

EBOOK

How AI assistants will help PPM “Grandmasters” execute strategy

By Matt Light, Executive Advisor,
Strategy & Corporate Development

Planisware

Data-driven Artificial Intelligence (AI) enables portfolio optimization with better project and program prioritization, budgeting, and strategic planning.

AI Assistants are already providing valuable tools to Strategic PPM professionals as together they build and dynamically adapt plans and schedules to manage risks and changes.



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What Chess Can Teach Us About AI in Post-Modern Business Processes

Years ago, I studied chess applications' attempts at AI for a piece on popular chess software packages like Grandmaster 2000. Today, it turns out that the interplay of chess and AI still offers useful insights – as described in a 2022 Forbes Technology Council article.[1] The FTC piece recounts how, in chess – long the test-bed of choice for Artificial Intelligence – a blend of a human master's insight with even modest compute power is best.

It is well known that world chess champion Garry Kasparov defeated IBM's Deep Blue chess-playing supercomputer in a six-game match in 1996, only to lose to an improved version the following year. Less well-known is the finding almost 15 years later that even the strongest specialized chess computers consistently lose to the combination of a strong human player assisted by even a modest laptop computer to help calculate specific positions.

In a review of *Chess Metaphors: Artificial Intelligence and the Human Mind* (by D. Raskin-Gutman), Kasparov observed that, in matches permitting human-computer collaboration,

> ***"The teams of human plus machine dominated even the strongest computers, [which are] no match for a strong human player using a relatively weak laptop. Human strategic guidance combined with the tactical acuity of a computer was overwhelming."***[2]

A *Harvard Business Review* article, reflecting on this, focused on implications for business-process design. Its finding, that "humans have not been relegated to the sidelines of high-level chess" shows that blending human creativity with machine calculations, in a strong process, will continue to be most effective.[3] The author noted that "the best such combinations can be difficult to predict, even for experts."



IBM Deep Blue against Garry Kasparov rematch, 1997

1. "Why Computer-Assisted Humans Are The Best Chess Players And What That Means For Technology Operations," Tina Huang, Forbes Technology Council, January 7, 2022.
2. Chess Metaphors: Artificial Intelligence and the Human Mind, Diego Raskin-Gutman, The MIT Press, 2009. Translated from the Spanish by Deborah Klosky
3. "Did Garry Kasparov Stumble into a New Business Process Model?" Andrew McAfee, Harvard Business Review, February 18, 2010.

As Gary Kasparov put it, when playing with the assistance of computers, people can "concentrate on strategic planning instead of spending so much time on calculations. Human creativity was even more paramount under these conditions."

The specific type of human creativity that led to victory was something much closer to business-process design brilliance than chess genius. The overall winner was a team that contained neither the best human players nor the biggest and fastest computers. Instead, it consisted of "a pair of amateur American chess players using three computers at the same time.

Their skill at manipulating and 'coaching' their computers to look very deeply into positions effectively counteracted the superior chess understanding of their grandmaster opponents and the greater computational power of other participants."

As Kasparov put it, when playing with the assistance of computers, people can "concentrate on strategic planning instead of spending so much time on calculations. Human creativity was even more paramount under these conditions."

The HBR article author (Andrew McAfee, a principal research scientist at MIT) admits to his surprise at human-coaching-machine superiority, "despite my deep conviction that a well-designed process is a potent weapon. I didn't think that smart process design — in this case, a process for determining the 'best' chess move — could overcome both cognitive and computational deficits. But it did... As Kasparov writes of this amazing result:

> ***"Weak human + machine + better process was superior to a strong computer alone and, more remarkably, superior to a strong human + machine + inferior process."***(4)

> ***"With AlphaZero and future machines, I describe the human role as being shepherds. You just have to nudge the flock of intelligent algorithms. Just basically push them in one direction or another, and they will do the rest of the job. You put the right machine in the right space to do the right task."***
>
> **Gary Kasparov, 2020, Wired**

Now, as promised, let's examine how AI-enabled applications like Planisware Enterprise 7 can assist human PPM "grandmasters" with **Better, Faster Decisions**, **Cutting through Complexity**, **Risk Identification & Mitigation**, and **Collaboration & Communication**.

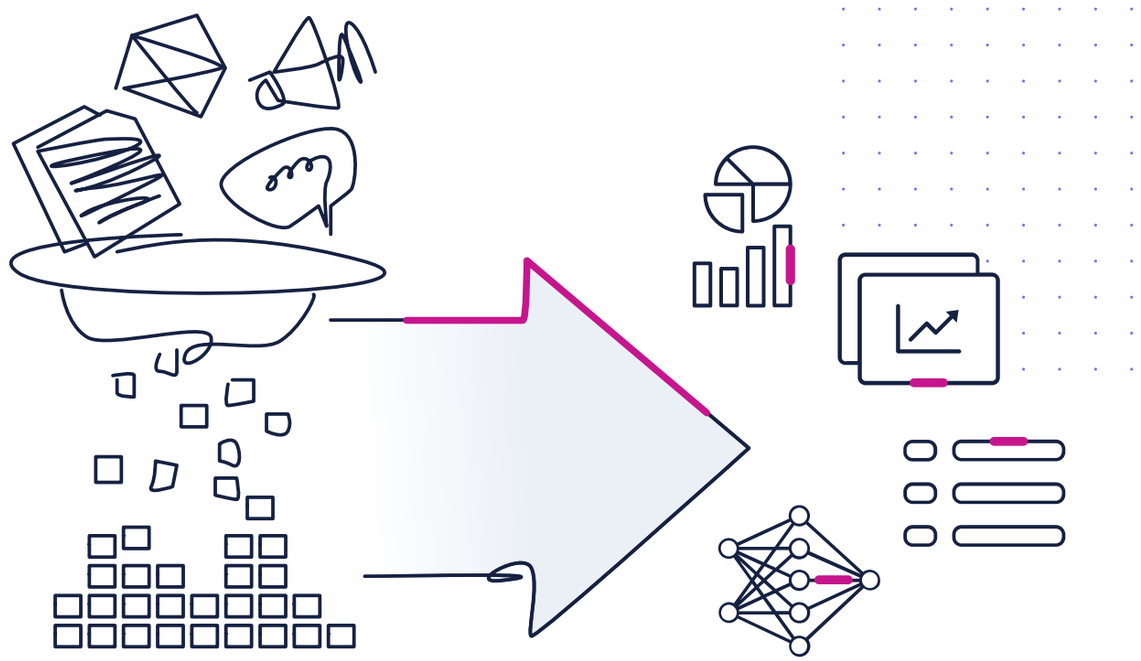
4. "The Chess Master and the Computer," Garry Kasparov reviewing Chess Metaphors: Artificial Intelligence and the Human Mind. New York Review of Books, February 11, 2010.

Better, Faster Decisions

What-If Scenarios

Increasingly, users can perform advanced what-if analysis by modeling different portfolio and project scenarios with AI algorithms, and simulating the effects of different variables.

AI-Enabled What-if Analysis and Simulations. AI can provide optimization techniques for forward-looking portfolio simulation optimization to analyze different strategies for optimal results. Supporting this, Planisware Enterprise 7's AI capabilities complement its native business intelligence (BI) features in its BI Box module. Together, these let users analyze very large sets of data, including data from integrations it supports for clients with other enterprise applications (e.g., ERP systems, CRMs, Document Management, and more), for data-rich simulations and predictive scenario modeling.



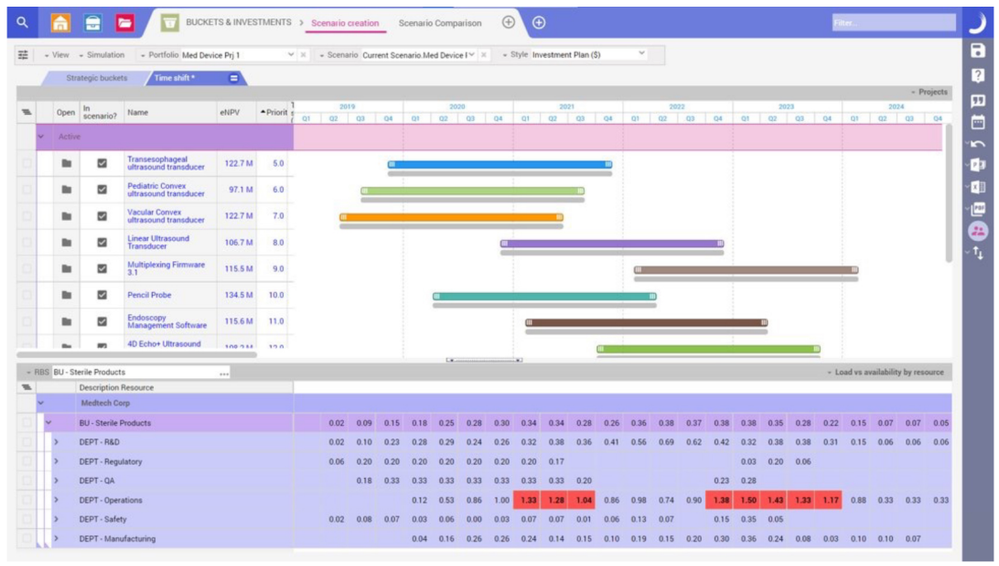
WIth AI-powered predictive analytics, transform data into actionable insights.

Prioritization

A central goal of PPM is development of, and sustained focus on, a portfolio balancing priorities so as to best realize enterprise strategy.

Strategic Balance & Cost/Benefit/Risk Analysis. AI models and algorithms can today assist PPM professionals in building more accurate and complete business cases, and optimizing portfolio prioritization.

With actual cost data from a company's PPM system or from third parties, investment and return predictions become more accurate and can better factor in the probability of being achieved, particularly with Machine Learning over time. AI monitoring of value in multiple portfolio dimensions will help managers maintain target levels.

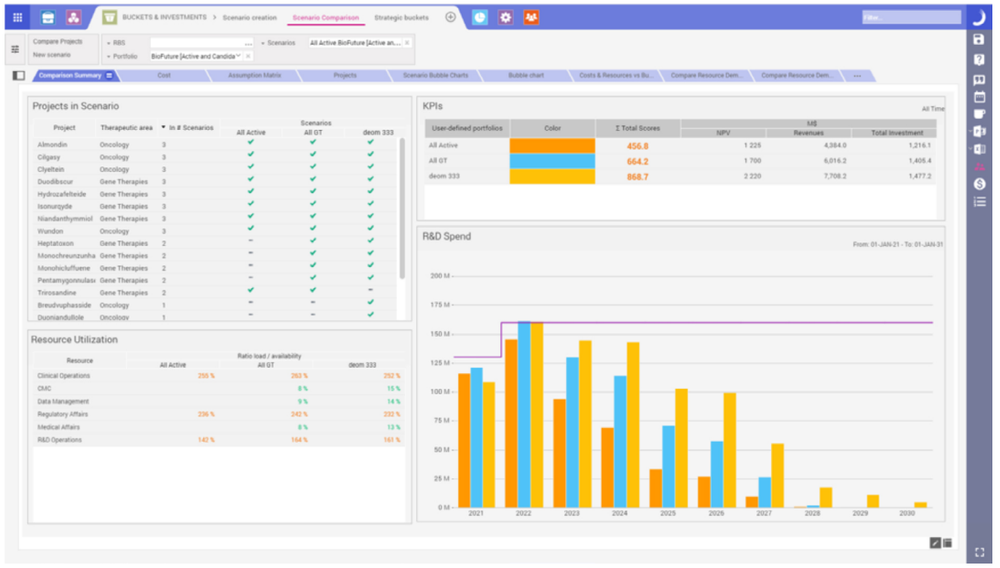


Balance your resources, costs and benefits using our portfolio simulation module.

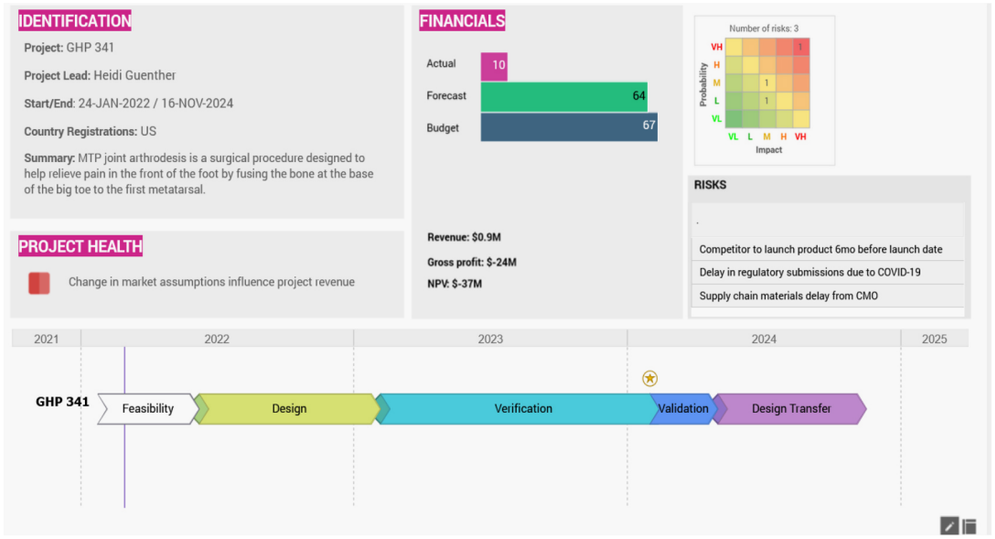
Portfolio Prioritization

Algorithms help portfolio managers prioritize the right mix of product, program, and project investments.

PPM AIAs Score and Rank Proposals. AI-powered PPM lets users define criteria and results to optimize portfolio decisions. Algorithms can account for financial and other constraints, such as resource availability, risks exposure, and weigh historical project actuals, defined success factors, market trends, and more to support recommendations.



Score, rank and prioritize your proposals with our powerful scenario builder.



Summarize all aspects of your proposals in one configurable dashboard to assess them faster.

Cutting Through Complexity



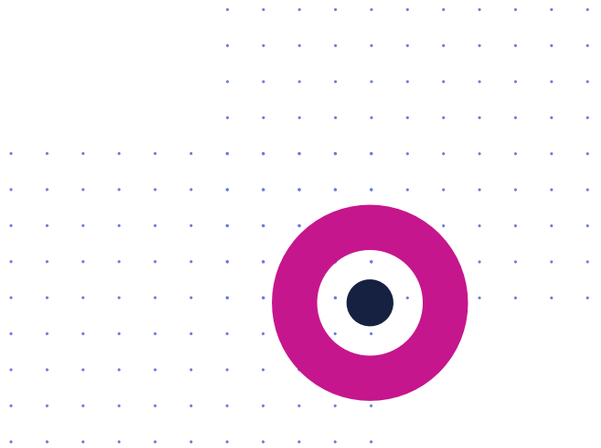
Rapid Adaptation

Carefully developed PPM strategies, plans, requirements, schedules, resourcing allocations and more are generally intertwined. They require much effort to create, generally rendering them inert due to the complex effort necessary to recreate them and all their interconnections.

Reworking Plans, Simplified. With an AI Assistant, however, this effort is minimized. For example, as an AIA's algorithms become more adept at spotting risks using Machine Learning, it can issue alerts further in advance. Not only will this allow more time to make adjustments but, working with the AIA to cut through the complexities of re-planning, a PPM professional can readily adapt the plan to address shifts in constraints, demand, priorities and other factors.

Using AI, the impact of changing resource allocations on other projects can readily be analyzed, and adjustments made; and, as the PPM professional reviews and revises the AIA's suggestions, to address cultural, market, organizational, political, and other factors, Machine Learning will enable the AIA to improve its future suggestions.

Continuously learning AI will facilitate rapid redevelopment of assumptions with a resultant impact on dynamic planning.

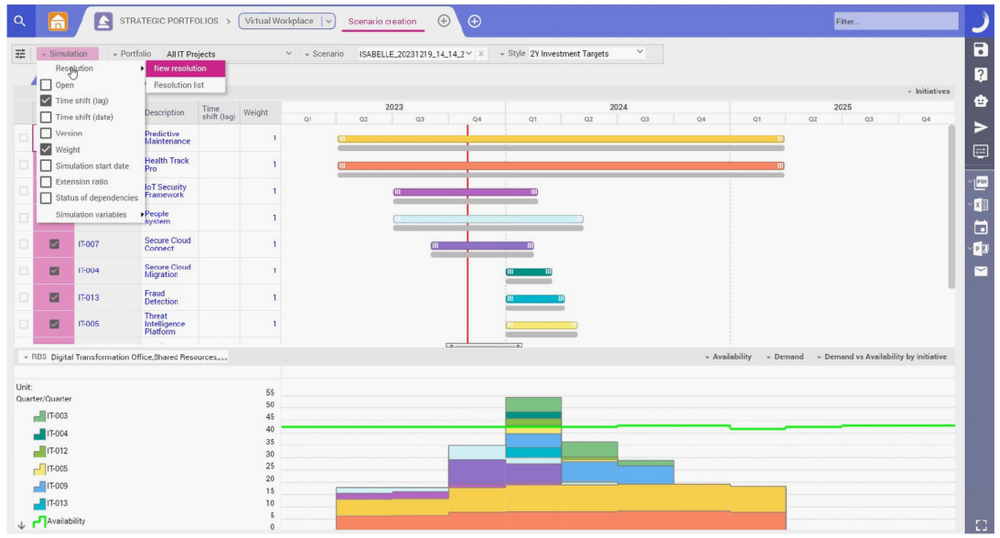


Resource Management

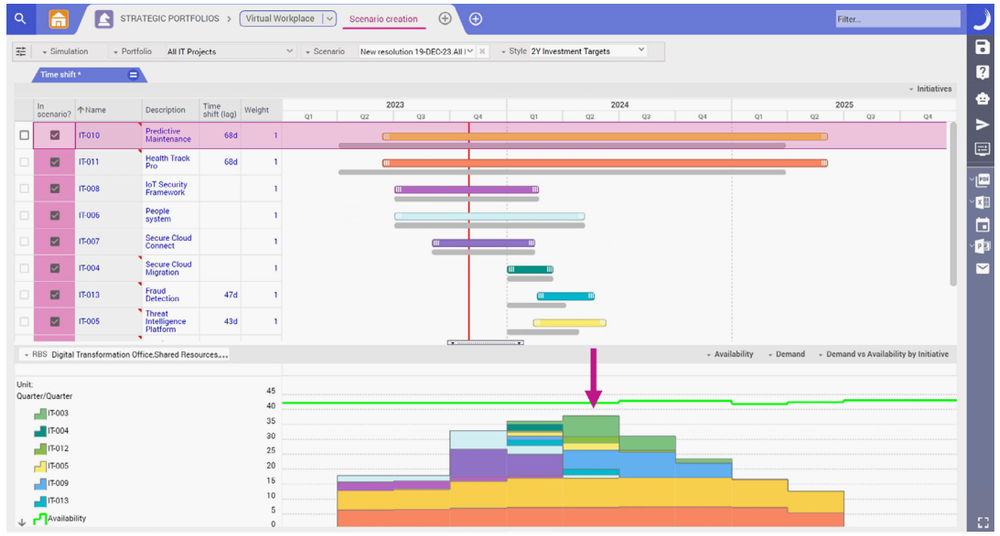
A key discipline of PPM is resource management – the ability to forecast resource availability, based on progress against current project and other work, and allocate the right roles and skills to upcoming projects.

Resource Allocation with AI Assistance. AI predictive analytics and algorithms can forecast demand with some accuracy based on an organization's particular history adjusted for factors like major new projects (or cancellations) and more. AI analytics can assist with predicting resource over- and under-utilization. Algorithms accounting for skills and experience, utilization and more help match resources to projects.

For example, Planisware can provide AI assistance in analyzing patterns of demand and identify "cadences" of both project and non-project work, to predict future loads and allocate resources based on their skill profiles and probable availability.



Optimize your project selection and timing in one click using our AI portfolio optimizer.



In one click, the swarm intelligence algorithm smooths the resource load.



Scheduling and Estimation

AI can generate Work Breakdown Structures (WBSes) for project managers to refine, and can help with routine task scheduling.

Machine Learning Improves Project & Task Planning. Strategic PPM systems like Planisware's use models and Machine Learning to perform Predictive Analytics.

With extensive and high-quality historical data, PPM professionals can predict task and project duration to create more accurate plans and schedules. Algorithms can help schedule tasks based on constraints, availability, dependencies and more.

Learning models can spot trends in project and resource performance.

Risk Identification & Mitigation



Patterns of Risk

AI analysis of volumes of such project data can reveal qualitative types and sources of risk.

Natural Language to Reveal Risk. Natural language systems use AI to gain knowledge by scrutinizing written communications, project documents and other unstructured data, including transcripts and via speech recognition.

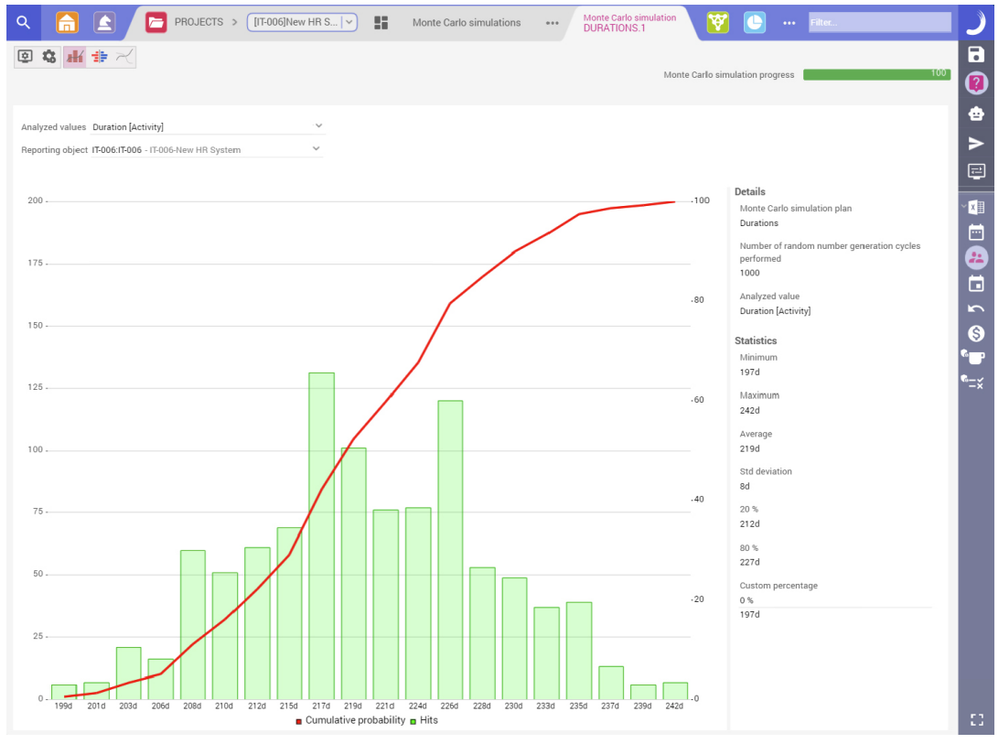
Language processing can track emotional trends, project-team morale, stakeholder attitudes and customer views, and monitor trends. This enables portfolio and project managers to address problems and issues, and prevent or resolve conflicts.

These capabilities are not limited to flagging risks, but can be extremely useful in doing so.

Monte Carlo Simulation

Calculations of the risk of portfolio and project investments can be leveraged further in AI simulations.

Quantitative Risk Analysis. Advanced PPM solutions use quantitative Monte Carlo analysis to generate N number (hundreds, thousands) of alternative scenarios using probabilistic analysis, based on historical data subject to random variables, re-run in various combinations N number of times.



Analyze risks systematically in all projects with our Monte Carlo module.

Collaboration & Communication

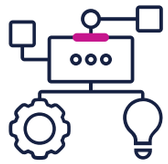


Conversing with AI PPM Assistants

Portfolio and project managers and team members can work more closely with AIAs via normal, natural, conversation.

PPM Systems with Natural Language. AI Platforms (such as "Jeopardy! Champion" IBM Watson) utilize Natural Language Processing (NLP) to analyze text and speech, recognize meaning, and generate human language.

With this, PPM professionals can readily ask for and receive information, updates, and even recommendations and warnings from assistants, including AI-powered text chatbots like Planisware's.



Knowledge Management for Project Knowledge Capture, Organization, and Sharing

KM with AI could transform the way enterprises learn and gain insight.

Gaining New Knowledge. AI-powered KM systems can automatically capture, extract, and categorize project data, from documents and emails to Web links, graphics, meeting notes, invoices, and more. Using them lets PPM professionals combine unstructured data and gain new knowledge. Contextual search can consider the semantic intent of queries.

The systems promote teamwork and collaborative intelligence within project teams and eases project teams' access to and use of project data.

Global project teams' ability to collaborate is further enhanced by AI systems' ability to translate multilingual conversations.

Some Planisware Case Studies:
PPM Scenarios Using AI

Planisware Enterprise 7 users have already begun making productive use of the application in AI scenarios, to facilitate project creation, user adoption, and to improve data quality and automate project and program forecasting. Some usage scenarios are described briefly in the following pages -- and more fully in short online demos:

Unleashing the Power of AI in PPM

Accelerate Project Creation

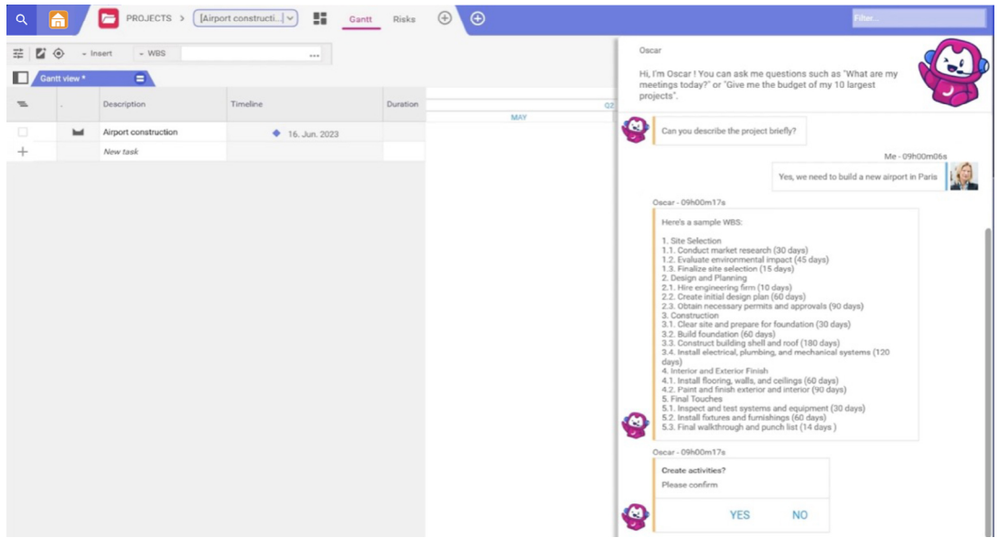
Generative Artificial Intelligence can be used to accelerate the project management process. AI can assist in creating the WBS and schedule of the project, as well as generate a first list of risks to work with. Embedded ChatGPT utilizes user input to create tasks, durations, links, and other data elements based on accessing data from data models.

Additionally, even at the task level utilizing the ChatGPT, can ask to create a list of expected risks based on historical results.

Ease User Adoption

Chatbots speed up user adoption by automating data retrieval and manual entry. Planisware's AI-powered chatbot, Oscar enables automated information retrieval in seconds through the mobile app. Curious about the status of an activity or a project? Ask Oscar if you need to make a quick update on this status.

Oscar streamlines the data entry process and improves speed and accuracy through augmented data entry. It auto-corrects mistakes, reducing errors.



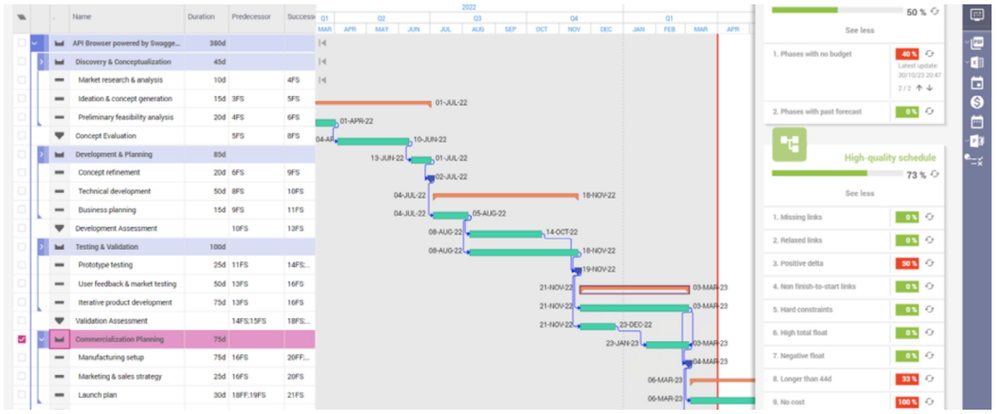
Speed up user adoption by automating data retrieval and manual entry with our AI chatbot, Oscar.

Improve Data Quality

Data quality is critical because it directly impacts the accuracy of AI models. Poor data quality, such as missing or inconsistent values, can lead to incorrect or biased results.

With Planisware Enterprise, you get access to anomaly-detection features that automatically flag potential data issues. Fixing these will improve your data quality over time.

Project Managers can also use AI in Planisware Enterprise to find similar completed projects. This information can provide valuable insights into potential risks and help estimate task durations.



Automatically find and fix issues with the data quality audit feature.

Automate Forecasting

AI can improve the accuracy and speed of project forecasting. By analyzing data from previous projects, machine learning algorithms can predict project outcomes, such as completion times and costs, and help organizations to plan more effectively.

With predictive analytics in Planisware Enterprise, you can train a model on any data in the solution and use it to estimate any output. Users can:

- Estimate task durations during the planning phase
- Predict billable resource utilization and workloads
- Accurately forecast project budgets

Summary: Some Areas Where AI Can Improve Strategic PPM Performance:

Better, Faster Decisions. Increasingly, data gathered in the handling of portfolio goals and project tasks alike will enable PPM AI Assistants (AIAs) to spot trends and boost efficiency.

Cutting Through Complexity. With AI analytics, portfolio and project managers will be better able to spot risks, analyze interdependencies, and allocate resources in multifaceted portfolios and the most complicated projects.

Carefully developed PPM strategies, plans, requirements, schedules etc. require much effort to change — generally rendering them inert. Continuously learning AI will facilitate rapid redevelopment of assumptions with a resultant impact on dynamic planning.

Half measures will not achieve these functional advances. AI initiatives will face many challenges. Only those companies that invest significant time and effort in their AI programs will be the ones that seize competitive advantage.

Risk Identification and Mitigation. Because projects feature new deliverables and are not repetitive processes, risk management has often relied on the experience-based intuition of Strategic PPM professionals. Using Machine Learning to spot patterns from past-project problems will prove a powerful tool to make risk management more a science and less an art.

Collaboration and Communication. Speaking with PPM AIs is becoming more normal and natural, enabling Strategic PPM experts and team members to work more closely with them. AI-based knowledge management could transform the way enterprises learn and gain insight.



Planisware

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Executive Advisor, Strategy & Corporate Development

Matt Light advises Planisware on Strategy and Corporate Development. Previously, he worked for over 25 years at Gartner Group (later just “Gartner”). As a Vice President & Research Director, he launched Gartner’s Program Portfolio Management (PPM) practice; authored the annual PPM Magic Quadrant and a stream of PMO research; launched and chaired the internal, interdisciplinary PPM Research Community; and launched and chaired its annual PPM Summit conferences.

Matt is an amateur musician and novelist, hitch-hiked some 20,000 miles as a younger man, and has been to all 50 states and most European countries (“Join Gartner and see the world!”). He lives in Connecticut with his wife, two nearby sons, and their dogs, Annabel and Elwood.

Planisware

About
Planisware

Planisware is a global provider of software solutions for Project Portfolio Management. Planisware solutions are specifically designed to support product development, engineering, and IT business processes.

For more than 20 years, Planisware has been helping its customers achieve strategic and innovative excellence, make valid business decisions and increase portfolio value. Today, over 500 companies worldwide rely on Planisware products to manage their projects, resources, and portfolios.

Make
Vision
Reality

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Your vision brought to life in the cloud. Software solutions to set projects, products and programs in motion. **www.planisware.com**

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