

Appendix B – Summary Of Measures Of Earned Value

One of the most important choices that a control account manager (CAM) makes in establishing an EVM plan is to select an appropriate measure of earned value for each work package. This choice of the measure of interim progress, or completion, for each work package will do more than any other discretionary choice in making the EVM results meaningful.

There is no prescription for making the choice, nor is there a simple rule of thumb. Some guidance for making sound choices follows:

1. Choose discrete, objective measures whenever it is reasonable to do so.
2. If a work package is planned to be started and finished within a single reporting period (typically a calendar month), there is usually no better choice than the so-called 0/100 measure.
3. For longer work packages, choose one of the objective measures that will align the earning of value closely to the corresponding point where costs are incurred. This will distort the results as little as possible during the time that the work has begun but has not yet been completed.
4. If work packages have been made very granular and seem to lend themselves to 0/100, but at the same time there may be too much of a burden tracking costs at that low level, consider rolling up the contemplated work packages into a longer duration work package for which cost can be readily measured. Then treat the completion of the former work packages as weighted milestones within the longer work package.
5. Avoid the use of Level of Effort (LOE) as much as possible so as to not distort the overall project's earned value. Use the Projected Cost Performance Index (PCPI) At Completion method in place of LOE, where there would otherwise be significant portions of the project measured using LOE.

The measures of earned value described below are listed in their rough order of preference and are grouped as discrete measures followed by more subjective measures.

Discrete Measures of Earned Value

- Fixed Formula (X/Y Percent)
 - Take X% on Start / Take Y% on Finish
 - 0/100 – 0% at beginning, 100% at end
– simple, good for short duration work packages (WP)
 - Other X/Y Percents (25/75, 50/50, 40/60) – also simple; better if WP will span two months

- Units Complete – good for longer WPs where multiples are being done
- Milestone With Weighted Values – use for longer WPs with unequal milestones
- Milestone Weights with Percent Complete –more subjectivity
- Percent Complete – satisfactory, if based on objective metrics
- Apportioned Effort – for work that is not easily measured, but which is proportional to a measurable effort. Avoid using an apportioned measure for a large value work package where the basis for the apportioning is a significantly smaller value work package.

More-subjective Measures Of Earned Value

- Projected Cost Performance Index (PCPI) At Completion – better than LOE – computes earned value using a projected cost performance index (ratio of Budget At Completion (BAC) to current Estimate At Completion (EAC))
- Subjective Percent Complete – subjective assessment of progress (percent complete) is used by the CAM to earn a cumulative percentage of the work package planned value equal to the determined percent complete.
- Level of Effort (LOE) – earned value = planned value each period
 - Use LOE as little as possible because it distorts the total project EVM metrics as the portion of the planned value derived from LOE work packages grows relative to the total project planned value;
 - LOE does not distinguish cost variance from schedule variance. All variance is recognized as cost variance for LOE work packages.

Advantages and Disadvantages of Selected Measures of Earned Value

The table that follows outlines the advantages and disadvantages of many of the common measures of earned value.

Advantages and Disadvantages of Selected Measures of Earned Value

EV Measure	Advantages	Disadvantages
Fixed Formula	Works well for short term work packages and requires minimal effort to determine status.	No significant disadvantages for short term, low value work packages. Not very effective for longer term work packages.
Milestone Weighting	Requires objective, measurable milestones, which most customer and project managers prefer.	Does not allow partial credit for in-process work and requires detailed milestone planning.
Milestone Weighting with Percent Complete	Requires objective, measurable milestones, which most customers prefer; allows for partial credit against milestone.	Requires a Control Account Manager's assessment of the percentage complete for each milestone and requires documentation of the assessment methodology.
Units Complete	An objective and easy way of determining the earned value for an activity.	Limited to production type atmosphere of similar items that are fixed unit prices. Does not take into consideration labor fluctuations, so may misrepresent EV.
Subjective Percent Complete	This is one of the more subjective methods, in which Earned Value is based on the CAM's assessment of the work package progress. Detailed planning at the milestone level is not required.	Customer satisfaction may be low due to the subjectivity involved and the lack of detailed planning. However, CAMs are required to provide the customer with their assessment methodology.
Level of Effort	Trivial to implement and is appropriate for sustaining tasks such as Program Management.	Offers no benefit over simple planned vs. actual comparisons. The LOE method should be kept to a minimal portion of the project planned value to avoid distortion of the project level metrics.
Apportioned Effort	Provided a measure to "unmeasurable" work	Applying to a large-value work package where the basis for the apportioning is a significantly smaller value work package can distort measure.