



Title: Optimisation of Project Decision-Making – Mitigation Strategy Selection

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Summary: Projects face an almost unlimited number of threats, but a finite amount of resources to control or mitigate them. In this session we will discuss Monte Carlo Simulation and Decision Tree-based techniques for determining the effect of a mitigation strategy portfolio on key features of the total project cost distribution, such as contingency and management reserve, and other measures of exposure.

A natural extension to this is determining the optimal mitigation portfolio for a given budget. What is the best way to reduce or eliminate your risk without exceeding an acceptable spend? What if there are conflicting strategies or other constraints on the problem? Such considerations, along with the sheer number of combinations of mitigations available, negates the potential for businesses to determine the optimality of any strategy.

Thus the brute strength of computing power in conjunction with sophisticated optimisation techniques is required to truly determine the best use of your money and resources. The problem can also be addressed in other ways, such as finding the most cost-effective way to achieve an acceptable level of exposure.

Mitigation options can also be easily modelled and visualised using decision trees. We shall discuss some possible uses of these diagrams to analyse options and present suggested policies in a simple-to-understand structure.

Keywords: simulation, optimisation, mitigation, risk analysis, decision trees.