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Analytics

Using Analytics to Monitor Profitability, Cash & Risk in a Portfolio of Projects

By Michael Kightley

A Portfolio of Project Risks

Organizations that undertake many projects experience variance in the performance of each project and so adopt a portfolio approach to managing risk. The variance of the performance of the portfolio of projects will be lower than the variance of any individual project.

The risks of the portfolio must be monitored to ensure that the performance of the portfolio is staying within predicted parameters. Early warnings of issues help management to make early interventions to either bring the portfolio back into balance or to increase the contingency provisions or reserve buffers.

Transfer of Risks to Outsourcing and Contracting Firms

In outsourcing and contracting, clients seek to transfer risk to contractors because they have the best skills to manage project risks and the transfer provides them with the economic incentive to manage risk well. The contractor spreads the risk over a portfolio of projects for multiple clients and keeps contingency cash reserves that can absorb the potential variance in the performance of the portfolio.

The portfolio approach assumes that the risks of individual projects are not correlated. Monitoring will reveal where this is not the case. For example, a contractor's portfolio might show a pattern of overly aggressive bidding and this will result in a series of projects with correlated high levels of risk that will need the contractor to maintain significantly higher levels of reserves.

Failure to manage risks correctly and maintain correct reserves can lead to losses that exceed the cash reserves, so contractors can go out of business. A failure to monitor the portfolio risk is damaging for the contractor and the client alike.

Example Case: A Construction Company Client

The client was a Canadian construction firm with a portfolio of projects across western Canada. Rapid growth meant that the top management now needed automated reports and analytics to help them to stay on top of the profitability and risk of their portfolio of projects. The growth rate meant increasing revenues but also a growth in the use of cash for working capital and for the risk reserves.

The Data, Data Warehouse and Data Model in SQL Server

We sourced the information for the analysis from accounting, direct labour and operational systems. To bring this information together, we set up automated data feeds from these systems into a data warehouse in the Microsoft Cloud using SQL server.

We designed a data model that would make all the data, calculations and predictions required for monitoring easily accessible to business users.

Dashboards in Tableau

We developed dashboards in Tableau that gave visual insights into the performance of the portfolio. These gave prompt and regular updates on the actual and projected performance of the portfolio, with drill down into project detail.

This meant that the management could quickly find when projects were not performing as expected, rapidly assess the implications, review the causes, and decide on prompt interventions to address the issues.

Management could manage cash reserves closely, returning cash to shareholders that was clearly excess to requirements as working capital and risk reserve, so improving the return on capital employed.

The Broader Implications; Analytics as a Competitive Advantage

This industry sector is one in which the ability of the supplier to manage and absorb risk is of clear value to the customer. Were the contractor to fail to absorb the risk and then fail as a business then the disruption for the customers could be severe. A contracting firm's skill at managing risk is one of the criteria customers should use to evaluate a bidder.

Demonstrating the ability to monitor and manage risks and reserves could thus be important competitively. The alternative of the supplier keeping large cash reserves to cover any eventuality would require prices which are unattractive to customers or make such a business very unattractive to investors.

Therefore, the ability to monitor and manage risk with early targeted action to address and correct problems early is valuable for all outsourcers, contractors and for their clients. Analytics is a low-cost way to make the firm both more competitive and more robust. Firms without these analytics and monitoring capabilities run the risk of being less competitive, less attractive to investors, and more prone to failure.