LEVEL OF EFFORT PLANNING AND EXECUTION ON EARNED VALUE PROJECTS - WITHIN THE FRAMEWORK OF ANSI EIA-748
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TCM Framework: 9.1 – Project Cost Accounting
9.2 – Progress and Performance Measurement
10.1 – Project Performance Assessment

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Note: As AACE International Recommended Practices evolve over time, please refer to www.aacei.org for the latest revisions.

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INTRODUCTION

This recommended practice (RP) describes the purpose, application, measurement and control of level of effort (LOE) work in projects that operate with an earned value management system. It provides explanations of use and management of LOE work as it pertains to EVM implementations that may not be contained in the Total Cost Management (TCM) Framework.

This RP is intended to provide guidance for planning, managing and reporting performance of LOE tasks that most EVM practitioners would consider to be sound practice for managing and claiming performance related to work that is not considered to be measureable. The target audience for this RP is project managers, control account managers (CAMs), and project staff responsible for planning projects and managing and measuring project performance. It is also considered to be beneficial to EVM analysts who want a clearer understanding of LOE task management and measurement.

This RP is aligned with the TCM Framework, as well as the American National Standards Institute (ANSI) Electronics Industries Alliance (EIA) - 748 Earned Value Management Systems (EVMS) guidelines. (Guideline 12, parts of Guidelines 6 and 7 regarding task planning and scheduling, and parts of Guidelines 30 and 31 regarding revisions and change control.) This document provides further explanation of the intent and application of LOE that is not contained in the ANSI EIA-748 standard and the National Defense Industries Association (NDIA) Earned Value Management Systems Intent Guide.

This document is not intended to be a standard, but provides further clarification of recommended EVM practices as they apply to planning, implementing, and reporting LOE work being performed under the ANSI EIA-748 standard.

RECOMMENDED PRACTICE

LOE activities are tasks of a general or supportive nature that have no measurable product or output. LOE work is defined as: “Support effort (e.g., supervision) that does not readily lend itself to measurement of discrete accomplishment. It is generally characterized by a level of support over a specific period of time.” [8]
Nature of LOE Work in Relation to Other Project Work

All contract direct costs fall within one of three categories:

- **Discrete Effort** – Discrete effort is defined as “Tasks that have a specific measurable end product or end result”[8]. Discrete work has definable end products that is budgeted by element of cost (e.g. labor, material, other direct cost) and is scheduled, to the day, when it starts, finishes, and identifies all interim milestone dates. Discrete work is measurable and can be broken into steps or measurable tasks, each of which can be budgeted based on resources required to complete the work, and it can be objectively determined how much work is accomplished.

- **Apportioned Effort** – Apportioned effort is defined as: “An earned value technique in which status is assessed consistent with a base task (s). The earned value percent complete of the base effort is used to status the apportioned effort work package. Apportioned effort is technically related and time-phased proportionally to the based unit designated”[8]. Specifically, the quantity of resources required to perform the apportioned work is directly related to the quantity required to perform the discrete work, but is usually only a fraction of the resources required of the base discrete work. For example, if the labor hours to inspect construction are directly related to the amount of construction being performed, the inspection activity/work package would be considered to be apportioned work if it cannot be planned as discrete effort/work. If construction activity increases by 30 percent, then the inspection activity would be expected to increase by the same percent. Inspection might only use the only 5 percent of the resources required to complete the construction work, but would generally increase or decrease at the same rate as the construction work. If a direct relationship can be identified and quantified with discrete work, the apportioned work can be planned and measured as a proportionate factor to the related discrete work.

- **Level of Effort (LOE)** – LOE activities are typically related to management, oversight and functions for which performance cannot be measured or is impractical to measure. The measurement of these activities is based on the passage of time since they have no discrete measurable output and cannot be associated with a physical product or deliverable that can be assessed whether the task is completed. LOE work has the same budgeting requirements as discrete work. It has to be scheduled with a start and finish date, but does not have internal milestones or steps that could be used to measure progress or performance. Most management and project control functions are examples of LOE tasks, e.g. project management, control account management and most project control work. Support work is usually LOE work, such as security, quality control, maintenance, etc. LOE tasks cannot be detail planned in advance and do not have identifiable steps or products to assess whether the tasks have been completed or how much actual work was performed. Some LOE tasks may have discrete deliverables (e.g. monthly reports). Although such repetitive tasks can be planned and scheduled, they do not represent physical progress of discrete efforts. For example, managers manage the work of others and support functions provide support to others, but neither produces an end product. LOE work cannot be measured to any degree of precision and it would not add value to the project to attempt to measure its progress. The nature of a project often determines the percentage of the work that will be measured as LOE. While maintenance and operations contracts might contain a high content of LOE work, projects performing construction may have a lower percentage of work measured on a LOE basis. Organizations should not require that all of their projects have a specific percent of work measured on an LOE basis; the specified percent may be inappropriate for the work content of a given project. Designation of work as LOE should be limited to work that is truly not measurable because projects that have a high LOE content do not have a high level of objective performance data and, as a result, will not achieve the full benefits of EVM. LOE work is often performed in support of discrete work, but not necessarily in direct relation to the amount of discrete work (i.e. it is not apportioned effort). LOE work may represent a relatively higher percentage...
of the project work initially, as in project startup, but then tail down as the project matures, and then increases as the project closes.

**LOE Planning:**

When an LOE task is planned to be performed during a given period, the value budgeted for that task is claimed, even if no work is performed. To accomplish this measurement, the LOE budget must be time phased by element of cost according to when the resources will be applied to the effort. A common misunderstanding is that LOE budget must be evenly spread across the period of the task. LOE budget can be evenly spread, but only if that reflects how the resources will be used. If that is not the case, the resources should be spread according to when they are available and expected to be applied to the LOE activity. If the LOE resource expenditure is expected to increase as project activity increases and then decrease as the project approaches completion, then the resources should be planned accordingly. In such a scenario, if the resources are uniformly planned, rather than when the resources are expected to be used, significant cost variances may result.

Once LOE tasks are budgeted and scheduled, if the timing of the tasks change, because of unforeseen events, the tasks should be replanned according to when they will be performed. Otherwise, cost variances will distort the true performance of the control account and the project. However, it is the normal case that, if the discrete work that LOE work supports slips to the future, the LOE work should do likewise; otherwise inappropriate schedule and cost variances will result. If LOE work is planned to support discrete work and the discrete work is rescheduled to an earlier or later time, the related LOE work should then be moved to the same period as the discrete work.

When LOE tasks are to support discrete tasks, a scheduling relationship between the LOE and discrete tasks should be established. However, it is important to avoid having LOE activities driving the critical path. One way to accomplish this is with management milestones. These milestones can be constrained and then linked to the discrete work. The LOE is planned between a starting and ending management milestone. As the sequence of discrete activities moves, schedule float changes based on the constrained milestone. Through baseline control, if the LOE is desired to be changed, the management milestones may be moved.

Activities are occasionally treated as LOE when they should be an apportioned effort (AE). If this occurs, performance is earned as planned as opposed to when the work is actually performed, thereby resulting in overstating or understating performance. Care should be taken to ensure that apportioned effort tasks are classified appropriately.

Another common misunderstanding is that LOE tasks are always labor activities. LOE tasks can also be material, subcontracts, or other direct costs (ODCs), such as travel that can be planned and measured as LOE if their application to the work is not identifiable and measurable. Otherwise, they should be planned and measured as discrete or apportioned effort. However, high cost material is normally managed as discrete, as it is generally known when the material is to be applied and performance can be measured and claimed when the material is applied. Travel can be planned and measured as discrete when it is known when the travel is to be performed, but can be planned and measured as LOE if appropriate for the situation based on only general expectations. However, travel is too often planned and evenly spread across the period of performance, resulting in significant cost variances until the task is completed. The fundamental principle for budgeting LOE tasks is to time phase the work and resources based on when the work is expected to be accomplished. By doing so, the task will start with a plan that is realistic and stands a reasonable chance of not incurring early or significant variances that distort the performance of the rest of the project. For example with travel, if there are periods of quarterly or annual meetings or conferences that cause a surge in travel, then these months should be planned appropriately.