

LEADING PROJECTS IN AN AI-POWERED WORLD

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Published in

Duke University Dialogue Review

Durham - United States, June 2023

Technology has begun to transform how organizations deliver projects, and rapid change lies ahead. What role will leaders play when AI is deployed in project management?

While AI is not yet a standard tool in the world of projects and project management, there is no doubt that it will disrupt this discipline, and probably faster than we expect. The prospect of that transformation seems almost incredible: in most organizations the tools used to manage projects remain relatively basic compared to the sophisticated digital technology being deployed in other parts of business. Most projects are still managed with Microsoft Office tools, such as Excel and PowerPoint. Can you imagine running your business and operations with spreadsheets? Well, that reflects how little technology has evolved in project management.

Traditional project portfolio management (PPM) tools offer more advanced features, but they remain far from cutting edge. More recent applications enhance planning and team collaboration yet don't bring automation or process improvements to any of the other critical elements of projects. Radical change will only occur when the next generation of project management software emerges and becomes widely adopted. Based on personal research, we believe we will soon start seeing some tools that use algorithms to predict the success rates of projects, validate projects' scope, and automatically create a well-defined project plan in just a few minutes.

The idea of automating a large portion of their current tasks may be daunting for project managers. Yet senior leaders in charge of projects may view the prospect quite differently. There are significant opportunities, as well as risks. Modern project managers will need to adapt and utilize these new tools to their advantage, shifting their focus from technical and planning aspects to more value-added activities. By doing so, they will improve project success rates.

The data challenge

AI and machine learning (ML) require large amounts of data related to the projects to function effectively. Data is needed to train an algorithm. It has been estimated that as much as 80% of the time needed to create an ML algorithm is spent on data. For AI to deliver value to the organization, it is essential that data is available and managed adequately – but many businesses have a lot of work to do.

Organizations have a large amount of project data that is stored in numerous documents from the past. It is important to ensure that this data is readily available and analysed to identify any anomalies or gaps. This may involve removing

any irrelevant data or filling in any missing information. There are two main types of data: structured data, which is clearly defined with easily searchable patterns, and unstructured data, which lacks easily searchable patterns. The aim is to take raw and unstructured data and transform it into structured data that an ML algorithm can use to develop patterns that form the model. Project data often comes in various formats, with missing data, fields that do not have a clear meaning, or data content that does not follow a consistent taxonomy. In most organizations, project data is scattered around different systems and rarely up to date.

Another consideration for project data is the variety of file formats. The project charter is usually in a Word document, presentation, or PDF format, while quality metrics may be held in a spreadsheet, and the schedule in any number of formats, such as Microsoft Project, Microsoft PowerBI, or Planisware. Natural language processing (NLP) must be used to convert words or phrases to usable data, which adds another layer of complexity. Fortunately, software tools and specialized vendors can scan databases and find unstructured data.

Data is at the heart of the transformation of projects that lies ahead.

Therefore, before you rush to embrace new data applications, it is important to take into account several factors. First, it is essential to determine the amount of data available and its relevance. Additionally, considering the currency and validation of the data is important. The format in which the data is gathered is also pertinent, as is understanding how much of the data is generated internally, as opposed to by the supply chain. Identifying gaps in data collection and understanding the organization's goals in relation to data is crucial.

It is also essential to keep in mind that AI applications need to be designed with a specific purpose in mind. The speed of change in the data environment should be considered, and businesses must ensure they are keeping up. Finally, anticipating how access to data, analytics, and automation will impact the business is also important.

Emerging tools

Uncertainty, inexperience, complexity and context are some factors that impact how projects are defined, planned and implemented. AI has the potential to help with them all. There is, as yet, no single tool that helps project managers systematically address these variables – but we do see a range of tools emerging that are beginning to have an impact.

Start with definition. Clearly defining a project requires knowing in advance the 'what': that is, the design, the requirements, or in project management terms, the

scope. The more accurate the scope, the more precise our project estimates will be.

We are starting to see some technology startups assist with this task, such as ScopeMaster, which is an intelligent software requirements analyser. It reads requirements and user stories as if it were a human, and performs much of the time-consuming analysis usually done by the project manager and their team. It parses, interprets, tests, cross-references, and sizes and then reports on many aspects of the project scope. It will find potential problems such as ambiguities, duplicates, omissions, inconsistencies, and complexities. Such problems can account for 30-60% of all requirements issues, which account for approximately 10% of all project defects.

Another interesting example is the project data consultancy Projecting Success. It has combined integrated bid and procurement data with feedback data for more than 10,000 projects, to identify over 1,000 parameters for an AI model. This enabled them to derive a wealth of insights, such as predicting the winning bidder in a given situation with up to 90% confidence, and developing bid and procurement strategies.

In addition to defining the scope, project planning, also known as scheduling, is another crucial aspect that demands significant effort during the initial stages of a project. Tools like Offolio are emerging that utilize project data and intelligent technology to simplify project planning procedures. They can generate detailed plans and estimate resource requirements, along with associated labour or non-labour expenses, in just a matter of minutes.

The energy technology company Baker Hughes provided a dataset to a data analytics hackathon, comprising 111 projects and 96,000 activities. Their challenge was identifying areas requiring deeper investigation and developing a methodology for improving estimates in future schedules. A small team solved this challenge in just two days by deploying dashboards to identify focus areas, then applying feature engineering and AI to predict activity duration, saving weeks of effort.

Then there's risk management. So far, it is one of the most advanced areas in project management in terms of automation. Sharktower and similar tools use big data and ML models to assist project managers and leaders in predicting potential risks that may not be apparent otherwise. These tools can provide suggestions for minimizing risks and may soon be able to modify plans automatically to prevent specific types of risks.

During a project's execution, project managers have a crucial role to play in

maintaining and reporting project-related information, which includes schedule, costs, and risks, among others, through formal project control/change processes. Reporting is a manual process that involves repetitive tasks like collecting and verifying project information, sending reminders, and generating customized reports for the project team, senior management, or steering committees. It is a time-consuming task, and the information presented in these reports can often be outdated by a few weeks or more.

In the future, we can expect to witness the emergence of interactive visual tools that leverage ML models and real-time data to identify potential project issues before they escalate, offering objective insights on project status, benefits, potential delays, and team morale.

The project manager in an AI world

The role of project manager will be significantly impacted and disturbed by various changes over the coming years. Gartner estimates AI will manage around 80% of the current tasks related to project management by the year 2030. Project managers should not resist these changes. Instead, they should adopt new technologies to enhance the success rate of their projects.

The concept of cross-functional project teams may soon include a combination of humans and robots rather than just individuals. As a result, project leaders or managers in the future will need to possess important soft skills such as leadership, strategic thinking, business knowledge, and a strong grasp of technology. Some organizations are already building AI into educational and certification programmes. Northeastern University, for instance, is incorporating AI into its project management curriculum, teaching project managers how to use AI to automate and improve data sets and optimize investment value from projects.

The fact that AI will be taking on project management tasks doesn't imply that human project managers will become obsolete. Instead, the role of project managers will become even more important in the future, although their responsibilities will be different. In common with professionals in operations, sales, finance and other roles, we can expect a shift from tactical to strategic. For project managers, that means that while AI and automation are completing administrative work, the project manager will focus on ensuring that project results deliver the expected benefits and are aligned with strategic goals.

Challenges and opportunities

While recognizing the potential advantages of AI for revolutionizing project management, we also have to recognize that there are challenges. Those include

questions around ethics: current codes of ethics are written for individuals not algorithms, describe human values, and define standards of conduct for people working on projects. Can machines be held to account for their values or behaviour? The project management industry, in common with society as a whole, has work to do on this front.

But it is clear that the application of AI in project management will bring significant benefits. The automation of administrative and low-value tasks will enable project managers to shift from the tactical to a more strategic level where they can add greater value. And, crucially, it will help organizations, leaders, and project managers select, define, and implement projects more successfully.