AI in Project Management
Can AI Accelerate Project Maturity?

The level of a company's Project Management (PM) maturity is based on its specific goals, strategies, resource capabilities, scope and needs. This article demonstrates that AI can enable higher levels of PM maturity and discusses the barriers to AI in PM adoption.

Introduction

Throughout history, every kind of company has spent effort to define short and long term goals, and to design strategies to help them achieve these goals. The need for project management (PM) in companies has increased as benefits have been recognised (Demir and Kocabas, 2010).

PM maturity provides insight to determine the success of a company's strategy and decision-making. Each company has its own maturity level based on its specific goals, strategies, resource capabilities, scope and needs (Crawford, 2007). AI (Artificial Intelligence) as described by Elrajoubi is for making people's lives easier, and its involvement in performing tasks that make humans work more efficiently.

However, the uptake of AI within project management is much slower than in other sectors. This article outlines that AI can improve PM maturity level and discusses the barriers that could be preventing AI in PM adoption.

What is AI in PM?

Najjar and Sarraj (2019) explain how AI could transform PM by providing actionable insights and strategies. This includes PM tools providing insight into the possible outcomes of a project which will enhance the quality and agility of decision-making. Machine learning algorithms can be used to provide estimates of the duration and resource requirements for a project based on expert knowledge and lessons learned from previous projects. Optimising schedules is a way to minimise the total project cost.

Furthermore, Mendieta (2018), discusses the AI "virtual assistant". An AI-based assistant to transform time-consuming tasks, by requesting updates from team members, filling pre-formed weekly reports, and organising meetings and booking rooms. This allows project managers to focus on value-add items such as portfolio management, project prioritisation, coaching, conflict management and leadership.

Higher PM Maturity using AI

The application of AI to PM may provide greater support and accuracy in the decision-making process and will be crucial in successfully achieving Level 5 PM maturity.

Level 5
Continually Optimising Process
Focus on continual process improvement by piloting innovative techniques and technologies

Level 4
Managed & Monitored Process
Using well-defined metrics across the company to measure performance, manage business decisions and processes

Level 3
Organisational Standards
Well-defined project management procedures are documented and used as the operation standard, act proactively

Level 2
Structured Process & Standards
Adhere to some basic project practices but only at individual project level, often viewed as reactive

Level 1
Initial Process
Operates in a relatively random manner, little control over each role, low project success rate

Villanova University (2019) reported from the "AI Innovators" yearly global survey that: "81% of respondents said their company is being impacted by AI technologies", "37% said adopting AI technologies is a high priority for their company" and that "the percentage of projects using AI is projected to increase from 23% to 37% over the next three years".

Greenstein (2019) talks about the process of maturity in companies, specifically about digital maturity. The study is conducted based on the "Cognizant" and "ESI ThoughtLab" worldwide survey of 2,491 executives from April to July 2019. From this, respondents are assigned to one of four maturity stages: "beginner", "implementing", "advancing" or "leading". The study discovered there was a distinct correlation between digital maturity and the use of AI.

Those categorised as "beginners" (similar to level 1 PM maturity), were far less likely to consider themselves as advanced in AI verses more digitally mature companies or "leaders" (similar to PM level 5). This suggests that companies lower on the maturity levels are more likely to focus on what they consider to be the drivers of AI, however, higher maturity companies are suggested to integrate data, analyse content and understand what matters most - using AI to predict and prescribe the best actions. They states that companies need to figure out which "data" will result in the best outcomes.

Barriers to Adopting AI in PM

1. People
Marr (2019), outlines crucial people barriers such as reticence in "Handing over control", whether this is to the machines or the employees who administer the technological infrastructure that makes AI possible. This can also translate to companies not seeing the need for AI and having an incomplete understanding of AI advantages. AI skills have only recently been in demand by industry, meaning there is a massive growth in demand and requirements for certain skill sets. Hupter (2020) comments on this: 'companies need the right mix of talent to translate business needs into AI systems to enable efficiencies.' So there are certain skills needed to work with AI. Hupter (2020) explains seeking the best external talent will provide an advantage, but companies should not overlook training existing employees. AI adopters have reported training current workforces to strengthen expertise and narrow the skills gap, which could be a better option. Those with AI skills could find themselves far more marketable as the higher the maturity, the better the skills.

Hupfer (2020) claims that the way companies do their work is evolving due to AI with 71% of AI adopters reporting a change to company's job roles and skills, whilst 82% believe AI will moderately or substantially change job roles and skills over the next three years. She continues to say that making operations more efficient, supporting better decision-making, and freeing up workers from repetitive tasks, is what companies want to achieve with AI.

2. Process
The PM maturity levels have a process development and usage thread running through them. At level 1 there are basically no project processes, at level 2 there are structured processes and standards but only at an individual project level, level 3 they are company-wide, level 4 measured and reviewed whilst level 5 they are continuously improved.

So basically, the more advanced your processes the more likely your project success – this has direct parallels with the success of the application of AI in PM. Early stage AI can

relatively rapidly identify what happened, which projects delivered or not to time, to cost etc but to increase maturity and provide enhanced insights you wish to know why projects were delayed. Then moving further toward the holy grail of prediction of what will happen, which projects are most likely to be a success/ failure? So if you want to increase consistent project success look to mature your project processes.

3. Data & Systems

Lahmann, Keiser and Stierli (2018) commented, for AI to bring deep insights into a project for projects, it needs to be equipped with a heavy data set from which it can learn what works and what doesn't. Although this is probably true to reach ultimate maturity of AI systems, it is not so true in the earlier stages of AI in PM journey. Insights can be provided into what and why things happened that can be used to inform existing and proposed projects with only limited data sets. Indeed, one should consider the AI in PM journey to be a series of steps where initial Insight provides learnings for corrective action ahead of moving toward deeper data ingest and greater computing complexity. Companies should be prepared to embrace innovation and learnings along the way, aware that they are building toward their own automated predictive systems which takes time to develop and refine.

Of course it is not just the volume of data that causes challenge but the level of "trust" that can be placed on that data. This means that data preparation (identification, cleanse, transform) may take longer before it can be ingested into AI systems if a company is at a lower level of maturity. Conversely those companies finding themselves at a higher level of maturity may be able to accelerate this step, so it is a shorter period to review and action Insights. Marr (2019), commented the "pressuring problem" for company's is the shortage of data [and technology professionals]. He states that this

issue will eventually be overcome as data gathering, and understanding is something that will be overcome for AI to be implemented into a company successfully. We anticipate that the machines themselves will increasingly undertake the data preparation.

To reach higher level project maturity, standardised processes used to drive effectiveness must be supported by appropriate project support systems. This may sound simple but when you consider what types of data to be stored, who has what access, cross team / departmental differing needs, it soon becomes complex. Again those with higher maturity will have more embedded standardised support systems where AI is either built in or data can be used to create more complex systems.

Conclusion

Taking into consideration the positive statistics from Villanova University (2019), and the outcomes of the study by Greenstein (2019), AI has the potential to transform PM maturity. Those that embrace AI in PM are likely to see their maturity growth accelerated. Maturity levels were traditionally driven by people and process but there is now a new factor to be considered when looking to increase project success and reduce your cost base.

Perhaps worrying for some, Greenstein (2019) states companies with lower existing maturity levels are less likely to adopt AI and therefore their projects are likely to continue to be inconsistent. Although the barriers to adopting AI require to be navigated, companies implementing an AI approach are likely to accelerate their journey through PM maturity levels.

Project Maturity Levels in detail

What is the PM maturity model (PMMM)? Bruner explains that there are levels that reflect increasingly sophisticated organisational behaviours. The model is more of a continuum of behaviours rather than as a rigid scale, as a company will do some areas well, whilst others may have room for improvement. PM maturity levels are:

Continually Optimising Process
Level 5
Focus on continual process improvement by piloting innovative techniques and technologies

Managed & Monitored Process
Level 4
Using well-defined metrics across the company to measure performance, manage business decisions and processes

Organisational Standards
Level 3
Well-defined project management procedures are documented and used as the operation standard, act proactively

Structured Process & Standards
Level 2
Adhere to some basic project practices but only at individual project level, often viewed as reactive

Initial Process
Level 1
Operates in a relatively random manner, little control over each role, low project success rate

Level 1 - Initial process
A company that operates in a relatively random manner. Little control over each role, hard to predict how the company will react (especially in a crisis). There is potential projects success, but it is unlikely this success is reproduced on a regular basis. It is unlikely there will be organised processes (Seesing, 2003).

Level 2 - Structured process and standards
Companies will adhere to some basic project management practices, but often only at individual project level. Project success is likely to depend on key individuals or specific management support, rather than general company standards. Companies often viewed as being reactive.

Level 3 - Organisational standards
Well-defined project management procedures are documented and used as the standard for operations. As procedures are at an organisational level, they are more likely to be understood and backed by management. The company is likely to act proactively.

Level 4 - Managed level
A company that measures project performance using well-defined metrics. Standards are agreed across the company and the metrics used to manage business decisions and processes. These processes are quantitative to allow more precise results (Seesing, 2003).

Level 5 - Optimisation
A company that focuses on deliberate and continual process improvement, using innovative techniques not seen at other companies. The improvement is also enabled by quantitative feedback from the management process and from piloting innovative ideas and technologies (Seesing 2003).

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Author

Lloyd Skinner
Chief Executive Officer, Greyfly Ltd. Lloyd is a project professional with 25 plus years of experience working in multiple sectors and projects in both support and delivery roles. For the last 2 years he has been investigating the use of AI in project management and developing Greyfly.

About us

Greyfly has experience in successfully delivering full life-cycle, benefits led, multi-million pound transformation projects. We are a preferred supplier to the BBC for programme management. Our underlying drive is to apply AI to Project Management in order to improve delivery, tackle the real project delivery problem and to make cost savings for our clients.

📍 42 Watch House Place, Portishead, Bristol. BS20 7AU
✉ advice@greyfly.co.uk
📞 (+44) 1275 460315
🌐 https://greyfly.co.uk
🐦 https://twitter.com/Greyflythinking
in https://linkedin.com/company/greyfly