

Digitalisation and Artificial Intelligence in Project Management ¹

Sreeja SIVADAS & Hugo NOWAK

ABSTRACT

The concept of digitalization, as well as the enhanced use of artificial intelligence processes, has emerged in recent years. This is referred to as being part of Industry 4.0, and it has sparked various discourse. Indeed, the use of Artificial Intelligence is frequently contested - both favorably and adversely. In the realm of project management, there are no exceptions to this. The purpose of this study is to examine and evaluate the various points of view, emphasizing both the important benefits and limitations. This paper can be used as a starting point for anyone interested in implementing an AI project management system.

INTRODUCTION

Both the notions of Digitalization and Artificial Intelligence (AI) can be related to the current industrial revolution – known as the industry 4.0. This new variant follows the previous industry 3.0, which was characterized by the deployment of IT systems within companies. This move permitted a digitization transition by converting analogue information towards digital and numerical data.

The new age of the industry 4.0 is mostly characterized by the increased usage of digitalization processes, which benefits from the digital and numerical data previously collected. To this end, digitalization can simply be referred as any systems that has the ability of processing digital data.

The notion of Artificial Intelligence (AI) consequently fits within companies as one of digitalization process available. In fact, AI could be defined as – in its most basic form – system that relies on available datasets and computer-based processes to resolve emerging problems. Besides, the commonly agreed definition also encompasses the sub-fields of machine learning and deep learning principles, both of which are usually referenced when speaking about AI.

Following the emergence of AI based processes, in worldwide companies, it is not abnormal to see its abilities being applied in the benefits of project management. Nevertheless, despite its vast and unquestionable advantages for the organization, the use of AI has some limits that need to be known and shared. This is the main objective of this paper.

¹ How to cite this article: Sivadas, S. and Nowak, H. (2021). Digitalisation and Artificial Intelligence in Project Management, *PM World Journal*, Vol. XI, Issue VII, July.

During the first part of this review, we are going to resume and analyze the benefits of implementing an AI based process in project management. The second part would focus on the limits following the implementation of such a system.

Key Words: Digitalisation, Artificial Intelligence, AI, Project Management, Industry 4.0

BENEFITS OF HAVING AI IN PROJECT MANAGEMENT

Artificial Intelligence (AI) is here. While some are dubious about its potential, others already view it as revolutionary but what does this imply for Project Managers, though? How will AI be integrated into project management software? Here are some points highlighting the benefits of having an AI project management system:

Automatization of Redundant Tasks

Project managers spend more than half of their time on administrative tasks. Artificial Intelligence systems can easily manage these seemingly simple yet time-consuming chores, saving time. As a result, project managers will be able to concentrate more on the intricate procedures that underpin their management strategy. Time saved from routine tasks can be redeployed for more complex and core activities leading to increased business and revenue. No one likes wasting time on unpleasant, repetitive jobs, which is perhaps why AI is gaining popularity.

Data Analytics

According to a MarketingCharts.com survey published in March 2018 between 12800 digital marketing and e-commerce experts, most companies employ AI to analyze data. Machine learning techniques are used by AI to uncover insights, new patterns, and relationships in data. Project management with AI transforms basic project reports into highly actionable insights. They are no longer just statistics and information.

Lowering Cost

According to a MIT Sloan survey, 63 percent of participants listed cost reduction as the primary motivation for AI adoption. In-depth predictive analysis aids in risk reduction and mitigation, resulting in reduced project contingency expenditures and increased revenues. It is possible to increase transparency while lowering the expense of complex corporate operations. In-depth predictive analysis aids in risk reduction and mitigation, resulting in reduced project contingency expenditures and increased revenues.

Reinventing Human Resources

Integration of artificial intelligence into human resource processes will benefit organizations because these technologies can evaluate, anticipate, and diagnose to assist HR professionals in making better decisions. According to a survey by Oracle/Future Workplace, majority workers (65%) are optimistic, excited, and grateful to have robot co-workers, and a quarter describe having a loving and rewarding connection with AI at work.

Decision Making

Companies that use AI in their processes to create faster, more accurate, and consistent judgments by using datasets with AI are referred to as AI decision making. Unlike humans, AI can evaluate massive datasets quickly and accurately, allowing the staff to focus on other tasks. Artificial Intelligence methods are progressively broadening and enhancing decision support by aligning delivery of data, evaluating statistics, offering estimates, establishing synchronization, assessing uncertainty, anticipating the user's data needs, providing information in the most appropriate forms, and suggesting courses of action.

LIMITATIONS & WEAKNESSES OF AI IN PROJECT MANAGEMENT

Throughout its evolution in recent years, the use of Artificial Intelligence has shown some fundamental limitations. Although several advantages have been described above, there are a few flaws that must be addressed to have a smoother deployment among a project team.

During our research, we came across a variety of constrictions that can be encountered while using AI tools in project management. We have decided to focus on three primary axes in this paper: Ethical Issues, a Corrupted Database, and Concerns about Responsibility

Ethical Issues

One of the most well-known side-effects coming from the increased use of Artificial Intelligence refers to the replacement of humans in some activities. This has been noticed practice in some organizations and companies, resulting in un-renewed job positions. Consequently, it rises the unemployment's rate and raise concerns among employees (Qiankun Wang, 2019). It will then fall within the project manager's responsibility to reassure his team about the changes that the new usage of AI will have on teamwork and change within responsibilities.

Additionally, another common ethical issue, related to the implementation of AI, is known as the lack of emotional intelligence and the loss of the sense of humanity. This comes from the fact that AI based softwares are designed to analyze a set of data and variables, with currently low abilities concerning emotional abilities. This means, completely relying only on those tools will

have an impact on the outcome of the project, plus potentially impacting the project's team and team-member's values.

Corrupted Database

Another – not necessarily known – weak point of allowing the use of AI is its inability to prevent errors. In other words, AI technologies are “only as good as the data put into it” (Meenakshi Nadimpalli, 2017). This comes from the fact that such technologies are coded by humans, who are prone to make mistakes, resulting in a misinformation of the AI process, consequently leading to unexpected situations and potential issues.

In a context of project management, but also valid in other use cases, it is important to be aware that those – expected or unexpected - biases situation could occur. This needs to be fully captured within the project's risks management process, to set in place, the corrective actions needed. Overall, applying an AI tool will require critical spirit over the outcomes proposed by the process.

Responsibility Concerns

This last section focuses on responsibility issues once something goes out of plan. Legally speaking, technologies are not considered as moral-agents and thus cannot stand for any sort of responsibility. Thus, the responsibility lies in the hands of the different contributors – every person that interacts with the AI system, deploys, and maintains its functionality. This joins the idea that “the responsibility directly falls in the hands of (...) anyone involved in the development of AI technology” (Sabrina Bergsten and Pablo Rivas, 2019).

Nonetheless, this does not simplify the call for responsibility. This is mainly because developing, deploying, and sustaining the use of AI tools will often require the involvement of several people. This is referred as the “many-hands problem” by Mark Coeckelbergh (2019), and it is mostly related to the complexity implemented in such tools.

Finally, as per Mark, a higher set of regulations could be required at a higher level to address this issue. However, implementing this kind of principle is not as simple as it seemed. This is since those new regulations are certainly going to be questioned as per their relevancy in regards of what is currently in place. Based on this, it seems important – in a project management environment – to clearly establish those guidelines and identify responsibilities accordingly before the use of AI in the project.

CONCLUSION

Artificial Intelligence is the glue that binds science and engineering. The presumption that machines could comprehend and pursue chores in the same way that humans do stems back

hundreds of years. AI-enabled project management solutions have the potential to make the science of human behaviour more concrete in a variety of ways over time.

Despite the delayed acceptance of Artificial Intelligence, a growing number of businesses are discovering the value of monitoring software AI in project management. Artificial Intelligence's prowess has the potential to take project management to another dimension.

The following are the primary takeaways from our research

Administrative chores eat up more than half of the time spent by project managers. Artificial Intelligence systems can readily handle these seemingly basic yet time-consuming tasks, allowing them to save time. Routine jobs can be redeployed for more sophisticated and core activities, resulting in greater income and business. In-depth predictive analysis helps with risk reduction and mitigation, resulting in lower project contingency costs and higher revenues. Project managers must be cognizant of the impact that growing AI adoption will have on their teams and staff. One of the most well-known adverse consequences of expanding AI use is the replacement of humans in some occupations, resulting in the loss of job opportunities. Lack of emotional intelligence and the loss of a sense of humanity are two more common ethical issues associated with AI implementation. Before using AI in a project, it is critical to clearly set those principles and assign roles in a project management system. In legal terms, technology is not regarded moral entities and hence cannot be held responsible in any way.

Will AI eventually replace project managers? We don't think so! Although AI can assist project managers in making better resource allocations, delegating tasks, and managing risks while viewing the project cohesively and adjusting as needed throughout execution, it cannot run a project on its own. AI is and will continue to be an emerging trend in project management due to its unique capacity to analyse specific trends and foresee project situations and results.

REFERENCES

- Artificial Intelligence: Committing to achieving the next frontier (Paul Grignon, 2019)
- Explainable AI under contract and tort law: legal incentives and technical challenges (Philipp Hacker, Ralf Krestel, Stefan Grundmann and Felix Naumann, 2020)
- Artificial Intelligence Risks and Benefits (Meenakshi Nadimpalli, 2017)
- An Analysis of Benefits and Risks of Artificial Intelligence (Win Mar and Yin Myo Kay Khine Thaw, 2019)
- Ethics of artificial intelligence: Some ethical issues and regulatory challenges (Mark Coeckelbergh, 2019)
- Societal Benefits and Risks of Artificial Intelligence: A Succinct Survey (Sabrina Bergsten and Pablo Rivas, 2019)

- Innovation Management and Artificial Intelligence: The impact of Digitalisation on management processes (Dragos TOHĂNEAN, 2018)
- Analysis of the use of artificial intelligence in the management of Industry 4.0 projects. The perspective of Polish industry (Bartosz Wachnik, 2021)

WEB SOURCES

<https://www.softwareadvice.com/resources/artificial-intelligence-project-management-benefits/>

<https://www.orangescrum.org/articles/benefits-of-ai-enabled-project-management.html>

<https://www.saviom.com/blog/applications-ai-project-management/>

<https://www.toptal.com/project-managers/technical/ai-in-project-management>

<https://www.orangescrum.com/blog/what-you-should-know-about-ai-in-project-management.html>

<https://www.ligsuniversity.com/en/blogpost/the-role-of-artificial-intelligence-in-improving-project-management>

<https://www.rpsgroup.com/insights/the-impact-of-ai-on-project-management/>

About the Authors



Hugo NOWAK

Lille, France



As mechanical engineer, graduated from HEI France (Hautes Études d'Ingénieur) in 2017, **Hugo Nowak** has accumulated 4 years of professional experience, mainly as a project engineer, before continuing his education with a Master of Science in project & program management and business development at Skema Business School. This is where he got interested in understanding some of the key aspects that will define tomorrow's project management practices. To this end, he partnered with his co-author Sreeja SIVADAS to preview the implementation of AI tools and highlighting the potential outcomes in a project environment. Simultaneously, and as part of his MSc thesis, Hugo is analysing the impacts of remote working and the virtual team's management upon the project's performance. Contact info: hugo.nowak@skema.edu



Sreeja SIVADAS

India



Sreeja Sivasdas has a bachelor's degree in Commerce with a specialization in Accounts and Finance. This led to her working in the financial industry for 5 years. During those 5 years, she worked for JP Morgan, one of the leading banks in the United States. She later moved to one of the top Indian banks, HDFC, where she worked as a project manager, after gaining experience in retail banking expertise. She opted to continue her education and pursue a Master of Science in Project Management and Business Development from Skema Business School to learn more about project management. Sreeja co-authored this paper with HUGO NOWAK as a part of this course to better grasp the significance of Artificial Intelligence in Project Management. Contact Info - sreeja.sivasdas@skema.edu