



The Legis Report

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External Independent Technical Reviews

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INTRODUCTION

While provisions calling for the independent technical review ("ITR") of certain government projects and programs have been in place for years at numerous federal agencies, there has been a distinct increase in emphasis on the ITR in recent times. The acronym, "ITR", can mean different things to different agencies. Some agencies view an ITR primarily as an independent check on the stated cost and schedule of a project or a program ("program"). Other agencies focus on the word "technical" and look to the ITR to primarily address the likelihood that the project will meet its technical goals. Still others combine both of these as primary objectives of the agency's ITR program. To further confuse and diminish clarity, a new acronym has entered the government lexicon. The "EITR" announces the external independent technical review. In some agencies, an ITR is considered "independent" when undertaken by agency personnel as long as those personnel had no part in the development of the program. An ITR of a controversial program undertaken by employees of the proposing agency often lacks the necessary credibility to sustain that program when it comes under public scrutiny. Hence, the addition of the word "external" to the description of the review. An EITR usually describes a review performed by a team whose members are not in the employ of the agency proposing the program. Often EITR teams consist of non-government experts assembled and contracted to conduct the required review.¹

Since cost overruns and delayed completion of government programs are regularly daily fare in the media, this article will be limited to cost and schedule aspects of EITRs.

INFORMATION FROM THE CLIENT

To effectively render an opinion relative to the cost and schedule aspects of an agency's program, four key components must be provided to the EITR team. First, there must be a clear definition of the scope of program. Next, there must be a fully developed budget for the program. Third, there must be a reasonable schedule. Fourth, the budget and the schedule must have undergone a risk analysis.

Scope Documentation

While the cost of a government program is important from a budget or funding perspective, what drives the cost

is the proposed scope of work. There must be agreement as to the totality of what must be done to bring the program to completion. Next, this understanding must be fully documented including all assumptions, rationales, supporting facts, etc. Typically, the statement of scope document is supported by and arises out of studies, background papers, conceptual designs, conference minutes and like documents. The statement of scope [This document has various titles; scope of work, work scope, outline of work, etc.] captures the concept, resolves significant discrepancies contained in the various supporting documents, sets up the overall assumptions, and presents a holistic view of the work to be done at a reasonable level of detail.

Cost Documentation

The estimated cost [or budget] of a proposed government program is often the most sensitive issue relating to its initial approval or continuation. Cost estimates are just that—"estimates". They are not exact forecasts of what will be spent but they are not "guesses" either. Cost estimates should be developed by personnel knowledgeable both in the subject matter of the program and in costing and budgeting techniques. The budget or cost estimates can be developed from either a "top-down" or a "bottom-up" up perspective. The top-down approach requires accurate cost information from similar programs modified to the needs of the current program. The bottom-up technique requires the costing of each activity that is required to complete the program's objectives. The best practice uses both approaches. It starts with a detailed bottom-up estimate confirmed by one or more top-down check estimates.

In government agency programs, particular attention must be paid to how the program will support agency overhead and other indirect costs. If outside contractors are to be used, equal attention should be applied to these contractors' costs as well as travel and other specifics.

Schedule Documentation

A bottom-up schedule produces the anticipated program completion date(s) and is the basis for calculating the cost escalation values [if any] to be added to the budget.

The program schedule can be important in other ways. Cost and schedule are almost always linked. Accelerated programs are usually more costly than those undertaken at

a more normal pace. Programs scheduled at a slower than normal pace can be more expensive due to escalation and remobilization costs. For example, the costs of delayed program activities can be impacted by more stringent regulations coming on line later in the program.

Forced schedules utilized to meet previously promised unrealistic completion dates can suffer from impossibility of performance or high difficulty of performance, as well as severe impact on the budget. The assumptions relative to the schedule must also be consistent with the assumptions supporting the scope and the cost estimate.

Risk Analysis

The cost and schedule of any significant program should be subjected to a risk analysis. This is usually accomplished by means of a "Monte Carlo" or like risk simulation done using risk analysis software. The two most valuable outputs from the risk simulation are a risk-based cost contingency [usually measured in dollars] and a risk-based schedule contingency [usually measured in days, weeks or months].

With this approach, the user looks at each subordinate activity and assigns a profile and likely range for each. The software then combines all this information and after hundreds or thousands of simulations [these take only minutes with modern risk analysis software] presents probability curves from which the user can select his or her confidence level and the appropriate cost and schedule contingency values.

THE EXTERNAL INDEPENDENT TECHNICAL REVIEW

The EITR team should include subject matter experts as well as cost, schedule and risk experts. For example, to conduct an EITR of a program involving the construction of a flood control program, the team might consist of an expert in the design and an expert in the construction of dams, dikes, walls, bridges and levees as well as an expert cost estimator, scheduler and risk specialist, all with experience in flood control projects.

Before inaugurating an EITR, there must be a clear understanding of the scope of the effort. The EITR scope should address the purpose of the EITR; what type of documentation that the client will provide; what client personnel will be made available for matters requiring clarification; the anticipated schedule of the EITR; and the general character of the deliverable to be produced by the EITR team.

The EITR team typically begins its review with the client's scope documentation and moves to the cost estimates, the schedule and finally the risk analysis results. While reviewing this information, the team will likely conduct interviews with key client personnel to get a clear understanding of the client's program and its supporting documentation. During the analysis phase, the team will compare the client's information and the processes through which the information was compiled with agency regulations and guidance, industry standards and recent experience with like programs to determine the validity of the

cost and schedule support for the program. After completing and documenting its analysis, the EITR team will generate its deliverable, usually a formal report. The EITR report generally expresses an opinion in the form of 'concurrency' or 'non-concurrency' with the various cost and schedule elements of the program. The report typically contains a detailed narrative describing the basis for the team's opinion.

It is important that the EITR team maintain its independence when conducting the review. The client must be careful not to specify in too much detail the methodologies and processes to be used during the review so as not to materially influence the team's findings. The team must be free to a.) investigate the client's program and the processes used to arrive at the budgets and schedules and b.) arrive at an unbiased opinion.

There are many variants to the classic EITR, both in name and substance, but all are generally focused on the verification by a credible outside party that the product meets certain stated technical standards and the cost and schedule information presented are realistic, reasonable and attainable.



Promotion

Patrick Ray, JD, CCC, PMP, has been promoted to Vice President in charge of Legis Consultancy's operations and private sector practice. Mr. Ray assists clients with contract interpretation, labor and equipment productivity, cost estimating and analysis and forensic accounting issues related to construction, environmental remediation and building construction projects, as well as, construction claims. Mr. Ray also applies his experience to issues relating to operations and business process.

New Florida Office

To better serve its Florida clients, Legis Consultancy recently opened an office in Sarasota, Florida. The office will support clients located in central Florida and the Tampa Bay Area. The office is located in downtown Sarasota adjacent to the court house and local law firms.



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¹ The U.S. Army Corps of Engineers addresses the Corps' independent technical reviews in ER 2220-1-12 and ER1110-2-1150. The Department of Energy addresses its external independent reviews in DOE Order 413.3.