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Forensic analysis: getting the terms right

When it comes to cost engineering, language is key

BY TIMOTHY CALVEY, PE

Unplanned delays on construction projects are a common occurrence. That is not to say that all projects are delayed, but a significant number do experience events which delay the project completion date. In most cases, the owner and contractor are unable to agree on a time extension during the course of the project.

Upon project completion the owner and contractor will often retain scheduling consultants to develop their perspective of the delays. In many cases, the opposing scheduling consultants use different delay analyses methodologies with different names and different terminologies which tend to confuse and bewilder the participants.

In response to this recurring situation, the Association for the Advancement of Cost Engineers International (AACEi) has recently published a Recommended Practice (RP) for forensic scheduling analysis. The 106-page document was a three-year effort and provides a wealth of information on delay analysis with the following objectives:

- To develop terminology that describes the methodologies currently in use.
- To organize a comparison that identifies the similarities and differences between the various methodologies.
- To provide a detailed list of advantages and disadvantages of each methodology.
- To provide a how-to, step-by-step description of implementation of each methodology.

Forensic scheduling analysis is the contemporary term for the study, and investigation of events using CPM schedule calculation methods to determine the cause and duration of schedule delays. The authors of this Recommended Practice have determined that schedule delay analysis, similar to construction cost estimating, is both a science and an art. The authors considered the various schedule delay analysis methodologies which have been commonly used in the industry, including the following partial list:

- Planned versus actual
- Impacted as-planned
- As-planned versus update
- Windows analysis
- Contemporaneous period analysis
- Collapsed as-built
- But-for analysis

- Time impact analysis
- Time impact evaluation
- As-planned versus as-built
- As-built less delay

The authors of the RP found that, although these various terms are well known, they are in fact widely misidentified and used interchangeably to mean different things. The mislabeling and misuse of the various terms is in itself a problem in the forensic scheduling analysis field.

Instead of using the above historical names and others, the RP presents a vocabulary of new terminology which is focused on the methodological approach. The schedule analysis is classified into prospective and retrospective analysis categories. Prospective analysis is performed in real time, and retrospective analysis is performed after the delay event has occurred and the impacts are known.

Two ways to analyze

The two basic analysis approaches are the Observational Method, which consists of analyzing the schedule by examining the schedule independently or in comparison with another schedule, and the Modeled Method, which calls for intervention by the analyst beyond mere observation. Typical observational methods are as-built versus as-planned and contemporaneous period analysis. Common modeled analyses are collapsed as-built, time impact analysis and impacted as-planned. The advantages and disadvantages of these are explained in the RP.

The RP has attempted to replace the plethora of delay analysis names, which define similar or identical methods, with a single new name. Only time will tell whether the use of the new vocabulary will catch on and clarify the exact analysis method being used. However, the RP will now serve as the common reference for definition of the analysis approach.

The RP has not recommended any single methodology as the best or most preferred method. The authors of the RP concluded that every methodology had its own advantages and disadvantages, and that many factors, including the cost and time allotted to perform the analysis and the quality of data, should all be considered when choosing a method.

It has been my experience that most scheduling specifications provided by the owner in contract documents do not provide a chosen method of delay analysis. As a result, scheduling consultants are permitted to choose and present the method that they feel is best for their client. In most cases, my selection of the approach is based on the project schedule information that is available and the ultimate cost of the analysis.

AACEi's Recommended Practice on forensic scheduling analysis is an excellent resource document. It is very comprehensive and a remarkable effort by an all-volunteer committee. I would not, however, recommend it as a how-to book for owners and/or contractors to use in developing their own in-house delay analysis methods. I say that not

because I am a scheduling consultant that receives fees to perform delay analyses, but because understanding this academic, 106-page document requires time, experience and knowledge of the scheduling methodologies used in delay analysis. *BXM*

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