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The ASSIST Coordination Site, in collaboration with the Board Workgroup when appropriate, is responsible for developing resource cost estimates for ASSIST activities. The term “resource” in this context is intended to be a broad term encompassing staffing, facilities, equipment, software, networking, other technologies, travel, services, dollars, time, and other items related to ASSIST operations and activities.

This document is intended to communicate the general methods and considerations to be used when developing resource estimates for ASSIST activities, including software development projects. Resource estimates are expected to be provided by the Coordination Site in conjunction with written Project Proposals (following the ASSIST Software Development Framework process) and upon request by the Board.

The general purpose of a resource estimate is to help communicate the magnitude of any given activity. Often the description of an activity may not adequately convey the amount of effort that it will take to accomplish. Written resource estimates not only help to assure that the details required to accomplish tasks have been considered, they also help to inform other decisions such as approving/denying projects, prioritizing simultaneous and sequential projects, and determining whether or not additional funding should be sought to support a project.

It is important to consider that for many projects, especially software development projects, an amount of planning and idea development needs to be conducted in order to better understand the scope of activities and determine initial resource estimates. Also, initial resource estimates may not fully reflect the actual resources eventually required to complete a project. As further details of plans are determined and work progresses, important wrinkles may be uncovered that impact on resource requirements. It is for these reasons that the ASSIST Software Development Framework process includes iterative reporting and authorization steps so that refinements in plan details and resource estimates can be communicated.

Since the majority of ASSIST activities are intended to be conducted within available resources, resource estimates for ASSIST will generally reflect the most specific actual numbers that can be reasonably assumed. Artificially inflating ASSIST resource estimates does not serve the intent of informing the Board and other constituents of the magnitude of projects. However, at times educated guesses must be made and it may be preferable to error on the high side to help account for unknown variables.

Resource Estimates – Staffing

The intent of staffing resource estimates is to help gauge the magnitude of a project. Often the most significant cost of ASSIST activities is personnel. ASSIST staffing resource estimates are presented in terms of person-work-hours. Staffing estimates usually indicate the type of staff members involved in the work (management, programmer, designer, technical support, administrative, etc.). Staffing estimates reflect the actual number of person-hours directly related to the activity and do not reflect other

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important activities that may be indirectly involved in an individual staff member's daily work. For example, if an estimate includes administrative support hours those hours will reflect direct work related to the project, it will not include overhead hours for general office support, financial tracking/reporting, etc..

It is also important to recognize that most ASSIST staff members work on multiple simultaneous projects throughout a work-week, that some work must be sequenced with the work of other staff members, and that some work may involve external reviews or other factors that impact the overall schedule. Therefore, while a resource estimate may indicate 40 person-hours of programmer time, it should not be assumed that those tasks will be completed within a single calendar week. Project plans will generally include schedules that provide an overall sense of the time needed to complete an activity.

Resource Estimates – Technology

ASSIST technology resource estimates indicate **additional** computer hardware, software, networking, etc. that are required to be purchased or upgraded in order to accomplish a project. Technology estimates will generally not reference existing technologies that will be used during project development and operation. Also, ongoing technology maintenance and upgrades will not generally be referenced in technology estimates (unless the project requires something special) as these are considered to be supported within the core operations of ASSIST.

Usually software development projects can be deployed within the existing ASSIST technology environment without requiring the purchase of additional computers, disk space, software, or networking capacity. While new features may subtract from the overall capacity of available ASSIST technology, the Coordination Site does not generally attempt to quantify the percentage of technology that individual projects will require. Such estimating could be done, but it is difficult and prone to error due to numerous overlapping factors. If addressing technology capacity issues can not be managed within the core operations of ASSIST, a separate project may be proposed to focus on that specific issue.

Resource Estimates – Travel and Meetings

If an activity requires a ***substantial*** ??? number of in-person meetings or a significant amount of travel for ASSIST or campus/system office staff, a travel/meeting estimate may be provided. Travel estimates are generally expressed in terms of person-trips and may be broken down by automobile, air travel, and accommodations. Meeting estimates are generally expressed in terms of the number of individual meetings a numbers of attendees when those meetings require additional costs such as food or facilities. Travel/meeting estimates will be rough estimates unless full detail is requested (which may require additional work to estimate full details).

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Resource Estimates – Operational Overhead

Operational overhead is generally not included in ASSIST resource estimates unless specifically requested. If included, operation overhead estimates are generally expressed in terms of a percentage of other costs (personnel, technology, etc.).

Resource Estimates – Time

Most written Project Proposals, Definitions of Functional Requirements, and Project Plans include time estimates. Time estimates are expressed in terms of the total number of weeks or months that an activity is estimated to require for completion. Time estimates do not always account for other activities that may be conducted simultaneously. A calendar-style schedule may be provided that communicates the relationship of multiple simultaneous activities.

Resource Estimates – Dollars

Some resource estimates include the number of dollars required to complete the activity. Generally this information is requested to be included in an estimate because external funding may be available or additional funding may be sought.

In general dollar estimates are calculated by adding staffing, technology, and travel/meeting estimate costs. If a dollar estimate is aimed at covering all ASSIST-related costs (rather than covering additional costs to complete the activity) estimated operating overhead costs may be included.

Estimated staffing costs are calculated by multiplying the estimated numbers of person-hours times the actual hourly salary (and benefits) for each of the types of staff involved.

Estimated technology costs are calculated by contacting vendors for initial estimates of individual items. Depending upon the nature and amount of technology purchases formal bidding may be required.

Estimated travel/meeting costs are calculated by multiplying the numbers/types of trips and numbers/types of meetings by recent costs for similar trips/meetings. When larger meetings or conferences are involved bids may be sought.

When requested, estimated operational overhead costs are calculated by multiplying staffing, technology, and travel/meeting costs each by some related percentage factor. Such percentage factors may need to be negotiated and may or may not be included in the written estimate.