Implementing a Data First Strategy to enable AI based project prediction in Construction

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Abstract

An abstract of the paper must be of 100-175 words and should address the major aspects of your paper. Summarize the scope and nature of the work upon which the paper is based. Note the relative emphasis of the paper on either research work or practical applications for projects. Describe the results presented in the paper and state specific conclusions of your work. Describe how these differ from results or conclusions of previous work on the same or similar subjects.

There are many benefits of using AI in your project management strategies. However, they can be difficult to achieve without the right foundations in place. In order to really excel, there's one key thing to focus on: data.

greyfly.ai worked with a construction project management company to assess the need and plan for a Data First strategy. This paper explores:
● Why is a Data First strategy so important?
● What data may be useful?
● What is data maturity and what impact does it have on AI for project management?
● What are the risks of low data maturity?
● What barriers can prevent data maturity?
● Key steps to implement a Data First strategy

The underlying purpose is to help a company move from low level data maturity to a level that is ready to secure the benefits of implementing AI in project management. The author, Lloyd Skinner, has practical experience of taking a top down approach to supporting companies on their AI in PM journey whereby a Data First strategy is a major constraint to success.

Paper must be within 1500-2500 words and must contain:
1 - Abstract
2 - Introduction

Introduction
There are many benefits of using AI in your project management strategies. However, they can be difficult to achieve without the right foundations in place. In order to really excel, there's one key thing to focus on: data.

Author profile: Lloyd J. Skinner, BA (Hons), MSc (Econs), MBCS
Lloyd is a project professional with 25 plus years of experience working in multiple sectors and projects in both delivery and support roles. He has managed full life cycle, large £multi-million transformation programmes with infrastructure at their heart. For over 3 years, as CEO of greyfly.ai, he has been investigating and developing products that use AI in project management to increase the likelihood of project success.

Why is a Data First strategy so important?
AI needs data to function. Project management often involves using AI to assess risks, plan for the future, or schedule your workforce. Without accurate data, you won't get accurate results - meaning you might under-budget, or ignore project threatening risks.

CTO for data science and AI at IBM, Deborah Leff, considers a lack of data one of the main reasons projects fail. She states that *"I've had data scientists look me in the face and say we could do that project, but we can't get access to the data"*.

It's not enough to simply have unstructured, unorganised data. When it's siloed between teams, stored in the wrong format, or simply lost, it means you don't have the mature, wide-ranging, and accurate data you need. Implementing a Data First strategy prevents this - and means that your teams won't run into the problem Leff mentions.

Greyfly.ai's construction project management client does not have the problem of lack of data, but rather that project data is inconsistent and non-standardised amongst its clients, as well as being hard to access as it is dispersed throughout the organisation.

What data do you need?
It's important to understand what data you actually need. You don't want to keep irrelevant information, and you also don't want to throw away potentially valuable files. The quickest way to work this out is to ask a simple question: what do I want this data for?

AI Use	Relevant Data
Project completion estimates	Time logs from previous projects
Budgeting	Business budgets and actual costs
Project resources	Effort required to deliver projects

For instance, if you're looking for project completion estimates then you're likely to need time logs from previous projects rather than, say, customer service call logs! Ensuring you understand what you need means any AI you implement will have the right data to draw from, helping lead your projects in the right direction.

greyfly.ai took a top down approach to this challenge with its' construction project management partner company by looking at the big questions required for project success. Then we focused in on the data points that are most likely already existing within a company.

What is data maturity and what impact does it have on AI for project management?
According to Gartner, only 1 in 10 companies manage to get 75% or more of their AI projects into production. There are three major barriers to success: data accessibility, data scope and quality, and data volume. The concept of 'data maturity' covers all of these issues, and can help businesses keep track of how well they're doing with their strategies.

What is data maturity?
Data maturity is a way of considering a company's relationship with data. It's not just about the quality or amount of data, either. Instead, it encompasses storage, analysis, security, and every other aspect of that relationship. There are a few ways to measure the maturity level, but we'll be looking at TDWI's.
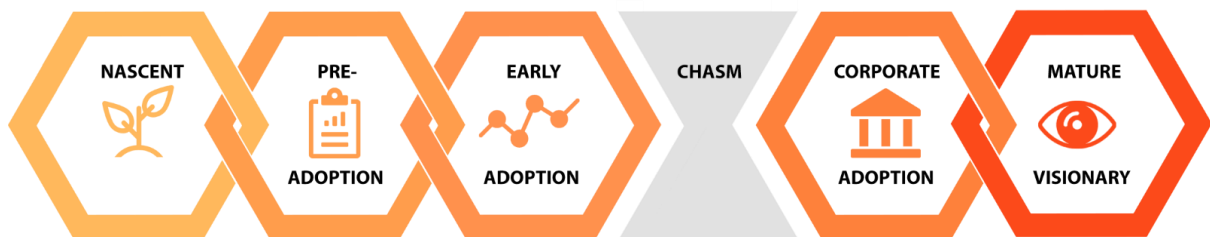
In TDWI's model, the level are:

1. Nascent

This level is where companies new to handling data, or those who pay little attention to it, tend to sit. Businesses at this level don't understand how to use data, provide no support to anyone intending to use it, and frequently lose or discard data.

With no long term plan, companies would struggle to make use of AI in PM - there's no foundation to build on, and no infrastructure in place.

2. Pre-adoption

This step is very similar to the nascent stage, with many of the above problems still in place. However, the company is taking an active interest in using big data and analytics. They may be using external consultants, hiring new staff, and investing in new technology.

Pre-existing data is likely to be assessed, cleaned-up and stored appropriately. However, the company culture is yet to shift and there is no overarching structure or system in place.

3. Early adoption

Reaching this step is key to getting a Data First strategy underway. At this stage, at least one executive-level staff member is involved and supportive. Teams working on company data are provided with the money, resources, and staff that they might need. However, companies may encounter conflicting goals between project managers and their data analysts, or project managers and the C-Suite. Early adopters will have the relevant infrastructure in place. This means existing data can be given structure, with standardised naming systems, formats, and metadata . Most importantly, data is no longer discarded or lost. Research has started into improving data quality and security, but nothing has been fully implemented.

Between this stage and the next comes something known as the 'chasm' - the leap from small-scale adoption to company-wide adoption. It requires a culture change, significant investment, and perhaps most importantly, long term goals and strategies.

4. Corporate adoption

After the chasm comes corporate adoption. At this point, businesses have hired the right staff, designed a company-wide structure for data, and developed long term goals and strategies and it is feasible to implement AI. Project managers have access to comprehensive data sets, as well as the requisite staff to use them. Due to a clear data life cycle, strong data governance policies, and an active search for relevant data, AI has a sufficient foundation to build on.

Key to this stage is the company wide culture shift that happens - data-driven strategies become the norm, and end-users begin to get involved with data. It's no longer the realm of a single team or specialist. Instead, it's a key part of the business.

5. Mature/visionary

This level is tricky to reach, but that doesn't mean businesses shouldn't aim for it. A mature company has all the facets of one at the previous stage, but goes beyond it. The key difference is that these companies focus on *continuous improvement*. Whilst a company at the previous level may be content with a working solution, visionary companies seek out new and innovative technologies and tactics.

greyfly.ai worked with their construction project management client not to see a low level maturity as being a negative but more as a call to action to set objectives and drive greater data maturity levels.

What are the risks of low data maturity?

As you can see from the five maturity levels, low levels come with a number of risks. Low data maturity will impact any part of the business that uses data - or analytics based upon it. The risks include:

- **Financial loss and reduced productivity:** There are many ways poor data quality can cost a business money. [Gartner](#)'s Data Quality Market Survey estimates the average per year is $15 million. A lack of centralised infrastructure leads to inefficiencies, potentially leading multiple teams to repeat the same tasks, and poor security can lead to breaches. Overall, low data maturity is costly and time consuming.
- **Poor choices:** As we noted, implementing AI before the corporate adoption stage is unlikely to succeed. This is because, if you're relying on biased, incorrect, or incomplete data, you'll get bad results. That could mean inaccurate project estimates, under budgeting, or ignoring potential risks.
- **Lack of security:** If you don't understand your data, you won't know the best ways to look after it. That can lead to sensitive information being stored in easy-accessible locations, or without the appropriate level of security. This can make your data a tempting target for hackers.

greyfly.ai raised these risks with their construction project management client but also identified the quantitative and qualitive benefits of driving greater data maturity and implementing an AI in project management journey.

Key steps to implement a Data First strategy

Clearly, a Data First strategy is a must-have if you want to [implement AI in project management](#). While the amount of changes needed will vary based on which level your company is at, there are a few key steps everyone should follow.

- **Get upper management involved.** Ideally, you want the CDO (Chief Data Officer) but if this role doesn't exist, then CTOs or the corporate lead of project management is the next best bet.
- **Design your strategy, budget, and plan.** By laying out your short- and long-term goals, as well as strategies to achieve them, you can avoid problems further down the line.
- **Find the right people.** For a Data First strategy to succeed, you need experts in both data management and governance. You might hire new staff or bring in consultants to help.
- **Invest in infrastructure.** Hiring the right people is meaningless without the right technology. At minimum, you'll need a central location (whether on-site or in the cloud) for storing data.
- **Create universal data policies**. Reduce the amount of time spent cleaning and validating data by having set policies in place. These policies might include naming conventions, quality conventions, and details on what to keep/discard.
- **Training**. It's not enough to simply hire new people – you should train existing staff too. Anyone who interacts with data needs to have a clear understanding of data maturity, as well as their own role in maintaining it.

greyfly.ai is working with its construction project management client through each of these stages whilst building practical AI in project management tools.

Conclusion

We all know that AI can help with Project Management. However, not everyone understands that it's not *just* AI - it's also about data. Without a Data First strategy, AI can risk your projects, whether through poor decision making or sheer inefficiency. By taking these steps to improve your data maturity, you'll create the perfect environment for AI - and your business - to thrive.

greyfly.ai continues to work with its construction project management client on its' AI in project management implementation journey.

Bibliography

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