internal meeting summary does not require the same controls as an agent that can modify a schedule, communicate with a supplier, recommend a staffing decision, or initiate a financial transaction.

Good governance should not merely restrict AI. It should create the conditions for responsible experimentation, trusted adoption, and safe scale.

Organizational Readiness

AI adoption changes how work is performed, making organizational readiness essential.

People need to understand what the system can and cannot do, how their roles may change, what new skills are required, and who remains accountable. Leaders must address concerns about job displacement, loss of professional identity, surveillance, and unfair evaluation.

Training should include more than tool operation. Project professionals need to learn how to frame problems, provide context, evaluate outputs, recognize weak evidence, detect hallucinations, protect sensitive information, and challenge AI recommendations.

Organizations must also establish incentives, support mechanisms, communities of practice, feedback channels, and leadership behaviors that encourage responsible use.

Without organizational readiness, even a technically sound AI application may remain an isolated experiment.

The Limits and Risks of AI

AI is powerful, but it is not infallible, objective, or self-governing. Understanding its limits is essential for responsible use.

- **Data and Workflow:** AI performance suffers from poor-quality or stale data, fragmented or undocumented workflows, and a lack of organizational context.
- **Model Accuracy and Reliability:** Generative and predictive models are prone to hallucinations, false confidence, bias, false precision, and misinterpreting correlation as causation.
- **Governance and Security:** Risks include data privacy breaches, cybersecurity vulnerabilities (including tool misuse), limited explainability, and potential cascading errors in complex agentic systems.
- **Human and Organizational Impact:** Excessive reliance on AI can lead to automation bias, the erosion of essential professional skills, and a potential reduction in human oversight and leadership.

- **Operational and External Factors:** Organizations must also account for vendor volatility, the specific limitations of physical or robotic systems, and the economic and environmental costs of maintaining AI infrastructure.

Managing AI Risk Without Suppressing Value

The answer to these risks is not to avoid AI altogether.

Excessive restriction may drive AI use underground, prevent learning, and cause the organization to miss meaningful opportunities. Uncontrolled experimentation, however, may expose the organization to unacceptable risk.

A balanced approach begins with clearly defined use cases. Organizations should identify the problem, intended value, users, data, workflow, decision rights, risks, and success criteria before selecting the technology.

They should begin with bounded applications, test them under realistic conditions, involve the people affected by the workflow, and require stronger controls as the potential consequences increase.

Human review should be risk-based rather than ceremonial. The reviewer must have sufficient expertise, authority, information, and time to challenge the result.

Organizations should also monitor performance after deployment. A system that worked well during a pilot may deteriorate as data, conditions, users, models, or workflows change.

The objective is not maximum automation. It is the appropriate combination of AI capability and human responsibility.

AI Augments the Project Professional

The strongest future for AI in project management is not one in which people are removed from the process. It is one in which people and AI contribute different strengths.

The project professional may serve in four related roles.

User: The professional applies AI to improve productivity, analysis, communication, and decision support.

Collaborator: The professional works iteratively with AI—providing context, challenging assumptions, comparing alternatives, and refining outputs.

Reviewer: The professional evaluates accuracy, relevance, practicality, risk, bias, and alignment with project and organizational objectives.

Governor: The professional helps determine how AI should be used, what authority it should have, which decisions remain human, and who is accountable for the results.

These roles require more—not less—professional judgment.

AI may change the tasks project professionals perform, but it increases the importance of critical thinking, domain expertise, systems thinking, ethical awareness, communication, and leadership.

The AI landscape is advancing from analytical and predictive systems to Gen AI, AI agents, and agentic AI. With each step, AI becomes capable of performing more complex work, using more tools and information, coordinating more activities, and exercising greater discretion.

The opportunity extends across project initiation, planning, risk management, execution, monitoring and control, closeout, agile and hybrid delivery, portfolio management, and PMO coordination. Yet increasing technological capability does not automatically produce increasing value.

Organizations must also strengthen the environment in which AI operates. They need clearly defined and streamlined workflows, reliable and timely data, relevant organizational and domain knowledge, appropriate tools and integration, effective governance, and people who are prepared to use and oversee AI responsibly.

The same principle applies to the maturity of the underlying project-management system. AI cannot compensate for unclear objectives, unrealistic plans, weak schedule logic, unreliable estimates, poorly maintained project controls, fragmented decision-making, or ineffective leadership. In some cases, it may simply accelerate or amplify those weaknesses.

Human factors are equally important. Project professionals must know how to frame problems, provide context, collaborate with AI, evaluate its outputs critically, refine the results, and determine when human judgment should override an AI recommendation. These ideas are reflected in the Gen AI Engagement—or GAE—principles and the PRIME process introduced in *The Project Management AI Handbook: Leveraging Generative Tools in Waterfall and Agile Environments*.

As organizations move from Gen AI to AI agents and agentic AI, these considerations become even more important. AI systems may increasingly retrieve information, use tools, participate in workflows, coordinate with other agents, and initiate permitted actions. Greater autonomy therefore requires stronger inputs, clearer boundaries, more deliberate human controls, and governance that spans the entire AI-enabled system.

The next article introduces the **AI Barbell Model**, a practical framework for achieving this balance. Its central premise is simple: AI does not create value by itself. Value depends on what humans put into it—and the controls they maintain around it.

The challenge is therefore not merely to make AI more capable. It is to ensure that what AI does creates trusted, responsible, and sustainable value for projects, organizations, and their stakeholders.

Conclusion—A New Era Begins

Artificial intelligence is transforming project management in profound and lasting ways. What began as analytical support tools has evolved into intelligent systems that help us identify risks earlier, create project artifacts, predict outcomes, and address uncertainty more quickly and effectively. However, the true value of AI in project management isn't about automation for its own sake—it's about enhancing human capabilities.

Project managers who see AI as a collaborative partner will spot issues sooner, make decisions more quickly, communicate more effectively, manage risks proactively, and lead with greater confidence. The core of our profession remains unchanged: projects are still carried out by people, driven by purpose, judgment, ethics, and leadership. AI enhances these qualities — it doesn't replace them.

As projects become more complex and data-driven, the fundamental challenge remains the same: turning complexity into clarity and activity into value. AI does not diminish the project management profession; used intelligently and responsibly, it can elevate it. Those who learn to work effectively with AI will help lead the next stage of our field—and create greater value in the process.

Authors' Note

Portions of this article are adapted from our recent book, *The Project Management AI Handbook: Leveraging Generative Tools in Waterfall and Agile Environments*. We also extensively used ChatGPT as a writing and editing tool in preparing this manuscript. However, the ideas, interpretations, analyses, recommendations, and conclusions presented here are solely our own.

About the Authors

Prasad S. Kodukula

Illinois, USA

Dr. Prasad S. Kodukula, PMP, PgMP, PMI-ACP, DASM, DASSM, BCES, is a USA Today and Amazon #1 best-selling author, PMI Fellow, thought leader, and entrepreneur with over 35 years of professional experience. A global ambassador for project management, Dr. Kodukula has lectured in nearly 50 countries and worked with more than 40 Fortune 100 companies (e.g., Allstate, Abbott Labs, BP, Caterpillar, Dow, Chrysler, IBM, JP Morgan Chase, Motorola, Stryker, United Technologies, Whirlpool) across all 11 S&P industrial sectors. He serves as an Adjunct Industry Professor at Illinois Tech. He teaches how to recover troubled projects at NASA. He has delivered project management training in professional education programs at Stanford University, Duke University, and the University of Chicago. As co-founder and CEO of Kodukula & Associates, Inc. and NeoChloris, Inc., he leads the firms in project management and renewable energy, respectively.

His work with AI began in 1988, when he created award-winning expert systems in environmental engineering. In the late 1990s, he co-invented an AI-powered smart monitoring and control system for water and wastewater treatment plants, combining early neural network, sensor, and automation technologies. This invention received a U.S. patent in 2005 and was later licensed to top control and automation firms.

Recognized three times by the Project Management Institute as “Best of the Best in Project Management,” he has received multiple accolades, including the Illinois Tech Alumni Association Professional Achievement Award and honors from the U.S. Environmental Protection Agency and the states of Arizona, Kansas, and Illinois for his outstanding leadership in education and training, environmental improvement, and innovation. Most recently, he was recognized by Project Controls Academy with a Project Controls Excellence Award. An accomplished author, Dr. Kodukula has co-

authored or contributed to 12 books and over 40 articles and holds four U.S. patents. He can be contacted at: https://www.linkedin.com/in/prasadkodukula/.

Guz Vinueza

Ecuador

Guz Vinueza, M.S., MBA, is a top expert in data analytics, machine learning, and quantitative risk management, with over 25 years of experience helping organizations utilize advanced technologies to create business value and manage uncertainty. He currently works as Consulting Director at The Ferryfield Group, a boutique consulting firm focused on quantitative risk software, where he manages global projects across various industries and regions. Previously, he was Data Director at Betterfly, Latin America's first social-impact unicorn, overseeing enterprise data architecture, analytics, and machine learning initiatives to expand the company's digital ecosystem. Earlier in his career, as Director of Consulting and Analytics Solutions at Palisade, he transformed the consulting division into an agile software and analytics team, tripling revenue and delivering solutions across Latin America, the U.S., and the Middle East.

An accomplished consultant, educator, and keynote speaker, Guz has trained thousands of professionals from leading organizations such as the U.S. Army Corps of Engineers, Ontario Power Generation, Amway, DEWA, Mitsubishi Pharmaceuticals, and Network Rail. He has also served as an Adjunct Professor in Analytics and Business Intelligence at institutions in Argentina, Ecuador, and Spain, teaching advanced analytics, agile methodologies, and project management. Guz holds an MBA from Universidad Torcuato Di Tella, an M.S. in Financial Direction from Universidad Adolfo Ibáñez, and a Postgraduate Certificate in AI and Machine Learning from the University of Texas at Austin. His work continues to shape the integration of AI, quantitative risk, and data-driven decision-making across global enterprises. He can be contacted at: https://www.linkedin.com/in/gustavovinueza/