Predictive Earned Value

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Earned Value Analysis (EVA) is a valuable project health monitoring, analysis, and sometimes forensics tool. It is, after all, one of the few tools that can successfully integrate time and cost data into some meaningful indicators and trends.

Predictive Earned Value (PEV) and Predictive Earned Value Simulation (PEVS) can provide an invaluable set of metrics for proactive project monitoring, including pin-pointing exact problematic periods and operations. Earned Value Simulation can provide a means for quantifying and pricing changes and impacts.

Today, most implementations of Earned Value provide only history-based indicators (rear view mirror look). Proactive project monitoring requires monitoring and trending of a wide-ranging array of cost and schedule metrics designed to identify and pre-empt issues that may cause loss of money and/or time. As such issues are identified early, some measures may be taken to alleviate the impact or prevent the issues altogether.

While the basic EVA, which relies only on what already happened, requires only cost data and work scope without the need for schedule data, predictive Earned Value rely extensively on the project schedule and accurate cost forecasting. That is very different from current implementations of the static projected Earned Value which assume that remaining cost is budget minus actual cost.

The two main elements of predictive EVA are accurate cost and realistic schedule. The cost element is comprised of two components: a) cost-to-date, and b) forecasted cost –to-complete of the remaining work. The schedule element is also comprised of two components: a) actual dates, and b) planned dates of remaining work.

The basic Earned Value Analysis for any time snapshot of the project requires the compilation of three metrics:

- Planned Value (PV), which is the Budgeted Cost of Work Scheduled (BCWS),
- Earned Value (EV), which is the Budgeted Cost of Work Performed (BCWP), and
- Actual Cost (AC), which is the Actual Cost of Work Performed (ACWP)

Predictive Earned Value utilizes the above metrics for work already incurred. Additionally, it utilizes, at a minimum, the new metric Forecasted Cost (FC), which is the Forecasted Cost of

Work to-complete, and the new metric Forecasted Earned Value (FEV), which is the Budgeted Cost of Work to-complete.

Tracking the additional metrics allows for the continuous graphing of Predictive Earned Value for remaining work based on forecasted cost. As the forecasted cost is based on an accurate project forecast and not just a linear extrapolation, potential issues can be readily identified and quantified, further analyzed, and resolved.

The simulation would also allow the utilization of alternate activity baselines and calculated dates, based on alternative duration choices, alternative start and finish date choices, and alternative calculation methods. Such parameters would also allow for comparative simulations for various baselines, updates, and what-ifs. If revenue is linked, it would also be possible for a cash flow metric to be considered in assessing an issue impact.

Additionally, the ability to filter or group results by specific operations, responsible party, location, or other logical grouping, can further aid in pin-pointing the exact operation, period, and area of the issue.

For pricing changes, and for forensic analysis, What-if and but-for schedules would be accompanied by compelling Predictive Earned Value Simulations that quantify and – to various degrees – particularize the impacts.

Predictive Earned Value is an important proactive project controls method that allows the project to declare the context of its success parameters.