

# 15

## LOGISTICS PROGRAMMING AND BUDGETING

*“General, (Alain C. Enthoven to a senior USAF officer in Germany), I don’t think you understand. I didn’t come for a briefing. I came to tell you what we have decided.”*

Henry L. Trewhitt, *McNamara* (1971)

### 15.1 OVERVIEW

DoD acquisition programs have historically operated within an interlocking set of three decision-making systems:

- The *requirements generation system*, where program requirements are originated, validated, and assessed for Service “jointures” potential;
- The *acquisition management process*, where programs are periodically reviewed and management decisions are made concerning program progress through the acquisition phases; and
- The *Planning, Programming, and Budgeting System (PPBS)*, where program funding is managed.

The ability of the Program Manager (PM) to interface effectively with these three systems is essential to program success.

This chapter deals with one subset of the PPBS. This subset involves developing the acquisition logistics manager’s input to the program office’s portion of the Service’s Program Objective Memorandum (POM); and the acquisition logistic manager’s input to the Service’s Budget Estimate Submission (BES) as part of the biennial budget process.

Many logistics managers have documented logistics support planning, and many others have documented contracting documents to execute the plans. However, the truly successful logistics managers have effectively documented and defended the logistics portion of the POM and budget. These are the people who have the resources to properly execute the plans.

## **15.2 PROGRAM COST CATEGORIES, COST OBJECTIVES, AND COST PERFORMANCE TRADEOFFS**

Program management personnel will work with the user (see DoDD 5000.1, paragraph C.9) to identify systems performance and schedule requirements, perform cost related tradeoffs, and set objectives for all relevant cost categories. Once these performance, schedule, and cost objectives have been set, the acquisition process will make cost more of a constant and less of a variable, while nonetheless obtaining the needed military capability of the system. In this regard, see Chapter 14, Cost As an Independent Variable (CAIV).

Several programs, both recently and in the past, have employed CAIV principals. However, until recently, DoD's goal-setting processes have been largely driven by an unrelenting threat (requirements creep to match a changing threat) and a desire to capitalize on technological advances. This trend toward program requirement creep, in lieu of emphasizing cost/performance/schedule tradeoffs in goal setting and management, has contributed to a historical cost-growth record for DoD programs. Research has shown that virtually all 700 acquisition programs have experienced cost growth over the past 25 years. The objective of the CAIV initiative is to ensure that constant management attention is focused on controlling costs associated with both new and fielded DoD systems.

### **15.2.1 Cost Categories**

There are several ways costs associated with a program must be defined and estimated, they include funding appropriation, work-breakdown structure, and Life-Cycle Cost (LCC) categories. These are defined below:

15.2.1.1 Breakdown by Funding Appropriation. These include Research, Development, Test, and Evaluation (RDT&E); Procurement; Operations and Maintenance (O&M); Military Construction; and Military Personnel. These breakouts are necessary to develop internal budgets and for budget requests to Congress.

15.2.1.2 Breakdown by Work Breakdown Structure (WBS). The WBS is a tool used to specify work to be done and the associated costs to perform the work. Military Standard 881B provides a recommended WBS for various program categories including aircraft, ships, armored vehicles, etc. It accommodates prime mission equipment, systems engineering, program management, systems test and evaluation, training, peculiar support equipment, data, operational site activation, initial spares, initial repair parts, and industrial facilities. Each of these categories is further broken down into indentured levels of detail. This method provides an organized, structured system of compartmentalizing work and its associated costs. It facilitates detailed visibility into those parts of the work that are expected to be the major consumers of resources. Further, the method tracks the contractors' actual work performance against their initial cost estimate by specific task, i.e., work packages. The progress of the contractor's work can be reported within the

WBS structure. The historical files from the various projects and programs in Service organizations form a wealth of data from which to estimate similar future projects.

15.2.1.3 Breakdown By Life-Cycle Cost Categories. The breakdown includes Research and Development (R&D), Procurement, Operations and Support (O&S), and disposal. Although the names of these categories are similar to the DoD appropriations, they are not the same and have different meanings. These costs are addressed in Chapter 12, Logistics Cost Estimating, paragraph 12.2.1.1.

Note that LCC includes all WBS elements; all appropriations; all costs, both contract and in-house, for all cost categories.

## **15.2.2 Cost Estimating Techniques**

This topic is addressed in Chapter 12, Logistics Cost Estimating, paragraphs 12.4 and 12.5.

## **15.3 COST DRIVERS**

Definitions of cost estimating terminology would not be complete without including the frequently used term “cost driver.” A cost driver is a program, system characteristic, or parameter that has a direct or indirect effect of changing cost. A cost driver may even be another cost element. Examples of cost drivers include numbers of systems, numbers of operating sites, numbers of systems failures, time to fix broken systems, etc. The cost of operations and support is driven by the cost of individual spare parts and by the labor-hour costs of operators and maintainers. Thus, costs sometimes drive other costs. In some instances the term “cost drivers” means all parameters and characteristics that drive costs; but, in some cases, the “cost drivers” is intended to differentiate the parameters/characteristic with the most impact on costs. Communication and documentation on common definitions of terms, ground rules, and assumptions in cost estimating is an absolute necessity.

## **15.4 PROGRAM MANAGER’S ROLE IN THE PROGRAM OBJECTIVE MEMORANDUM (POM) PROCESS**

Programming and budgeting for the development, production and logistics support for a defense system must be accomplished within the framework of the DoD PPBS. All acquisition programs are based on identified, documented, and validated mission needs. Mission needs result from ongoing assessments of current and projected capability. After the Joint Requirements Oversight Council (JROC) validates the mission need for an Acquisition Category (ACAT) I program, the Under Secretary of Defense (Acquisition and Technology) shall convene a Milestone 0 DAB to review the Mission Needs Statement (MNS); identify possible materiel alternatives; and authorize concept studies, if they are deemed necessary. For ACAT IA programs, the JROC or the cognizant Office of the Secretary of Defense Principal Staff Assistant (OSD PSA) validates the mission need and process integrity in compliance with DoDD 8000.15. The Assistant Secretary of Defense

(Command, Control, Communication, and Intelligence) convenes a Milestone 0 Major Automated Information System Review Council (MAISRC). Similar parallel actions apply to other ACAT levels. A favorable Milestone 0 decision moves the effort into Phase 0, Concept Exploration; but it does not yet mean that a new acquisition program has been initiated. During this phase, RDT&E “study money” is allocated by the applicable Service or the Office of the Secretary of Defense (OSD) for development of the initial analyses, studies, and preparation of early documentation of alternative concepts. Also during Phase 0 activity, the initial program cost estimate is prepared and submitted into the POM process. After the program is approved at Milestone I, the sponsoring Service assigns a Program Element (PE); and, from that time, the program’s POM funding levels are separately tracked by that PE in the Service and OSD databases. The program’s BES is submitted by appropriation. The PM has primary responsibility for preparing the POM input and BES for the acquisition logistics requirements identified in the logistics planning documentation. The process of submitting the BES will be discussed in paragraph 15.6.

## **15.5 LOGISTICS FUNDING PROFILE**

The information needed to develop the logistics support portion of the PM’s budget comes from the many logistics functional elements. Effective logistics budgeting and funding comes from the acquisition logistics manager’s understanding of the information needed, who will provide it, and how to document it as usable input to the PM’s budgetary documentation. Beginning with program initiation, the acquisition logistics manager will gather and document costing information consistent with the elements as spelled out in the logistics planning documentation. Logistics support cost data are generally displayed in a document called a logistics funding profile. This profile shows the budget requirements stratified in the logistics areas listed below. The amount of detail shown in the logistics funding profile depends on the level of management attention required to keep the program funding risk to a minimum. Generally, the amount of detail should match the level of detail of the logistics element milestones in the acquisition logistics planning documentation. For each activity shown in the logistics milestone charts there should be a corresponding cost entry in the funding profile.

The logistics funding profile should have a section for each element of logistics as they are discussed in the logistics management plan. Additionally, the logistics funding profile should provide a summary by funding appropriation, a summary of program description, and the assumptions upon which the budget is based. Costs in each of the elements described below will be based on an appropriate method of cost estimating linked to Acquisition Reform initiatives including analysis by the program office.

### **15.5.1 Maintenance**

This element is for actual repair-type maintenance as established by the system’s maintenance plan. The various subelements of maintenance include requirements for depot and intermediate investment costs, test-bed facilities investment, repair costs including depot and intermediate repair, and support/training-related repair. Particular emphasis is now

required in the area of contractor maintenance services. Some special analysis studies and plans may sometimes be included. Investment costs for maintenance should not duplicate requirements identified in other areas, such as support equipment and computer resources support. Primary plant equipment that is unique to depot or intermediate repair facilities should be included as investment costs. Past experience from contracting for maintenance and from the Visibility and Management of Operations and Support Cost (VAMOSOC) database may be applicable as source information on maintenance.

### **15.5.2 Technical Data**

This element normally refers to costs associated with purchasing operator and maintainer technical manuals and depot repair standards. Additionally, this element includes requirements for the development, in-process review, production, validation, verification, distribution, and updating of technical data and the associated data records. It also includes management, review, and source data. Specific subelements to be considered are technical orders/manuals and associated changes, technical orders/manuals management, drawings/reprocurement data, planned maintenance system requirements, analysis, studies, plans, and other. Sources of information upon which to base the estimate are analysis, past contract, and field activity tasking orders. It is not unusual to see back-up data, which differentiates between the cost of technical data pages in categories such as pure text, text and graphics, lists of information such as parts lists, and paper copy as compared to electronic methods. Further breakout details are also common, including operation manuals versus maintenance manuals; manuals for organizational, intermediate, and depot; and/or breakouts for structural, electronics, and propulsion.

### **15.5.3 Supply Support**

This element summarizes funding requirements for spares and repair parts. Requirements for spares for training hardware and peculiar support equipment and outfitting buy-outs for aviation programs should also be considered. Specific subelements to be considered are development/test spares and repair parts; interim/initial spares and repair parts, including depot and intermediate maintenance support stocks; on-board repair parts; contractor support spares and repair parts; site outfitting, replenishment spares and repair parts; supply plans and analysis; and other. These cost requirements should be consistent with supply support planning data and provisioning requirements. Sources of this information include both the program office analysis in view of Acquisition Reform initiatives, past contracts, and the many contracts awarded and managed at the supply centers.

### **15.5.4 Support Equipment**

Support equipment (SE) cost requirements should be projected for all planned levels of maintenance, test sites, training sites, etc. Specific subelements to be considered are common support equipment; automated test equipment, including test program sets, tools, jigs and fixtures; calibration standards; support equipment support acquisition; analysis, plans; data; etc. The primary source of data is past program contracts. But SE is

provisioned in the supply system, and inventory control point contracts are also regularly used sources.

### **15.5.5 Computer Support Resources**

This element summarizes the requirements for computer resources for the post-production software support of materiel systems. Data, compilers, hardware, and sometimes unique training required to set up the Software Support Activity (SSA) are covered here. Other specific subelements are software support, software support-associated hardware, computer development, software documentation, independent testing, support software, and simulation support. These should coincide with the computer resources planning documentation. Sources for this estimating data are past contracts for software support, which may include both prime contractors and other related contracts and field activity tasking orders.

### **15.5.6 Facilities**

This element includes military construction, operations and maintenance minor construction appropriation costs, public works/facilities engineers, and utility requirements. Specific subelements include military construction planning and design, military construction, operation and maintenance minor construction, unspecified minor construction, facilities engineering/public works support, utilities, facilities analysis and plans, and other. Past contracts with weapons systems original equipment manufacturers rarely include lines for military construction. Contract information from separate agencies, such as the claimant civil engineering departments or, in the case of the Navy, the Naval Facilities Command, will be the sources of planning and cost-estimating data.

### **15.5.7 Training and Training Support**

All training course requirements from development to instructor services are part of this element, including training equipment, aids, and training simulators. Specific subelements are training courses which include development, initial and/or contractor training services, technical training equipment, training devices/aids, analysis and studies, training equipment installation, engineering technical services, etc. These requirements must coincide with the applicable tasking in the training master plan. Past contracts often include lists of individual training devices and their costs.

### **15.5.8 Acquisition Logistics Management**

This element covers all management activities for the entire logistics program, which includes supportability analyses costs not covered under deliverables for other elements shown above. Subelements could include management, Level of Repair Analysis (LORA), Reliability Centered Maintenance (RCM), studies and plans, etc. Thus, all of the logistics performance needs generally defined as maintenance planning or acquisition logistics management could be addressed in this section.

### **15.5.9 Related Programs**

Related programs include requirements for all other support estimates under the PM's purview. Specific subelements include configuration management, installation, handling equipment, containers, packaging, handling, storage, transportation, and hazardous materiel control and management. Identification should be made of any other support-related activities, such as contractor or government laboratories and field activities that require DoD resources in any acquisition phase. Additionally, events such as special maintainability demonstrations, logistics demonstrations, maintenance engineering conferences, etc. that the acquisition logistician is specifically sponsoring (or otherwise wants budget visibility for), should be included in this portion of the funding profile. Sources of estimating data are generally historical contracts and program office analyses in view of Acquisition Reform initiatives.

## **15.6 THE BUDGET FORMULATION PROCESS**

In ideal situations the full membership of the acquisition logistics team will be involved in the budget development process. At times it may be necessary for the acquisition logistics-integrating individual or lead logistician to create the initial draft of the logistics funding profile and to circulate it for coordination and correction among his team. The process starts with a call for the budget input from the program office financial manager. However, the budget call starts earlier from higher authority; and the calendar of budget events can be determined in advance. Typically, the budget call will forward program-level budget planning information. The planning information includes the program description, continuing development activities, numbers or schedules for systems procurements, delivery sites, user site stand-ups, planned operational tempos (repair items and manpower numbers and costs), and similar information. The logistics cost estimator must add three other items of planning information. These items are program office planning information (para 15.4), logistics element planning information (para 15.5), and user scenario-related information.

Each logistics element cost is estimated for each of the years covered in the budget call. The cost-estimating "back-up" is documented. The back-up is the methodology, data sources, ground-rules, assumptions, calculation methods (model or formulas), etc., used in calculating the budget. The budget profile, or spreadsheet, is documented showing appropriation summaries; and the budget back-up books/files are created. The budget is coordinated with the logistics element members of the IPT, and the approved logistics budget is submitted to the program financial manager. It should be noted that documentation of budget back-up is an essential step in the process. Parts of this information may or may not be forwarded with the budget inputs to the program financial manager. This documentation is especially critical in view of the likelihood of personnel turnover during the life cycle of a weapons system acquisition. The back-up information makes future adjustments to the budget, in response to budget drills, a matter of recalculation rather than starting from a clean slate.

The inputs from all of the program functional elements, such as the systems engineers, production managers, testers, logisticians, etc., are consolidated by appropriation summary. The program budget submission is then ready for submission through the levels of the Components' comptrollers; OSD-sponsoring offices and comptrollers; and, finally, to the President's budget. At the program level there are generally four appropriations "one liners;" they are total program funding for RDT&E, Procurement/Production, O&M, and Military Construction (MILCON). Even though most of the O&M and all of the MILCON are user or claimency inputs to the budget, they are shown on the program budget for continuity. The program manager needs this total program cost visibility to properly advocate the interrelated requirements.

The budget inputs are updated nearly continuously because of the biennial budget process, budget cuts, and program changes in schedule from many sources. The program financial manager regularly requires very quick turnaround to budget drills. The experienced acquisition logistics manager anticipates this requirement and has sufficient budget back-up information ready to make adjustments, prepare impact statements for the changes, and forward the re-submittal.

### **15.7 DOCUMENTING THE LOGISTICS FUNDING PROFILE**

Individual DoD organizations may impose locally standardized budget documentation formats. The Army has required submittal of budget information in a spreadsheet format called the ACET model. The model is more of a spreadsheet-reporting format than it is a model since each organization develops and programs algorithms into the spreadsheet. The Navy has used the Logistics Requirements and Funding Plan (LRFP) and its variations for over ten years.

The most useful logistics funding profiles are those that the individual integrating logistician has developed to satisfy requirements for managing the acquisition logistics program. There is usually a very close match between the level of detail in the logistics planning document and its companion document—the logistics funding profile. Complex programs will frequently require logistics element plans containing milestone detail to the fifth or sixth level of indenture. This reflects the level of management attention intended by the lead logistician. Every milestone and activity described in the logistics plan will require funding resources for execution of the plan.

For example, under the facilities element, there may be a milestone for a site survey at the training location in a given month during the EMD phase and another milestone for a site survey for each of the gaining organizations during succeeding quarters of that phase. One would expect that each of the activities would be described in the logistics plan and that the funding requirements for each of the site visits would be evident in the logistics funding profile. The logistics funding profile is provided to the program budget/financial manager for consolidation into the overall program budget submission.

Logistics budget back-up documentation is of utmost importance. This back-up documents the justification, rationale, estimation methodology, ground rules and assumptions,

formulas, cost estimating relationships (CERs), etc., used to come up with the dollar values for each logistics cost element. Because there are numerous people who participate in the budget formulation exercise and frequent and regular turnovers of the budget formulation team members, the back-up is an absolute necessity. The almost constant drills associated with defending, adjusting, and resubmitting the budget and the ease with which this is accomplished will be directly proportional to the completeness of the budget back-up documentation.