

City Talk

AI CAN BE KEY TO FEWER RISKS ON MAJOR PROJECTS



The Hong Kong-Zhuhai-Macau Bridge was one of the capital projects that saw major cost overruns.

Last week I described how the Centre of Excellence for Major Project Leaders set up by the Project Strategy and Governance Office of the Development

Bureau can help to train project managers.

With those skills, leaders can apply them to supervise and manage projects.

The office has other key functions, such as guiding managers to be more effective, monitoring the performance of capital works projects, and providing early warnings to senior management.

We often hear stories of project cost overruns and late completions.

This could be due to a variety of reasons, such as labor shortages, inclement weather and other unforeseen difficulties not envisaged at the tender stage.

Such delays, with potential cost issues, can result in disputes, further delaying contract completions and adding unnecessary costs as they often lead to legal snags like arbitration or litigation.

Delays and cost overruns in large-scale projects are not unique to Hong Kong, and benchmarking our contract performance with comparable overseas cities shows we have been better than average, but any such occurrence is still a problem and an embarrassment.

The office has conducted studies and concluded it may be possible to predict overruns based on past project data.

At present the office uses its project supervision system to monitor the health status of projects.

That comprises cash-flow graphs showing characteristic spending trends based on data from capital works projects.

Comparing the latest cumulative spending of a project with these cash-flow graphs can show whether the cost performance is on track or require attention, thus it can provide an early warning of disparities and offer opportunities for timely corrective action.

Formulating these trends in the super-



Nuts and bolts

Edmund Leung

establishment of a robust database from past capital works projects.

With the advent of AI technology, project data can now be applied to self-learn and self-update for better records and used as a reference for monitoring.

Last year, the office engaged a research team headed by a world-class scholar from the University of Oxford, a recognized authority in the field, to study the feasibility, accuracy and reliability of applying AI to the project supervision system, and the results were most positive.

The study also showed that our project data can be correlated to the vast amount of data the research team has collected from different countries or economies, forming the basis of a "Big Data" bank that is ready for use as a reliable benchmark against which actual performances can be compared to keep projects on track, minimizing risks of cost and time overruns.

With the database continuously updated, AI can help provide early warnings of disparities, allowing managers to plan and implement timely corrective measures.

We can see that, with project leader upskilling and the application of AI to the project supervision system soon, there will be more effective control.

Project owners should also put more effort into the planning stage, setting up better cost and time budgets for major projects.

We may not see the end of cost and time overruns in future projects, but hopefully with the joint effort of everyone in the construction industry, we should be able to further reduce the adverse results of cost and time overruns.

Veteran engineer Edmund Leung Kwong-ho casts an expert eye