APPLICATIONS OF ARTIFICIAL INTELLIGENCE IN PROJECT MANAGEMENT

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AI in Project Management Overview

- Generative AI and Project Management
- Applications of AI in Project Management
  - Planning and Scheduling
  - Reporting
  - Risk Management
  - Cost Estimation
  - Prioritization
  - Advanced Testing
- Future of PMO
- Managing AI Projects
- Future Predictions

Generative AI and Project Management

- Generative AI will not replace project managers, but PMs who know how to use it will replace those who don't.

Why AI matters in project management?

- Projects are getting increasingly complex, with deadlines getting shorter and expectations skyrocketing → The conventional project management methods are not as effective as before.

- AI brings speed, efficiency, and data-driven decision making to the table, making it a game changer in project management.

- Examples on how AI can alter the game:
    - Efficiency and speed: AI increases productivity by automating routine jobs. AI is much faster and more accurate in producing reports, scheduling meetings, and sending follow-up emails.

    - Risk management: ML algorithms can identify patterns and make predictions. GenAI can help quickly list potential risks for the context you are working in. It can also analyze historical project data and predict the chances of delays or costs due to certain factors.

    - Decision making: AI tools can provide insights by analyzing ultra large amounts of data.

Redefining PM with AI

- The start of an exciting transformation in project management
- Redefining PM role in four dimensions
- Adaptability
  – Make change part of your skills.
- Soft skills
  – Our ability to negotiate, solve complex problems, and manage different stakeholders is extremely valuable and we must invest time for it. At least at the present moment, technology cannot address these kind of challenges.
- AI tools
  – AI is our powerful ally, not our replacement. We must spend time learning new applications and tools that will offer unprecedented insights like some generative AI tools, better known as GPTs, being used to create new predictive models for project risks, potential stakeholder lists, and even the scope of work of your project.
- Learning to unlearn
  – When we learn something, it's incredibly hard to unlearn it. To unlearn, we need to recognize the need for change, accept that what we know must be revisited, challenge our beliefs every single day, and be persistent in breaking what is already consolidated in our minds.
  – The sense of project management today lies in transforming ideas into reality in a complex and volatile environment. Eg: while AI can generate status update, it cannot empathize with team members or navigate complex negotiation and stakeholder relationship.

Applications of AI in Project Management

- Project planning and scheduling with generative AI

- Using automated reporting to improve communications

- Using generative AI to identify, evaluate, and respond to project risks

- Better selection and prioritization

- Advanced testing systems and software

Project Planning and Scheduling with GenAI

- Automatically add project tasks to your team's calendar
- Reprioritizing tasks based on their criticality to the project
- Do a brainstorming session using AI to create the scope of your project

- You can use a tool like ChatGPT in natural language to craft the scope of your new project. You just ask as you ask any human and you can do this in practically any language. Examples:
  - Type, «Suggest the first level of a work breakdown structure of a new house I want to build for my family. Please split the work by types of work required in the house.»
  - Type, «I created the first level of the WBS of my new home: foundation, walls, ceiling, plumbing, electrical works, carpentry, painting, and finishing. Am I missing something?»

CSIF

- The prompt of what you type in your chat drives the quality of the results.

- Context of what you need to work.
- Specific: provide detailed information about what you need.
- Intent: What do you want the AI to do?
- Format: how you want the results to be.

  - E.g. a poorly written prompt on ChatGPT could be: «Prepare the scope of my new house project.»

  - E.g. an excellent prompt would be: «I'm building a new house to live in with my family in Bangalore, India. Detail the project by the different types of work. And please produce a work breakdown structure with three levels of depth and one item per line in the format I can copy and paste into Microsoft Project.»

Automated Reporting

- Will we need reports? Why?
  - GenAI can disrupt how we believe reports should be.

- Automate reporting
  - You will never need to prepare meeting minutes and summaries. There are dozens of tools that would extract the text from the meeting audio or video, transcribe it in several languages, and summarize it automatically.

- Stakeholder management
  - GenAI can identify the stakeholders for you. It can also analyze, prioritize, and rank their relevance and interest while suggesting a communication strategy to each stakeholder group.

GenAI for Risk Management

- GenAI enables everyone to apply predictive analytics.

- Tools like DataRobot, Neptune, H2O AI Cloud, and several others can provide valuable insights regarding several aspects of your project, including potential risks based on pre-trained data from previous projects.

- E.g. «I am building a new home for my family. Prepare a list of detailed risks for this new project based on the different types of work that need to be done. Please use the following structure, what the risk is, what is the trigger for the risks to happen, and what is the impacted area if the risk happens? Combine the structure into one phrase for each risk, and write one per line so I can copy it to Microsoft Excel.»

AI-Assisted Cost Estimation

- Connecting a financial grid within the PM tool to ChatGPT can automate the process.
  - ChatGPT is able to suggest and distribute the full cost based on an S-curve, available for customization in different time frames, from years to quarters or months.

- As with the other cases, the AI-generated data should be considered a proposal, saving the project manager from having to draft it by hand.
  - Whether or not it can lead to more accurate financial forecasting depends on how much data the company is willing to share.

Better Selection and Prioritization

- Selection and prioritization are a type of prediction

- When the correct data is available, ML can detect patterns that can't be discerned by other means and can vastly exceed human accuracy in making predictions.
  - A better balance in the project portfolio and overview of risk in the organization
  - Removal of human biases from decision-making

- Virtual project assistants

Advanced Testing Systems and Software

- Advanced testing systems that are now only feasible for certain megaprojects will become widely available.

- Advanced and automated system testing solutions for software projects will allow early detection of defects and self-correcting processes.
  - Automated test case suggestions
  - Automated test runs

- Reduce time spent on cumbersome testing activities, reduce the number of reworks, and ultimately, deliver easy-to-use and bug-free solutions.

The future of the PMO in the times of AI

- Most organizations rely on their project management offices (PMO) to define, maintain and organize the standards for project management. Their work is to ensure projects are delivered successfully.

- Will the project management office still be relevant with all these technologies?
    - Collect information from projects, and consolidate them to be presented to the senior leadership of your organization, organize data, prepare templates, and train teams on using these templates, training personnel on the organization project management methodology → massive disruptions because AI will do all of these.

- AI could be a pivotal tool to bring the relevance of PMOs to another level. It will mean more time to keep the focus on the project and what truly matters.

- You can also use AI predictive analytics to improve your project management process using large amounts of data.

- With all these kind of work being done by AI, the PMO can dedicate itself to process improvement like decision-ready insights, issue management, and one very special aspect: Improving the project team's soft skills.

Managing AI Projects

- Understanding the distinctive nature of AI projects

- Managing and leading projects that will use the power of AI at the center of delivering benefits. They move at a different pace if compared with traditional projects.

- With these new AI projects, there is a lot more discovery and exploration. Predictability does not exist at all. The level of results you can achieve might only become clear as the AI system learns and evolves.

- AI business landscape
  - Everyday a new AI tool is released .
  - These projects evolve much faster than traditional projects and the outcomes can often be uncertain due to continuous innovation.
  - A lean structure that can decide and act quickly combined with a cultural mentality that embraces change and adapts becomes critical.

Aspects to consider while managing AI projects

- Dream big but start small.
  - We must think big. We must start small. We must test our assumptions. We must create MVPs that confirm our direction of travel. Think big, start small.

- Simplified governance
  - Have simplified and effective governance and do not create a complex layer of decision making processes.
  - The principle of PRINCE2: management by exception. Create thresholds and give the team the freedom to operate under those thresholds. If the threshold is exceeded, then the governance body comes into play.

- Algorithm selection
  - Carefully select the algorithms and machine learning models that are best suited for your project.

- Scalability
  - OpenAI ChatGPT got 1 million users in one week. Netflix took 3,5 years to do the same.
  - Keep in mind that your solution may not follow a linear scale.

- How future proof is your technology?
  - You must develop a platform that can quickly shift from one model to another.

Ethical Considerations in AI Project Management

- AI will impact employees, suppliers, and several other stakeholders. These impacts may not be the expected ones, and we can create more inequality and problems in society due to the AI.

- Bias: If your data has a bias, AI will have a bias.

- Privacy: AI uses information to learn which usually come from users who are unaware of how the information is being gathered and how it's being used to make decisions that affect them.

- Mistakes: Poorly constructed algorithms can make mistakes. Some generative AI apps can fabricate information entirely and present it to you as reality.

- Long-term impact: Sometimes, the short-term benefits threatens people, system, and the society in the future. Take a holistic approach.

Project Manager of the Future

- There is something AI cannot do – be human.

- Focus on the core skills of project management and progressively move into work that emphasizes human skills:
  - Leadership
  - People and stakeholder management
  - Communication (verbal & non-verbal)
  - Storytelling
  - Empathy
  - Emotional intelligence
  - Negotiation

- AI will assist, not replace, project managers.

- AI can be a distinctive accelerator and game changer for project managers and thus help increase project success rates.

Future Predictions

- The adoption of AI-powered PM software and tools presents opportunities for enhanced decision-making, problem-solving, and efficiency in project management.

- While some barriers exist, such as strategy formulation and technology concerns, the potential benefits outweigh the challenges.

- 93% of companies that have invested in AI in PM report a positive return on investment (ROI) in the last 12 months. (Capterra's 2023 AI in Project Management Survey)

Summary

- AI brings speed, efficiency, and data-driven decision making to the table, making it a game changer in project management.
- Redefining PM role in four dimensions
    - Adaptability
    - Soft skills
    - AI tools
    - Learning to unlearn
- The prompt of what you type in your chat drives the quality of the results.
    - Context of what you need to work.
    - Specific: provide detailed information about what you need.
    - Intent: What do you want the AI to do?
    - Format: how you want the results to be.
- AI assisted testing will reduce time spent on cumbersome testing activities, reduce the number of reworks, and ultimately, deliver easy-to-use and bug-free solutions.
- Managing AI projects
    - Dream big but start small.
    - Simplified governance
    - Algorithm selection
    - Scalability
    - How future proof is your technology?
    - Ethical considerations

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