



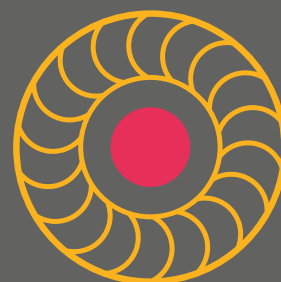
Why can't reality live up to the AI hype in project management?

Hype, tech, and the roadmap to success for artificial intelligence in projects



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Calculate the project expenses continuously and sort them chronologically



Understood. Do you also want to sort your expenses into sub-categories?

That's a great idea! Yes

Introduction

In 2018 we wrote our first article on artificial intelligence (AI) in project management (PM), asking provocatively whether project managers were ready for the change in their profession. We predicted that it would take some 10 to 20 years before we saw truly significant changes in terms of autonomous AI for PM. As predictions are so often wrong, we have decided to do a reality check and evaluate the current state of AI in PM and assess the biggest roadblocks

on the journey towards fully automated artificial intelligence for project management.

As we predicted, a lot of improvements have been made in the artificial intelligence space, especially with regard to the simpler forms of AI (e.g. automation and integration, and chatbots). Start-ups and established companies have entered the space and are enhancing project managers' experiences in the area. However,

when it comes to the more advanced forms of AI, such as predictive insights and autonomous project managers, there has been very little progress made.

In this white paper we want to take a deeper look into why progress has been so slow, especially compared with other business areas where the use of AI has skyrocketed in the past few years.

1

Has AI really failed in project management?

AI hype and its predictions

From the very dawn of human civilisation, people have tried to predict the future. In most cases, these predictions have been wrong – in some cases spectacularly so. [1] In the past few years, a whole industry of futurists and venture capitalists has emerged, trying to predict the next big thing and aiming to reap some of the windfalls of the next technological breakthrough and market-cornering product. In the field of artificial intelligence, AI for short, these endeavours have gathered astounding force in the last five years.

Considering that research on AI has been going on for nearly 60 years and has been moving at quite a regular pace, some of the media hype surrounding the presumably imminent breakthrough and widespread adoption of all sorts of AI applications now has to be seen as somewhat overoptimistic.

Over the past few years, the topic of artificial intelligence and its application has gained massive momentum, not only in scientific and technical publications but also in the mass

media. Most of these publications have predicted the imminent and widespread implementation of AI applications in all areas of our daily lives, with far-reaching impacts on the workplace and employment. These predictions were supported by the arrival of the first tangible AI-based home applications, especially mass-marketed personal assistants like Siri and Alexa.

Against this backdrop, far-reaching consequences have been predicted for a whole range of professions, including project management. Scenarios have ranged from a new golden age for companies and employers to threats of massive unemployment.

Some of these scenarios have caused widespread unrest in project management practice, resulting in several publications aiming to allay these fears. Some authors have gone as far as to declare the whole application of AI in a PM context ineffective or at worst nonsensical.

However, these discussions have resulted in widespread uneasiness

about any AI implemented by the workforce, sometimes bordering on hostility towards any technological evolution in the profession.

These fears have been further fuelled by global empirical surveys showing that more than half of industry and HR respondents expect a change in the nature of work for their employees, with a quarter expecting outright job cuts owing to the impact of AI. And they expect this to happen within a timeframe of just three years. [2]

Despite all this hype, the fears and predictions around AI's big breakthroughs in project management have still largely failed to materialise. Whenever any technology is subject to major hype, usually it's possible to trace the limiting factors or barriers to widespread implementation to a few key issues that need to be resolved for the hyped technology to reach its full potential. In the following pages we try to cluster the main restricting factors that we believe will need to be overcome to further shape the future of AI project management software solutions.



“This ‘telephone’ has too many shortcomings to be seriously considered as a means of communication. The device is inherently of no value to us.”

Memo at Western Union,
circa 1878

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Restrictions limiting the accuracy of predictions

The baseline criteria for any technology or technology-based product begin with the technology itself and its maturity. However, the technology also has to be supported by capable people, and there needs to be actual demand for the product in the marketplace (in other words, there needs to be an actual problem to be solved). Having analysed the key elements restricting the implementation of AI within project management, we view the most important factors to be technology and data readiness, people and capabilities, and market demand and readiness.

In the following section we will dive deeper into what these restrictions mean for AI project management. Needless to say, all these restrictions can, and most likely will, be resolved in due course.

Technology and data readiness

Any undertaking based on algorithms is going to depend on data. This means that all facets of AI that rely on the principles of machine learning or deep learning depend on data too. If you want to apply the principles of machine learning to allow an algorithm to be trained sufficiently to arrive at correct decisions on the problems posed, you need a foundation of data. For project AI, this means project or project-related data.

But unfortunately, not all data are equal, and AI is not (yet) sufficiently evolved to be able to prepare and structure the required data itself. So let's now look at some of the main challenges regarding data.



In reality, most companies do not possess a nice, well-kept, orderly repository of past projects. In most cases, the opposite is the case. You will encounter financial records of projects, but not necessarily structured uniformly. In most cases, even if project records of meetings or decision boards are kept, they will not be in any directly usable format. And let's not forget the ubiquitous photos of programme increment (PI) planning boards, stand-up meetings and whiteboard discussions!

This means a whole lot of data engineering effort is necessary for companies to even be ready to implement AI in their project management practice.

Once, however, this effort has been made and the data have been cleaned, structured and properly stored, the next questions concern the applicability and volume of the

existing data. These questions are important when it comes to training the algorithm, as this relies on having the correct type of data in a volume enabling correct decision outcomes or recommendations. Both can prove to be difficult to attain.

Many companies, for example, lack the large volumes of standardised and ordered sets of quality data that are necessary to train a neural network to make, say, project portfolio decisions better and faster than a human. Especially in the field of project management, where at many companies there is still no robust project controlling and monitoring in place, such an infrastructure would need to be set up, and its outcomes properly archived, to gain enough material to form the basis for training the AI.



People and capabilities

The development and increased volume of AI investment and application development is putting a clear strain on the recruitment of the required talent. The availability on the market for data scientists, robotics engineers and specialists from other related fields is quite finite, especially outside the US, Western Europe and China. [3]

Heightened demand is driving wages for this type of specialist – assuming they're even willing to leave their current employer. The talent challenge is exacerbated by the fact that the most "modern" and attractive companies are hiring for these positions, leaving the "old" and "boring" industries further behind.

One way of solving this problem would be constant training and upskilling efforts undertaken in a coordinated fashion by organisations to bring more of their employees into positions where they're able to perform in AI-enabled environments. However, as Pfeffer points out, while it is recognised that organisations should invest in training and skills, there is very little action following this recognition. [4] Organisations still tend to spend money on hiring expensive external resources rather than investing in broad internal upskilling initiatives.

Another dimension worth mentioning is the fear of change employees might face when new technologies are being introduced into their working environment. New routines need to be adopted, and people initially have to put in more effort to master the change. [5] It's clear that even though project managers and project workers are often seen as agents of change, change that affects them personally will also encounter resistance from their ranks.

Market demand and readiness

Apart from the fear of job losses, the predictions and visions around the implementation of AI have had another effect: suddenly we've seen a lot of potential buyers and would-be adopters looking for AI solutions to invest in or purchase. The problem is that for many of the purported areas of application there are only been a few rudimentary solutions available on the market, and for some areas none at all. This has understandably caused frustration and a certain disillusionment with the new technology.

Any groundbreaking technological development comes with a price tag. The development of AI is no different. In 2020, roughly USD 14 billion was spent globally on AI applications, with another USD 14.5 billion for IT services and USD 11.2 billion for server hardware. [6] The investments

related to AI development are expected to grow by 21.3% from 2021 to a total of USD 62 billion. [7] This spending is expected to increase to USD 110 billion by 2024, amounting to growth of 100% in just four years.

Of all the major developments in AI investment described, though, there seems to be a snag. Project management does not seem to be a priority. Instead, companies worldwide seem to be concentrating on four main topics: automated customer service agents, sales process recommendation and automation, automated threat intelligence and IT automation. These together account for roughly one-third of all spending. The clearest business cases and therefore the highest spending on AI seems to have been in the banking and retail industries. The runners-up for 2020 were discrete and process manufacturing, and healthcare. The biggest increases in AI investment for the 2020 to 2024 period are expected in the media, federal/government and professional services sectors. [8]

So even though money is pouring into the AI space, not a lot of it is going directly to the development of AI solutions for project management. Why is this?

Apart from the hyped-up expectations, for many company leaders the business case for massive investment in AI applications is not so clearly defined. This is also reflected in many publications, which hardly show any real-life examples of such successful projects. The exceptions are situations where the AI is the product itself, where it contributes directly to an increase in sales/revenue, or investment portfolio applications which owing to their nature and the ready availability of structured historical data seem to lend themselves to easier implementation than, for example, the replacement of the entire team of project managers by a sentient AI.

The failure of AI in PM

Considering the big, bright ideas touted by the media and prominent thought leaders in the space in the past couple of years, there still hasn't been much tangible progress in terms of artificial intelligence in project management. Large, complex projects are still managed "by human hand", with seasoned project or programme leaders at the front. Even smaller projects with less complexity are human-led without major AI interactions. With the exception of services such as Grammarly that don't cater specifically to project management, functional use cases are still few and far between. Software such as ScopeMaster seems to be able to provide value in software projects by highlighting vague or inconsistently specified requirements. Conversational AI chatbots like fireflies.ai or other SaaS (software as a service)

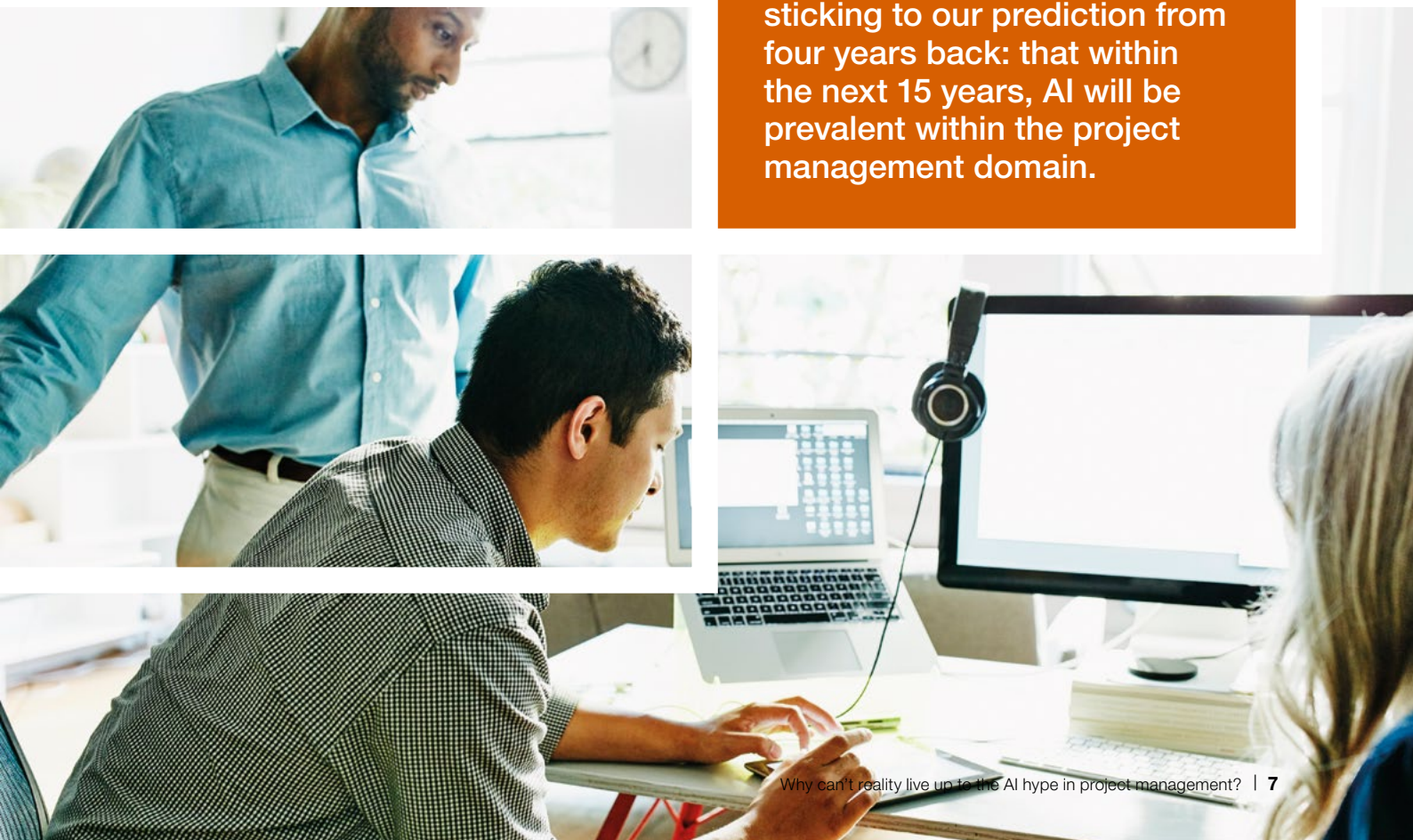
offerings such as Sharktower, Ilii.ai and mely.ai have not yet made a full breakthrough, and in some cases have decided to specialise more closely in specific industries to improve their value proposition.

Even Microsoft Cortex [8], the AI-powered knowledge network based on Microsoft Graph technology, remains largely unreleased. [9] Cortex intends to "add new capabilities to the apps [...] across Microsoft 365". SharePoint Syntex, the first product released from project Cortex, was launched in late 2020, and features AI for managing and organising the content available in organisations' SharePoint drives. With the added capability of content management, organisation and search optimisation, it can be reasoned that Syntex represents one step in the

direction of allowing AI to gain further knowledge through the understanding and organisation of content. It could also be argued that since the Microsoft Office suite is probably one of, if not the, most used software in the project management context, Microsoft would be in pole position to bring about the AI revolution for project management, be it through PowerPoint, Excel or Word. Applying knowledge graph* technology to this mix should prove to be beneficial.

So far, AI can't be said to have successfully penetrated the project management space. However, we remain optimistic and are sticking to our prediction from four years back: that within the next (now) 15 years, AI will be prevalent within the project management domain.

* Knowledge graphs organise data from multiple sources, capture information about entities of interest in a given domain or task (such as people, places and events) and forge connections between them. In data science and AI, knowledge graphs are commonly used to facilitate access to and integration of data sources; add context and depth to other, more data-driven AI techniques such as machine learning; and serve as bridges between humans and systems, for example by generating human-readable explanations, or, on a bigger scale, enabling intelligent systems for scientists and engineers. (<https://www.turing.ac.uk/research/interest-groups/knowledge-graphs>, accessed 19.09.2022)



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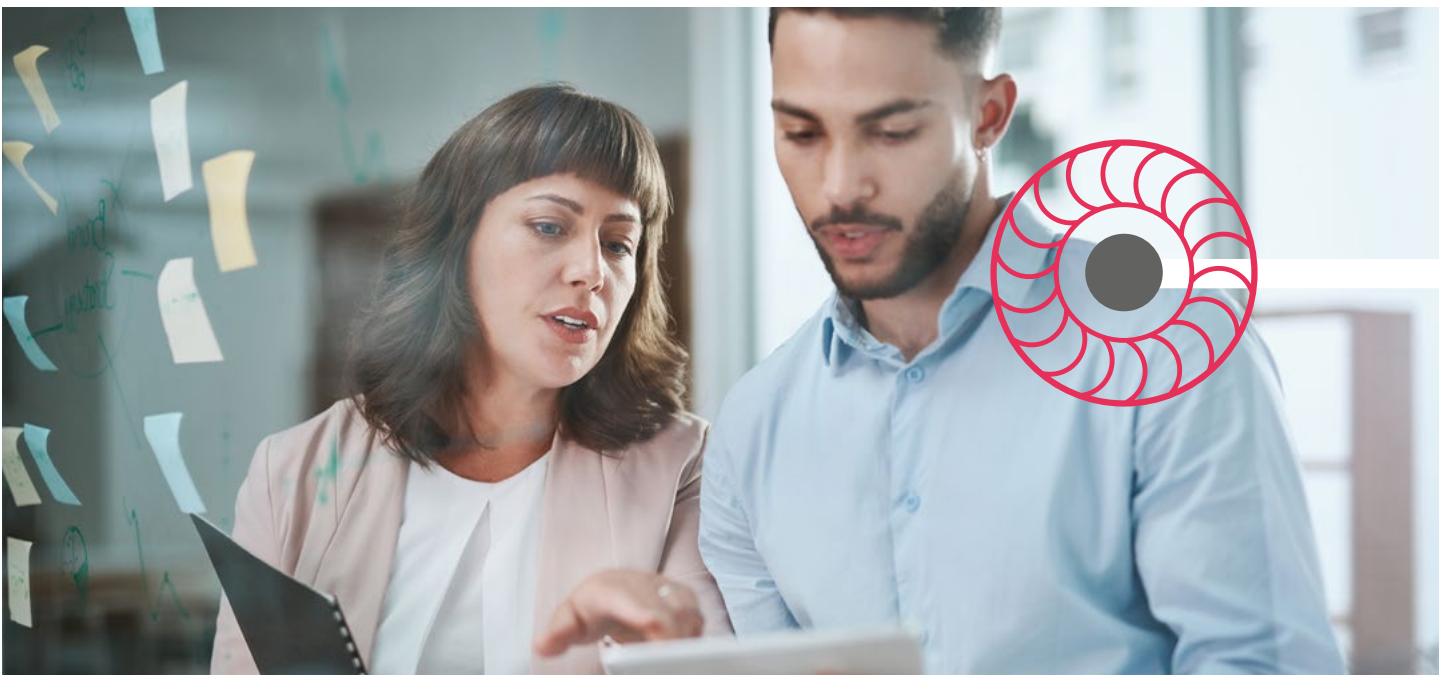
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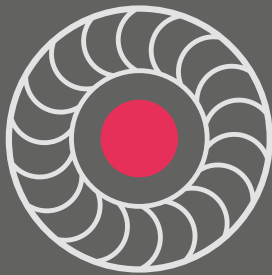
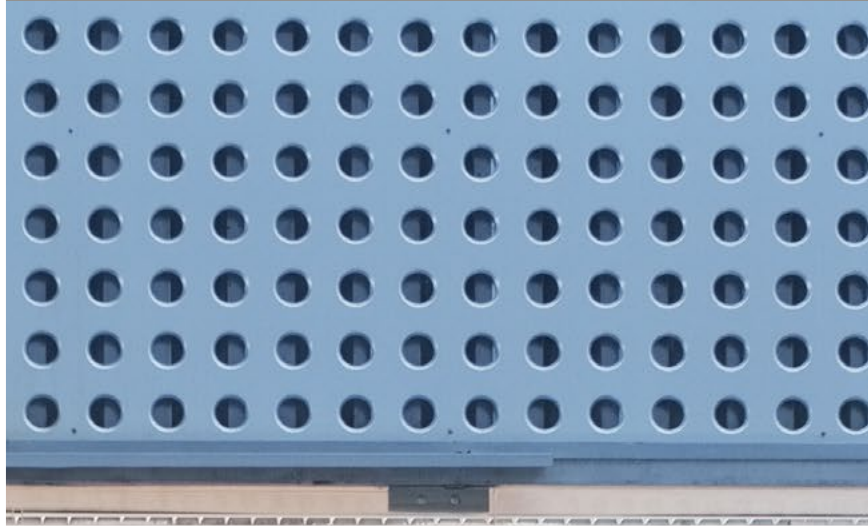
What are the barriers to overcome to implement AI in PM?

Even now, as Antonio Nieto-Rodriguez explains in his book *The Project Revolution* [10], executives still consider project management to be more of a tactical or operational discipline than a strategic one. This means that the value that projects and project management can bring to an organisation is not adequately recognised.

In the early stages of the life cycle of a new product, project management plays an essential role in connecting the dots between different internal and external stakeholders and making sure that the plan and investment are being delivered on. Delays in bringing a product to market or entering a new market without a proper plan can result in significant losses. It is therefore in the best interests of executives for strategic decisions to be clearly linked to project execution and for projects to be interpreted as an extension of strategic decisionmaking at board level.

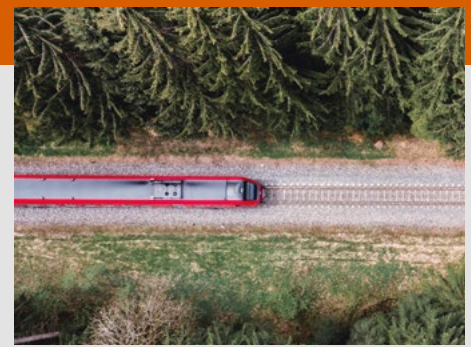
Project management professionals are painfully aware of this conundrum, and often use risk management approaches and effective stakeholder management to ensure adequate management buy-in. What are the lessons the project management profession can learn to reproduce the success AI is having in other industries?





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Are there any cases where AI has been implemented successfully?

Throughout various industries there are many use cases where AI has been implemented and is successfully generating value for companies. In the following table we look at a few examples of AI from different industries and describe their impact on the organisation.

Industry	Use case and description	Impact
 Financial services	Robo-advisory: A robotic advisor in financial services is a non-human proposing financial transactions to a customer. In some cases, the robo-advisor can also perform actions on the customer's portfolio without customer interaction to stay within certain pre-defined parameters.	• Extends the reach of investment products into lower customer segments • Generates additional revenue through the robo-advisor • Robo-advisory has a better conversion rate than classic investment advisory • Helps the bank collect further data in the investment decision context
	Fraud prevention: In various settings, financial services companies use AI to identify fraudulent patterns. An example is credit card fraud. Based on the information and the usual buying behaviour, the bank applies AI to identify unusual transactions which need to be inspected or held back from processing.	• Reduces fraud-related costs thanks to early recognition • Assists fraud examiners with smart insights based on data • Reduces frequency of false-positive identification by means of machine learning pattern recognition
 Transportation	Lane-keeping assistance: Lane-keeping assistance (LKA) systems use video cameras to identify and monitor the distance to the road markings in front of the vehicle and its relative position in the lane. The system steps in if the distance to the road lane falls below a set minimum threshold. [11]	• Reduces the number of accidents due to driver inattention • Increases general car/driving safety • Constitutes a positive marketing attribute • Increases revenue, as LKA is usually sold as an add-on
	Self-driving vehicles: A self-driving vehicle can navigate autonomously from a starting point to a defined destination. The vehicle utilises various technologies and sensors such as cruise control, steering, navigation system, lasers (LiDAR) and radar to reach its goal. [12] While fully autonomous cars are not yet able to navigate all and every street on a global scale and important ethical and liability-related questions remain unanswered, these vehicles exist and are on the streets as both test and live versions.	• Increase data collection for an organisation to improve both vehicle and features • Product differentiator constituting a positive marketing attribute and sales contributor • Expected to increase safety for all road users



Industry	Use case and description	Impact
 Home assistance	Digital assistants: A digital or virtual assistant is a program that understands and interprets natural language voice commands and completes tasks for the user. Examples of such assistants for private users are Apple's Siri, Google Assistant and Amazon Alexa	• Answer customer queries faster and with(out) waiting times • Reduce stress for customer service staff stress and the number of menial customer queries • Systematically identify deficiencies or weaknesses in products through customer feedback
	Household robots: Household robots are designed to perform specific tasks or activities around the house. The most common home robots are smart vacuum cleaners. These devices have sensors and/or video cameras installed that help them navigate a household to clean floors or windows.	• Direct product sales • Reduce the effort involved in vacuum cleaning for customers
 Healthcare	Image diagnosis: Image-based diagnosis such as cancer screenings/mammography is widely used in radiology to detect cancer. AI technology helps with screening and supports doctors in their medical diagnosis. In most cases these technologies are still at the experimental stage and not relied upon fully, but they can be a big help to lesser experienced doctors. [13]	• Better identification of illnesses • Provide a second opinion to doctors
 Retail	Customer buying behaviour: Probably the most omnipresent form of artificial intelligence, typically used in online shopping for recommending further purchases and cross-selling (e.g., "Other customers were also interested in XYZ").	• Enhance customer segmentation through data insights • Increase purchase volume per customer



One, or rather the key theme in these use cases is the measurable impact they provide to an organisation or a user of the AI solution. This seems obvious enough, but it's important to make clear that the impact an AI delivers must be greater than what the process would be delivering without the AI. For the AI to deliver value it must result in higher sales, fewer cost overruns, timelier completions or something along those lines.

The IMPaCT success factors

While “impact” or value is the key factor in the success of AIs, it is not the only one. Working on the basis of the organisational AI readiness framework introduced by Jöhnk et al. in 2020[14], we identified and adopted data, people and capabilities and technology as key AI success factors in the framework. These success factors are critical for technology adoption. To make our success factors more memorable, we have changed “data” to “measurement” to give the acronym IMPaCT, as illustrated in Figure 1.

Figure 1: IMPaCT success factors



Impact and value

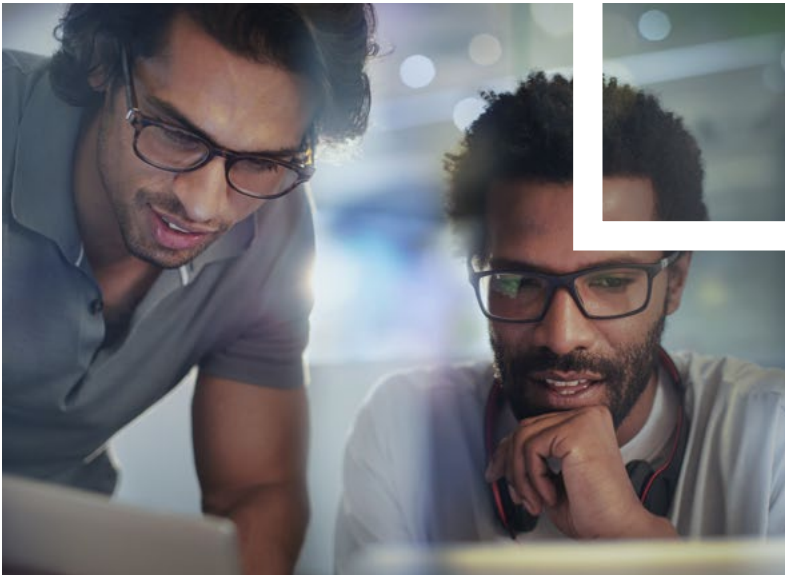
In the cases described where AI has been implemented successfully it has had a very tangible impact on the organisation's top or bottom line. In the examples from the financial industry, the AI trading algorithms exist to gain financial benefit on the securities market, either for banks themselves or for their clients (in the latter case via robo-advisors). The value is quantifiable and can be compared directly against any investment in the AI software to justify the spend. The same is true for retail recommen-

dation engines, where the success of the AI can be directly linked to the investment.

Given the limitations project management as a profession still faces within organisations, especially in terms of top management recognition, fulfilling this success factor to demonstrate the impact and value of investment in AI remains a challenge that has to be overcome.

For organisations that recognise and promote the value of project man-

agement, the value drivers for project management AI are clear as day. Project managers are more productive, there's a better and more transparent view of risks and issues, better budgeting, and an overall reduction in manual administrative tasks.



It's evident that organisations with a culture focused on engineering and innovation are more likely to succeed in attracting this key talent.



Measurements

Of course, having more measurements/data is usually better, but even more important is having the right data. In some of our examples, this is achieved by having the application also create some of the data used by itself (this applies in particular to recommendation engines where, the AI can learn on the basis of decisions the user has taken). Alternatively, in the case of financial data, data can be bought from specialised external providers (e.g. Thompson Reuters or Bloomberg).

Organisations with successful AI applications already have strong data governance procedures and principles in place. Data scientists and engineers have the access required to relevant data sources and streams to continually improve AI operations. AI applications – and especially their training datasets – need to be continuously updated to make sure that the trained outcome still reflects the intended goal of the application.

Applying rigorous data governance to ensure ongoing data availability and controlled access in line with data privacy and protection laws is key for successful organisations. Every project worker can support efforts to assure proper data collection and governance. Organisations with a dedicated project portfolio management set-up will be especially well equipped to move forward here, as more data will be available.

People and capabilities

One of the most important factors is people and capabilities. Any organisation that intends to use its data to create further value out of it needs to employ data-savvy staff and leaders, ranging from data scientists and engineers to tech-savvy PMs.

Organisations that are already data-driven or are in the midst of a transformation effort to become more tech-enabled, and even data-enabled companies, have major advantages compared with companies that are just starting on this journey. It's evident that organisations with a culture focused on engineering and innovation are more likely to succeed in attracting this key talent.

The good news is that universities have foreseen the trend. They have introduced a lot more data analysis/science and computer science programmes and are consistently producing new graduates in these fields. The bad news is that there is still fierce competition for these graduates, and companies need to be prepared to either pay for these skills or invest in their own people to upskill them for the roles required.

Technology

Technological progress in the last few years, be it in storage, CPU or GPU speed, has made technology a clear success factor for any application in the AI space. Computational hardware has been one of the biggest factors limiting AI and data processing in the past decades.

With cloud-enabled upgrades of computing power, however, in most cases this issue can now be resolved, at an affordable price, for regular consumer products.

Another hardware limitation has been the cost of storage. With the price per gigabyte of storage under USD 0.10 [15], it is now affordable to collect and store data, almost endlessly. Nevertheless, the bigger the datasets to use and train, the more speed is required (this is where the public and private cloud comes into play).

However, one gap that still exists is in automated data labelling and data recognition. In chess, it's relatively easy to have the algorithm track the millions of possible moves in a game and predict the opponent's next move, as there is a finite set of rules and the algorithm can access the data for previously played games. But what if the datasets are hard to digitise, as is the case in project management? Companies have to start to manually label datasets and bring them into a readable and structured order. Success will depend on the ability to use AI technology that is deeply embedded within the project and able to classify the data as well as build up knowledge about earlier projects. As mentioned in a previous section, SharePoint Syntex appears to work on the basis of such an approach, and it will be interesting to see if, how and when this data can be used for predictive project analytics or other advanced project AI.

3

How to make AI a success in your PM organisation

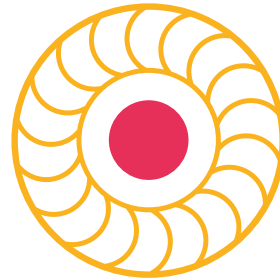
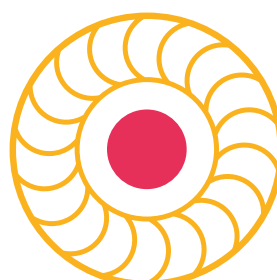
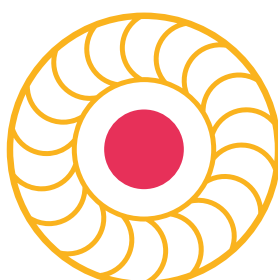
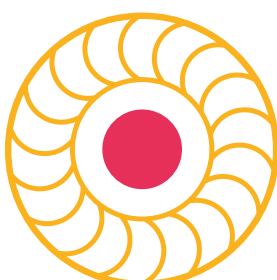
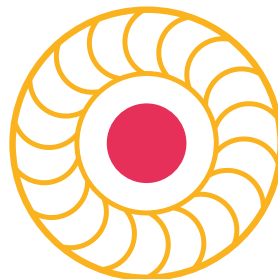
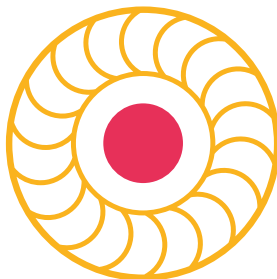
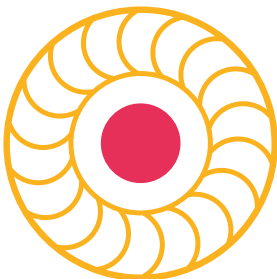


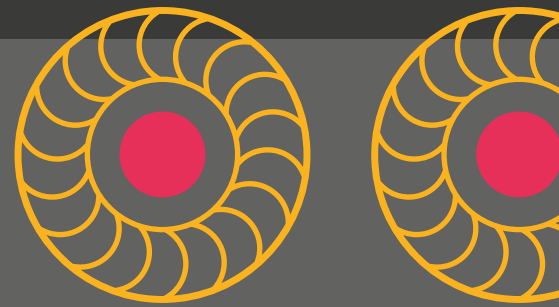
Most companies tend to look at programme spending purely as costs rather than as investments. This means that even once it becomes foreseeable that a programme or project can add no more value because of external or internal changes, it is still followed through to the end, basically wasting finite company resources and perpetuating the sunk cost fallacy. Added that, decisions on which projects to run – and even more importantly, which ones to terminate – often involve a lot of intracompany politics. The fact that career paths, influence within the company or department and personal power bases are often perceived to be directly linked to specific projects prevents rational decision-making.

Most companies rely on subjective, “handmade” reporting coming from individual initiatives, often not standardised or comparable across projects. Usually the project

portfolio level is only fed with highly aggregated figures which are sometimes misleading or biased. This means there’s a very strong case for deploying impartial and rational AI functionalities to monitor and control at the programme and project levels, as only such an integrated approach will deliver optimal returns. This also clearly demonstrates the case for reducing the time spent, for example by project leaders, on recurring project tasks that don’t directly generate value.

As seen in the previous chapters, there are in fact many impressive examples of actual, widespread and highly successful implementations of AI. In the following sections we will use the IMPaCT success factors we’ve defined to identify the way forward for AI in project management and picture a roadmap enabling organisations to achieve success on this journey.





Understand the value of AI in your project environment

In an article for Slate, Jeffery Funk and Gary Smith wrote the following: “One of the reasons A.I. overpromised and underdelivered is that we didn’t anticipate that building a computer that surpasses the human brain is the moon-shot of all moon-shots.” [16] This captures the essence of what a fully autonomous project manager AI could bring to the table. The good news is that a “moon-shot of all moon-shots” is not required to capture benefits or generate impact for your company by applying AI in your project environment. Essentially, the value of an AI for project management just needs to be higher than what a traditional project manager currently provides. Depending on the project environment, being able to identify

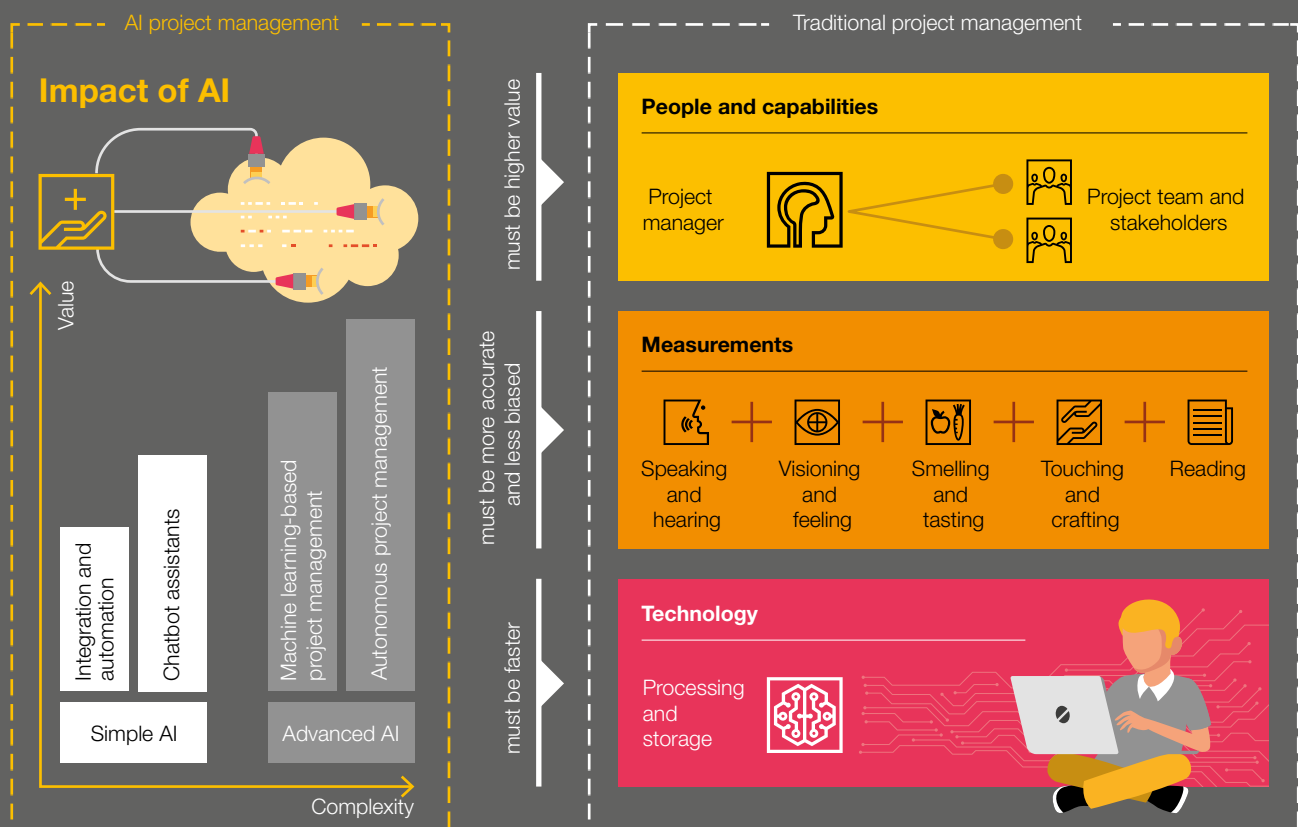
and manage risks better or earlier could result in lower costs or lower delivery time than planned. We have illustrated this in the value equation in Figure 2.

The technology already exists for AI programs to track human speaking and hearing, reading and touching. But its use in corporate settings, and especially for monitoring productivity, is very limited. Let’s be honest, this has quite a dystopian ring to it as well. Especially in a more privacy-conscious region like Europe, monitoring and controlling arrangements of this sort might lead to worker protests before they could be rolled out in production. Nevertheless, for a project AI to become truly autonomous, this is a

challenge to be overcome at both the socio-economic and the purely technical levels.

Overall, we believe that truly advanced AI will empower the traditional project manager with experience from projects past and projects executed by other project managers, as well as being able to overcome inherent biases the project manager has. It will identify patterns in communication that indicate hidden agendas or motivation not in line with the stated goal of the project. If you believe in the value of project management, AI-enabled project management is only the next step.

Figure 2: Value equation for AI in project environments



Implement AI success factors in your PM environment

As stated in a previous section, the IMPaCT success factors guide what needs to be done to implement AI effectively. Such implementation will need to first focus more on narrower parts of AI. The experiences and data pools will be immensely valuable to organisations as they progress on in their journey towards project AI.

To help determine initial actions, we have come up with an overview of what is easy for AI and hard for project managers, and the other way around:



Easy for AI and hard for project managers

- General predictions
- Complex rule-based decisionmaking
- Recognising patterns
- Filing taxes
- Repetitive paperwork
- Fraud detection

Tasks where data is easily accessible and readable for a machine



Easy for project managers and hard for AI

- Diplomacy
- Influence without authority
- Feeling/empathy
- Stakeholder management
- Communication management
- Strategy design and execution

Tasks where data are hard to get in a structured and easily readable way

Based on these activities and drawing on the IMPaCT success factors identified earlier, the following section includes action that any project worker can take to make sure that AI creates the value for project management we have come to believe in. In order to achieve this, we propose creating value cases based on the impact of AI on project management. For example:

- **Motivating people:** AI technology already makes it possible to monitor and evaluate how well individuals are performing specific tasks and optimising workflows (e.g. via Microsoft Viva Insights)
- **Making decisions:** AI can help to make more accurate project decisions based on the collective subjective judgment of experienced individuals (via applied deep learning)
- **Coordinating activities:** AI can help to dramatically reduce the cost of coordination within and between projects, vendors and organisations (using chatbots)
- **Defining objectives:** Narrow AI works best when it's directed to tackle a single goal – broadly speaking, towards the defined project success measures. The success of machine learning techniques such as reinforcement learning is due in large part to algorithms that “reward” choices (e.g. scope, time, cost, quality) that get closer to a pre-specified goal (i.e. go-live).





The impact of project AI

The first crucial step is to understand how AI could bring value to your organisation. Clear values and goals have to be defined so that all activities relating to AI-supported project management can be measured to support the achievement of these goals. The value proposition and impact of any new change in the organisation can only be fulfilled if there are goals and aims it can reach.

Think about your first use cases, such as visual pattern recognition for shipping documents or speech recognition for taking minutes of meetings. These are already possible and can assist project managers and project workers by taking over administrative tasks. Using these narrower functions of AI to gather experience and data for the organisation also brings benefits for further adoption down the line.

- Formulate the impact and value a project AI can bring to your organisation
- Define the goals the project AI needs to achieve in order to be successful
- Create first use cases based on the impact of AI

Measurements for project AI

When it comes to making quality project management data available, labelling and volume are among the biggest issues that need to be tackled. Traditionally, project management data is stored in many ways, physically and digitally, as many different file types, and most of the information is passed on in spoken form in the course of meetings or phone calls. As much of this information as possible needs to be identified and captured for later use.

Organisations and project managers venturing down the path towards AI-enabled project management need to make sure that they standardise as much as possible and use metadata to label their project documents and information. Especially when working with project portfolio management organisations will, in the long term, benefit from this standardisation, in a first step also for a human portfolio comparison and also by introducing AI for comparison. We're seeing the emergence of the first tools attempting to provide help with this, such as the recently released Microsoft SharePoint Syntex with its knowledge graph technology.

Early adopters – either those adopting standard good practice data governance or those deploying classification software – will gain an edge by utilising datasets already collected and training the models in areas useful to them.

- Traditional structured data (project master data, schedules, milestones, resources, etc.) need to be made available
- Unstructured data in the form of text, audio, video and sensor data need to be identified and captured

People and capabilities for project AI

The third point – representing an almost universal truth within project management – is that change in organisations is driven by the people involved. As project managers, we are makers of change who influence the culture of the organisation through that change. The way we perceive project management AI will influence others.

All the employees involved must have a data-driven mindset if upcoming technologies are to be adopted in the future and built into the everyday



work routine. Policies around the ethical use of data can help alleviate some of people's hesitation.

Management and project sponsors need to support machine learning initiatives and enable data sharing among all projects so that a comprehensive and structured database can be created for current and future undertakings. Engineered and maintained by data specialists, these databases can be built to enable AI algorithms to learn from the captured data. Hiring or upskilling data engineers, together with proper data governance mechanisms, will help

organisations increase their likelihood of success in AI project management.

- Be the change agent for AI project management and focus on continuous improvement
- Ensure data engineers and machine learning experts understand your project environment

Technology for project AI

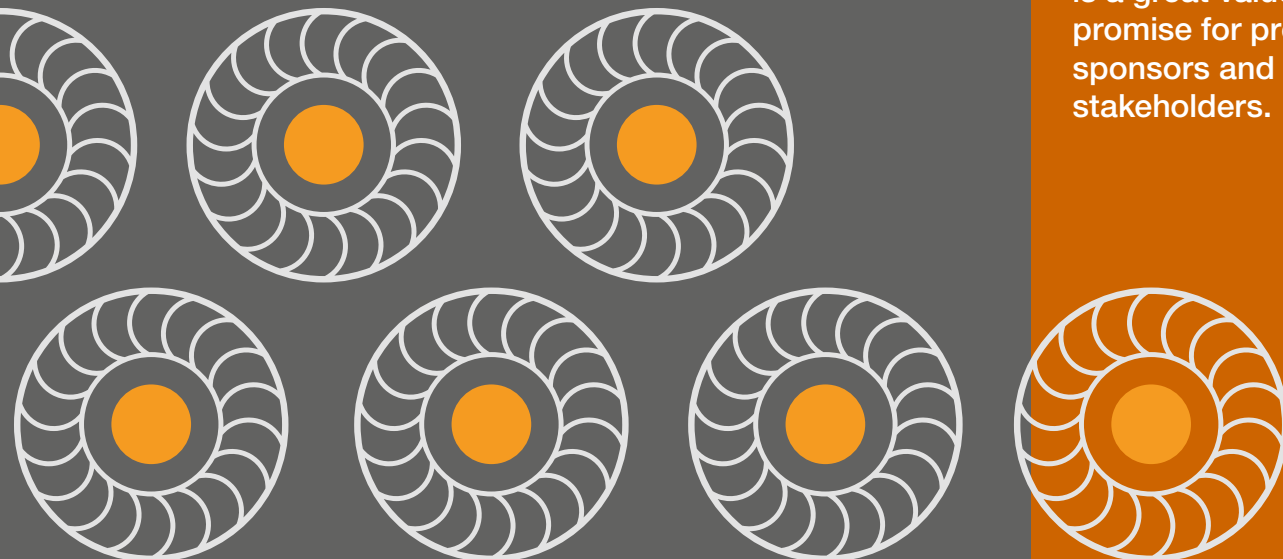
Organisations, and in particular project sponsors, need to understand both the upsides and the limitations of the new technologies, and they should take the first steps with proven methods such as natural language

processing or pattern recognition to help shape their AI strategy for future use cases.

AI technology greatly benefits from computation in the cloud thanks to the scalability of computing power it allows. Having experience and working in cloud environments is just one of the benefits of large-scale AI solutions. Having the edge and early mover advantage in a technology that undoubtedly has the power to transform the whole workforce in a couple of decades [17] is a great value promise for project sponsors and other stakeholders.

Depending on the industry you're working in, the technical complexity of your project environment will increase if there is a convergence of various essential technologies such as drones, virtual and augmented reality, and the internet of things. However, once these technologies converge with human ingenuity and, under your direction, an AI analyses all these different streams of data, project management will finally see its hyped revolution.

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Conclusion

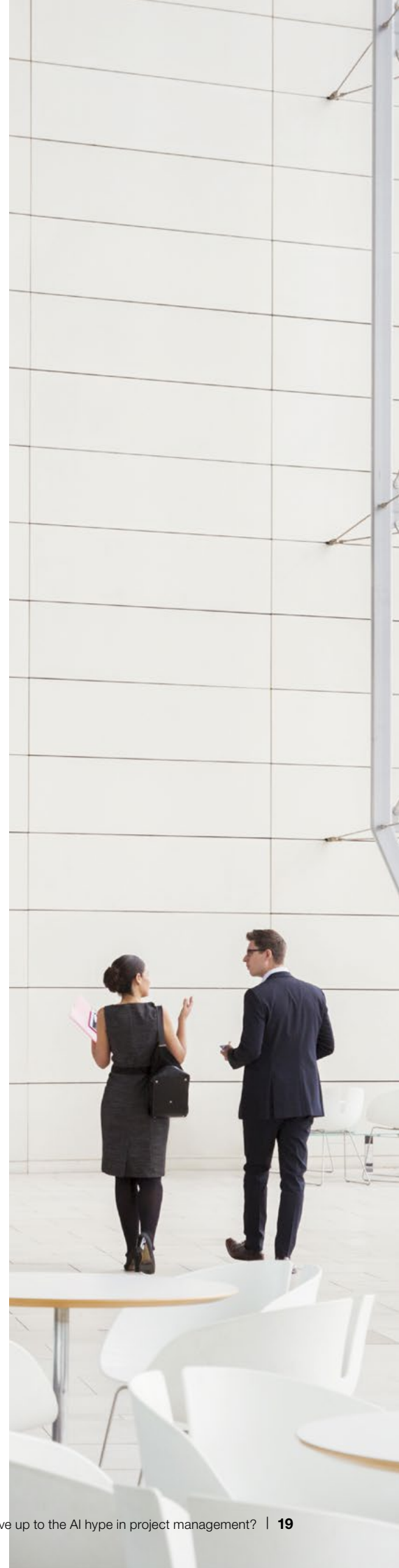
The unprecedented levels of money pouring into technology, and AI in particular, in the last decade have led to unprecedented levels of hype. Any article, documentary or business idea involving AI would be richly embellished with hype and a string of opportunities. Looking behind the hype, the tangible impact of these ideas is still at a fairly low level. So far the promises have failed to materialise – which is something we don't expect to change in project management in the next few years.

With our IMPaCT framework we've put together guidance to help you understand where the development of AI for complex solutions in project management is currently stuck. Each individual project worker should be able to take away some key insights for their daily work to ensure that their organisation is better prepared for the evolution of AI project management. Get familiar with AI for project management. Start with simple automation exercises and try out chatbot assistants to increase both your knowledge and your internal pool of relevant project data. Simple status and scheduling conversations can be supported or fully taken over by chatbot assistants, enabling project managers to spend more of their time solving the important problems. And obviously, by increasing your experience and the data available, you'll be able to move towards more advanced stages of AI.

Define the goals you want to achieve with AI and the value the organisation can gain from it. Simply put, if you believe that project management helps to deliver initiatives, then you should also believe that enhancing project management with AI to reduce the potential for failure will be worthwhile.

In your capacity as a project manager you can do a lot to assure the success of your endeavours by leading this change across the organisation and ensuring that your project workers are all on board. At this early stage of project management AI, the aphorism “garbage in, garbage out” remains truer than ever. It's crucial to make sure that all project workers work towards the goal so that the end result is not “garbage”. Taking early steps to ensure that data are used, stored and labelled uniformly will increase the usefulness of the overarching AI and give any company willing to try out this new technology a competitive edge.

This journey will not be a short one. There's no single fix you can implement and expect to immediately reap the benefits. But the organisations that can execute their projects better, in terms of time and budget, will come out on top in the long run.



Appendix

Tool name	Description	Target industries	Benefit	Drawback	Example use case
fireflies.ai	Record, transcribe and search conversations	Any: not specified	Store conversations as a written document in real time	Niche usage for PMO	Searching through audio recordings of past steering committee meetings
mely.ai	Automate data entry from shipping documents	Shipping, logistics	Capture key information digitally from similar shipping documents in real time	Only available for shipping documents and customs	Erasing manual data entry errors from scanned documents
lili.ai	Creates timelines from project documentation	Construction, energy, defence	Get an overview of information flow from projects through keyword categorisation of documents	Limited use for projects outside target industries	Creating a timeline from project documentation and identify early indicators for delay
sharktower	Project planning and reporting tool with real-time AI analytics	Mainly agile projects within any industry	Manage agile projects more efficiently in one place with real-time reporting	Most useful if every aspect of project management is managed within Sharktower	Planning and reviewing your Sharktower projects in real time with other collaborators
ScopeMaster	Automating software requirement analysis from text input	Any industry developing software products	Time saved thanks to the fast creation of requirements as well as automated testing	Niche usage for PMO – useful in Scrum	You define your requirements by text input and the program creates requirements and their effort
ClickUp	Automating and simplifying task tracking and collaboration	Any: not specified	Visualisation of project to-dos and task lists with interactivity for other collaborators	A lot of functionality but no flexibility outside the framework	Multiple colleagues track tasks in a PMO setting with in-built chat and dashboard function
Microsoft Syntex	Interpret and label documents in SharePoint	Any: not specified	Content labelling of SharePoint-stored documents in real time	Not fully published – long-term usefulness not validated	Search for content and labels of any Microsoft Office document in SharePoint





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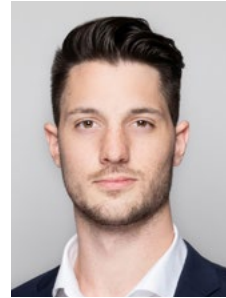
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