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The Combined Impact of Information Sharing and Underfunded Budgets on Cost Risk Estimation

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Our simulation of cost risk by explicit stochastic processes, modified by a Principal-Agent information constraint, relies on Monte Carlo simulation to propagate a changing budget commitment estimate during project development to a total project cost probability distribution. A key assumption in these models is that a task budget is a central measure of its potential cost. If a task budget lies below this central measure, then we say that this task budget is underfunded. We model this by developing a simple functional form describing the rate of convergence through time as the changing budget commitment approaches the true budget. A generic space flight project case study illustrating this by sensitivity analysis is used to demonstrate the extent of robustness of the total project cost risk estimate.