

IMPROVING AND MANAGING COST ESTIMATES

Background

Risk management is defined as the effect of uncertainty on objectives (ISO 31000). Contingency in business terms is the additional cost added to a project estimate to allow for this uncertainty. There are two areas to consider—**Contingent** and **Inherent**. This brochure addresses the latter and is an allowance for the risk associated with the work that has to be undertaken to deliver the project. This is described in the project's estimate.

The only certainty about an estimate is that it will differ from the actual turnout cost. This variability continues to be of major concern. Reporting on budget overruns is a regular feature of many papers. Hence how to improve estimates continues to be a focus.

In 2008 the Federal Government's Best Practice Guide to Project Estimation for Road and Rail projects included using a Monte Carlo simulation. (The process is appropriate for any project—not just road and rail!)

As demand for this process increased we developed ContingencyEstimator so that any could derive the data in a workshop and the Monte Carlo modelling and reports were generated with a couple of clicks. This enabled Project Managers to undertake the process themselves rather than drawing on expensive Consultancy.

The Process

- A small team undertakes a detailed review of the estimate and assesses a range of values (Best Case and Worst Case) that apply to both the Quantities and Rates.
- The values are then used in a Monte Carlo simulation which is undertaken with one click.
- The resultant reports detail the inputs, a Histogram showing the range of outputs including P50 and P90 values, and a Tornado diagram that identifies those items with the biggest impact on the "bottom line".
- Reviewing the items regularly over time as the project timeline and design (say) unfolds enables the accuracy of the estimate to be improved.

Benefits

- The process enables a **more enlightened contingency assessment**
- Workshopping **improves the quality of the data** (eg less likely to miss something).
- Visibility of inputs and outputs **improves stakeholders confidence** in the estimate.
- The Tornado report helps **prioritise which line items to work on next** to reduce the contingency allowance.
- As changes occur to the project, **updating is a breeze**.
- Contingency accuracy will increase over time as more information becomes available. This enables desired **Gateway estimate tolerances to be demonstrated**.
- As work proceeds contingency can be quickly updated and any surplus contingency returned assisting cash flow and **better management of an organisation's precious capital**.