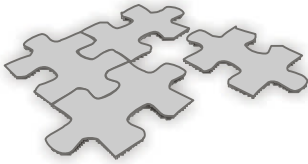


Do you really know your exposure on the projects for which you are committed?



EMERALD'S RISK IDENTIFICATION AND MANAGEMENT PROGRAM

We bring together our expertise in Project Management, IT and Strategic Management to offer a package of training, mentoring and execution of Project Risk Management. This enables a corporation's project risk to be quantified, managed and mitigated while leaving a complete audit trail.

Managing Project Risk

THE CHALLENGE

No matter how much effort is put into scheduling it, a project rarely comes in on time and budget. Why is this? Normal scheduling and financial planning techniques use a single value for each piece of data input whereas in the actual case, everything has varying degrees of uncertainty. Furthermore, a string of events often does not follow a linear logic path but changes paths according to changing circumstances, such as the weather, failure to pass tests, or external economic parameters. Another factor is that risk events can occur which can have serious impacts on the plan. All these affects have different probabilities, with the chance of all the impacts maximizing at the same time being extremely rare. With all these variables, it is not surprising that the chances of meeting the project projections are usually less than 5%.

For companies who have committed to major projects this is totally unacceptable and makes certification of their financial position a high risk action. A control procedure must be developed for major projects to reliably identify the risk windows to which the company is exposed, to mitigate them in the execution plan in order to bring them to within acceptable limits, and finally to manage them. Such a procedure must also leave an audit trail that can demonstrate the exercise of due diligence in corporate stewardship.

MEETING THE CHALLENGE

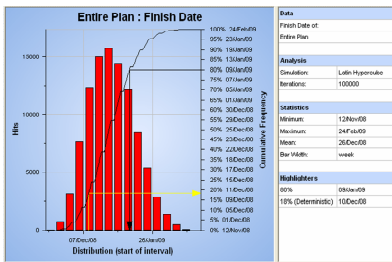
Emerald understands the problem and can help you build the control procedures and manage your project risks. Working with your Risk Manager, who preferably reports to the Financial Controller or CFO, the five stages that constitute the response are identified, setup and executed.

The first step is to evaluate the integrity of the project execution plan. This is normally in the form of tasks compiled into a logic schedule together with financial data, which may or may not be incorporated into that schedule. This typically involves verification of the logic relationships and task durations in the schedule, as well as quantities of resources, their rates and all costs. This step should take place regardless of whether or not a risk process is in place.

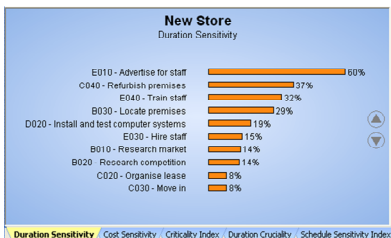
Following the first step is an identification of the most sensitive variables with an in-depth look at uncertainty and risk in those areas. This will be in the form of highly targeted and carefully structured interviews of stakeholders who could affect the risks. At this stage, a risk register is created which is the start of the risk audit trail. This trail will lead from these initial interviews right through to the projection of the final risk windows. A qualitative analysis of the initial results will frequently identify many as acceptable and requiring no further action, but the remaining ones will be ranked for management in the next step.

Next, the data will be imported into the **Pertmaster Risk Expert** software, an innovative tool for which Emerald is also a technical advisor and trainer. The identified uncertainties and risk events are now modeled into this software. This will involve uncertainties in duration, costs, resource usage, and resource rates. It may also involve branching logic with probabilities for going down a particular branch, in order to represent weather uncertainty, test failures and many other eventualities. This situation can also involve conditions, to represent options closing when tasks run late. More subtle relationships between apparently unrelated risks are also modeled.

Are your contingency allowances a crap shoot?



The result is not a specific value for each variable but rather a range of possible values, each with its probability of occurrence.

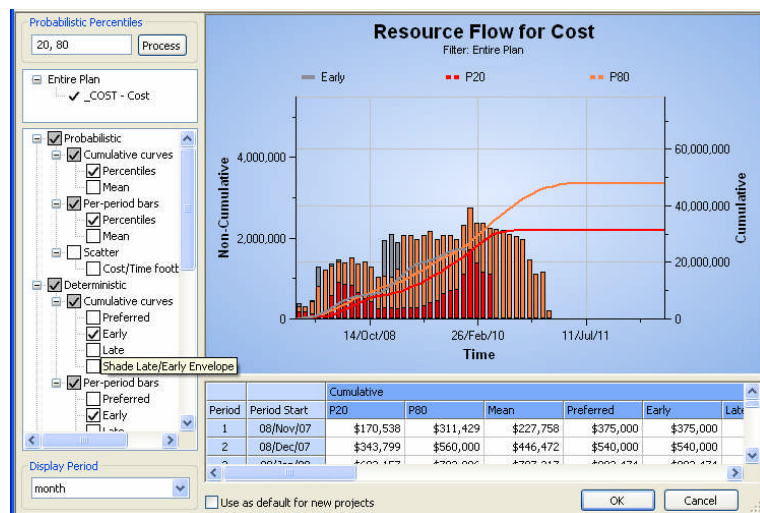


Tornado plots enable rapid identification of key risk drivers.

The fourth step is to run a series of analyses with various risk event scenarios to determine the outcome risk windows (i.e. the costs, resources, durations, etc.) that have, say, a greater than 20% and less than 80% chance of occurring. Each of these analyses involves running the model several thousand times with random choices of all uncertain variables until convergence of results occurs. This is the Monte Carlo Analysis. The result is not a specific value for each variable but rather a range of possible values, each with its probability of occurrence. If this is greater than the company's appetite for risk, then various mitigating actions are introduced into the model and it is re-run. Since mitigation usually comes at a cost, this is an iterative process of tuning the project, with strategic management input, until the risk window is acceptable.

The finally accepted model is then used to generate probabilistic financial reports to determine contingency allowances and support the corporate financial statements.

At this stage the Project Execution Plan is modified to reflect the final risk model. An internal control system will typically provide for periodic revisiting and updating the risk model with consequent revision of the project execution plan.



The key steps are:

- Evaluation of the Project Execution Plan.
- Identification of uncertainties and risk events.
- Model the risks and Project Execution Plan in the risk software.
- Run iterative analyses until an acceptable risk window is obtained.
- Generate probabilistic financial reports and modify the Project Execution Plan.

Emerald can assist you with all these steps as well as training and mentoring your staff to build the capability in-house.