Modernizing Construction Performance With Intelligent Platforms

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Today's construction projects generate massive amounts of data. Typically, construction firms use this data to assess what has happened on a project, answering questions such as whether the project is on budget or if the project is on schedule. While looking at this retroactive view of a project can be somewhat helpful in providing indicators that can help identify and fix problems, it does not unlock the full potential of the rich data sets available.

To truly take advantage of data, construction businesses can use it to driver better project outcomes by analyzing and deriving insights on what is likely to happen in the future using AI and machine learning. Utilizing these technologies can generate dynamic, "leading" indicators from data that can give organizations an advanced look at if - and why - a project is likely to suffer delays, risks, or cost overruns. It can even assess schedules and budgets against historical data to spot potential problem areas and improve accuracy before a project even begins.

Getting Off to The Right Start

A major key to creating and rolling out a successful data strategy is to carefully consider needs, and the steps needed to achieve them. Generally speaking, a good plan of action consists of the following steps:

- Create a culture that values data-driven decision making
- Identify the specific problems you are trying to solve
- Develop a 6- to 18-month plan that takes into account your current systems, the data they produce, and the insights you would like to glean from that data
- Find a solution that will deliver immediate value and execute the plan

Demystifying Predictive AI

Many engineering and construction businesses are hesitant to invest in AI because they assume it requires a lot of infrastructure and manual entry of large amounts of historical data, but that is not always the case. In fact, some newer data

platforms have algorithms that are pretrained as a starting point, and can provide predictive insights from whatever historical data the organization inputs.

The fact is, implementing predictive AI is not as daunting as organizations might think, thanks to advanced platforms that can be deployed quickly and tailored to an individual organization's needs. Organizations can take advantage of these solutions to quickly start generating useful insights into performance and risks.

Potential Insights From Predictive AI

Predictive AI can provide a number of insights to help engineering and construction businesses operate more efficiently.

For example, predictive analytics can improve scheduling accuracy by predicting the likelihood and extent of delays, and which activities are most likely to cause them. Machine learning enables the predictions to become more accurate with time. Similarly, budgets can become more accurate as predictive AI analyzes past budget data such as cost sheets, actual expenses, subcontractor payments, change events, variations, contract changes, etc. This will provide a more precise idea of the costs that might be incurred on new projects.

In addition, predictive AI can provide an early warning system for risks. Some platforms can even incorporate natural language processing and sentiment analyzing capabilities to detect signs of disputes and the possibility of litigation. These solutions can also analyze change requests, punchlists, and even "Internet of Things" sensors to assess quality and safety statuses in real-time and providing predictive insights so that project teams can take proactive action.

When used properly, predictive AI has great potential to enhance decision making on construction sites and ultimately drive better business outcomes. We are just beginning to see the possibilities that these emerging technologies can open up for the engineering and construction industry.

About the Author

Karthik Venkatasubramanian has global responsibility for defining and delivering the data strategy within Oracle Construction and Engineering. In a career spanning 20 years across four continents, he has been instrumental in building digital capabilities from the ground-up across many industries and organizations where he has successfully led several large-scale transformation programs that have been the featured in case studies, patent applications, industry publications, and international conferences. His current focus is on the application of data science techniques in solving real-world construction and engineering problems.

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