



DEFENSE ACQUISITION UNIVERSITY
Business, Cost Estimating and Financial Management Department

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TEACHING NOTE

BUILDING THE PROGRAM BUDGET

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Program cost estimates are normally done in *constant year dollars*, ignoring the effects of inflation and the budgeting implications of using various appropriations, or “colors of money.” However, both of these factors must be taken into consideration in constructing the program budget in *then-year dollars*.

BEFORE YOU START

To construct a defensible budget request, three things are essential:

1. Program Direction. A statement of what the Program Manager (PM) is expected to do (i.e., the program objectives).
2. Program Work Breakdown Structure (PWBS). A comprehensive listing of all the tasks required to achieve the program objectives set forth in the Program Direction.
3. Master Schedule. The sequence of tasks in a work breakdown structure, showing when each task begins and ends; how the tasks are related one to another (critical path); and how workload for each task is distributed within the time period.

Program Direction

Clear program direction minimizes miscommunication in execution. The DoD 5000 series documents provide requirements for the preparation, submittal, approval, and reporting of Acquisition Program Baselines (APBs) for Major Defense Acquisition Programs and Major Automated Information Systems programs. The APB, which is prepared by the Program Manager (PM), sets forth key cost, schedule, and performance objectives for the program. The APB is approved by the Milestone Decision Authority (MDA) at milestone reviews. As long as the program is being managed within the established framework of the APB, in-phase review is not necessary. If there is a major change in the program, such as a significant cut or addition of funds by the Congress, the APB will be updated at subsequent milestone/program reviews, or with the approval of the MDA. It cannot be unilaterally changed by the PM.

Program Work Breakdown Structure (PWBS)

A key step in defining an acquisition program is the establishment of a PWBS (reference: MIL-HDBK-881A, 30 Jul 05). The PWBS breaks down the entire program into its component elements. It is organized in tiers or levels and can have as many levels of detail as management desires. The PWBS provides a comprehensive basis for projecting financial requirements. Whether elements are performed by the government or a contractor, the structure must be compatible with cost estimating and scheduling requirements.

According to Paragraph 010303B, Chapter 1, Volume 2A, of DoD Financial Management Regulation (FMR), which is also titled 7000.14-R, it is DoD policy to reflect the *most likely or expected full costs* (of planned work effort) in all appropriations for the various fiscal years of the biennial (now annual) budget submission that will become the Defense portion of the President's Budget. Further, the policy states that the most likely cost for all goods and services should include predictable cost increases due to risk. Therefore, based on DoD policy, a prudent business financial manager (BFM) should prepare his/her budget request at the appropriate amount that enables the organization to accomplish the stated Program Direction, to include "risk dollars" as part of the cost estimate for each PWBS element that merits such funding. These risk dollars provide the program office some flexibility to deal with high risk areas and contingencies when things go awry in the program. The BFM and PM, however, should be aware that budgeting for risk is a somewhat contentious subject within each of the Services, OSD, and Congress and may, therefore, be subject to reduction or deletion as part of the budget review. This is the case even though the FMR specifically states that budgets are to be based on most likely full costs for the required work effort.

There are several ways to estimate and budget for this risk funding; the method used should be adapted to specific needs of the acquisition program for which the budget is prepared, consistent with Service or Defense Agency policies.

1. Determine each functional area of risk and add some percentage of that area's dollar value (e.g. 10%). The entire program may not be risky, only portions of it.
2. Add some dollar percentage to the entire forecast (e.g. 3% of entire fiscal year request). When risk cannot be more specifically assessed, this may be the most practical method.
3. In accordance with agency guidelines. Some field organizations have rule-of-thumb guidelines that are acceptable in the on-going budget review process (e.g., by fiscal year for RDT&E programs -- 15% in FY 1, 12% in FY 2, 10% in FY 3, etc. Procurement programs would probably use a smaller percentage.)

The BFM should place "risk dollars" where the risk exists (e.g., in the airframe line, support equipment line, or wherever else it is needed). Most programs have a line item labeled "Engineering Change Orders" (ECOs) to cover general development or production risks which are not easily tied to a specific PWBS element. There are several places in Volume 2A of the FMR that specifically state that "Engineering Change Orders should be funded commensurate with the level of risk in the program". There should never be a line item in the budget called "Management Reserve".

Integrated Master Schedule

With a sound PWBS in place, the next step is to create the Integrated Master Schedule. This requires a reliable estimate of the total time required to accomplish each task and the sequence in which the tasks must be executed. Creating a Integrated Master Schedule will also help determine if there are tasks which must be completed – or partially completed – before other tasks can begin. These interrelationships are provided by a critical path-type schedule. A key date that generally governs the master schedule is the Initial Operational Capability (IOC). Task schedules evolve by balancing work to be done against the time when the work must be completed to achieve the various milestones and decision points, to include IOC.

STARTING THE BUDGET

Once the PWBS tasks are time sequenced and interrelationships determined, the next step is to estimate both the total cost of each task and the time-phasing of costs for the task to determine the cost estimate for each of the future fiscal years required to accomplish the task. As part of the cost estimating process, the type work to be done is evaluated to determine the proper appropriation to use to fund each task. Based on the type appropriation, the analyst then should use the proper funding policy associated with that appropriation. Funding policies for the various appropriation categories are covered later in this Teaching Note. Another thing that must be considered is the “expense and investment” criteria.

The “expense and investment” criteria set forth in paragraph 010201, Chapter 1, Volume 2A, of the FMR, basically evolve around cost, purpose and whether the item is considered a “centrally managed/controlled item”. Generally, items costing less than \$250,000 and not designated for centralized management and asset control are considered “expenses” and are funded with O&M funds but, under some circumstances, they should be funded with RDT&E funds. Normally, these items are consumed in routine operations but, more importantly, their cost is relatively low. Investment items are those that cost more than \$250,000 at the complete system level and/or are designated for centralized management and asset control. Generally, investment items are not consumed in routine operations. Investment items may be funded with procurement, MILCON or RDT&E (depending on the item, purpose and dollar amount of the cost).

Appropriation Categories and Accounts

Appropriation categories may be considered broad, generic groupings or “types” of federal government funds. Categories most applicable to the DoD acquisition community fall into the following five major groupings: ***Research, Development, Test and Evaluation (RDT&E); Procurement; Operation and Maintenance (O&M); Military Personnel (MILPERS); and Military Construction (MILCON)***. While grouping appropriation funds into broad categories make it convenient for general discussion purposes such as linking a specific budgeting policy to each category, a more definitive breakout of federal government funds is that of ***appropriation account*** or ***expenditure account***. Federal agencies submit their budget requests to Congress – and Congress appropriates funding in the annual appropriation acts – by the more specific appropriation expenditure account terminology. There are hundreds of individual appropriation expenditure accounts associated with DoD. The Financial Management Service of Department of Treasury is responsible for maintaining the listing of all current appropriation expenditure accounts of the federal government. This listing is published in the Federal Account Symbols and Titles (FAST) book, which may be viewed at <http://www.fms.treas.gov/fastbook>.

To execute an acquisition program, ***budget authority*** provided by Congress through the annual Defense Appropriations Act is needed in order to incur obligations and make payments. In that appropriations act, which is signed into law by the President, Congress specifies the purpose(s) for which each particular appropriation may be used as well as the amount of budget authority provided under each appropriation. Volume 2A, Chapter 1, of the FMR provides guidance as to the proper use of these appropriations categories to finance program efforts. A summary of this guidance is provided below:

RDT&E appropriation accounts finance research, development, test and evaluation efforts performed by contractors and government installations to develop equipment, material, or computer application software; its Development Test and Evaluation (DT&E); and its Initial Operational Test

and Evaluation (IOT&E). These efforts may include purchases of end items, weapons, equipment, components, and materials as well as performance of services – whatever is necessary to develop and test the system. This applies to automated information systems as well as weapon systems. RDT&E funds are also used to pay the operating costs of dedicated activities engaged in the conduct of Research and Development programs. RDT&E funds are used for both *investment*-type costs (e.g., sophisticated laboratory test equipment) and *expense*-type costs (e.g., salaries of civilian employees at R&D-dedicated facilities). There is an RDT&E appropriation for each service (Army, Navy, and Air Force) as well as one to cover other Defense agencies as well as separate ones for both the operational test and developmental test activities.

The *Procurement* category consists of a number of procurement appropriation account titles such as Shipbuilding and Conversion Navy, Aircraft Procurement Air Force, Missile Procurement Army, Procurement Marine Corps, etc. Procurement appropriations are used to finance investment items, and should cover all costs necessary to deliver a useful end item intended for operational use or inventory. Items classified as investments and financed with Procurement appropriations include those whose system unit cost exceeds \$250,000; all centrally managed end items not purchased from Defense Working Capital Funds, regardless of unit cost (e.g., handguns); purchases from the Defense Working Capital Fund furnished as part of a system acquisition, system modification, major service life extension program and initial spares. With certain limited exceptions, the cost of fabricating and installing additions or modifications to existing end items is also funded with procurement appropriations.

The *O&M* category is also composed of many appropriation account titles, e.g., Operation and Maintenance Army, Operation and Maintenance Marine Corps Reserve, Operation and Maintenance Air National Guard, etc. O&M appropriations traditionally do not finance investments, but rather those things whose benefits are derived for a limited period of time, i.e., expenses. Examples of costs financed by O&M funds are headquarters operations, civilian salaries and awards, travel, fuel, minor construction projects of \$750,000 or less, expenses of operational military forces, training and education, recruiting, depot maintenance, purchases from Defense Working Capital Funds (e.g., spare parts), base operations support, and assets with a system unit cost less than the current procurement threshold (\$250,000).

MILPERS appropriation accounts are similar in nature to those of O&M in that both are considered expense accounts. MILPERS appropriations are used to fund the costs of salaries and compensation for active military and National Guard personnel as well as personnel-related expenses such as costs associated with permanent change of duty station (PCS), training in conjunction with PCS moves, subsistence, temporary lodging, bonuses, and retired pay accrual.

MILCON appropriation accounts receive considerable attention from Congress, and are enacted separately from the Defense Appropriations Act. These appropriations fund the costs of major construction projects such as bases, facilities, military schools, etc. Project costs include architecture and engineering services; construction design; real property acquisition costs; and land acquisition costs necessary to complete the construction project. MILCON is considered an investment account. Examples of projects properly financed in the MILCON appropriations include missile storage facilities, intermediate maintenance facilities, medical/dental clinics, technical libraries, and physical fitness training centers.

Table 1 lists the four-digit codes for DoD's most commonly used appropriation expenditure accounts. Note that each Military Department (and DoD Wide) also has a two-digit code to give greater specificity to the identifying code for an appropriation account.

DoD Appropriation Account Codes					
Appropriation Account	Army (21-)	Navy (17-)	USMC (17-)	Air Force (57-)	DoD Wide (97-)_ _
RDT&E	2040	1319		3600	0400
Procurement					0300
Aircraft	2031	1506		3010	
Missiles	2032			3020	
Weapons		1507			
W&TCV	2033				
Ammunition	2034	1508		3011	
SCN		1611			
Other	2035	1810		3080	
USMC			1109		
MILPERS	2010	1453	1105	3500	
O&M	2020	1804	1106	3400	0100
MILCON	2050	1205		3300	0500

Table 1

FINANCIAL RULES AND PRACTICE

The DoD FMR articulates a number of ground rules derived from Congressional direction concerning the amount and timing of budget requests for different appropriations. These funding or budgeting policies basically serve to ration scarce budget authority among the many DoD activities and programs. These policies are discussed below.

Annual Funding

The rule governing the O&M and MILPERS appropriations is the *annual funding policy*. Simply stated, the policy requires that only the dollars needed to operate, maintain, or pay the forces in a given fiscal year be requested. The major exception to this policy is the statutory provision (Title 10, U.S. Code, Section 2410a) governing DoD financing of service contracts whose period of performance crosses fiscal years. Provisions of that statute allow (but do not direct) DoD to submit a budget request in one fiscal year for a period of performance up to a maximum of twelve months for such service contracts that *start* in that first fiscal year and *complete* in the next fiscal year. During the year of execution, the Defense Component can then obligate first year funding for the entire period of performance. For example, a service contract covering the period April 2011 to March 2012 (12 months, starting in FY11 and ending in FY12) may be budgeted for and funded entirely with FY11 funds. This provision has provided increased flexibility for the Department and has eased some of the contractual workload associated with awarding contracts early in the fiscal year. Because this statutory exception is permissive rather than directive, a Defense Component may elect to budget for and execute service type contracts on a purely fiscal year basis.

Incremental Funding

The rule governing budgeting of RDT&E funds is the *incremental funding policy*. As stated in the FMR, the incremental funding rule is:

"...only those funds required for work in a given fiscal year shall be included in the RDT&E budget request for that fiscal year for most classes of effort."

The “funds required for work in a given fiscal year” portion of that quotation is further translated to mean “costs expected to be incurred during that fiscal year”. Thus, for purposes of developing a budget for RDT&E funding, it is necessary to estimate *when* we expect costs to be incurred. In practice, this can be tricky, particularly when looking forward to competitive development without knowing who the contractor will be, much less how or when costs will be incurred. Conceptually, the task is much easier. Funding profiles for three hypothetical tasks are shown in **Figure 1**.

Task / Cost	FY 1	FY 2	FY 3	FY 4
TASK 1 \$ 350 K	\$ 200 K 	\$ 100 K	\$ 50 K 	
TASK 2 \$ 200 K		\$ 40 K 	\$ 120 K	\$ 40 K 
TASK 3 \$ 100 K		\$ 10 K 	\$ 30 K	\$ 60 K 

Cost Incurred by Task by Fiscal Year

Figure 1

For each of the tasks shown, the triangles represent the start and end dates. The expected cost to be incurred for each task is shown for each fiscal year. The first task represents a front-loaded task with respect to cost, perhaps early purchase of a large quantity of material. The second task represents a “normal” bell curve with relatively low cost in the beginning and end of the effort with a larger cost in the middle portion of the work effort. The third task might represent testing, with heavy cost incurrence near the end of the project.

The incremental funding policy is to request funds each fiscal year for costs expected to be incurred that year. Since the above diagram shows costs estimated to be incurred for the different tasks each year, we can simply add the costs in each fiscal year column to determine the required RDT&E funding for that year. Thus, for the program represented in Figure 1, the budget request would be \$200K for FY 1, \$150K for FY 2, \$200K for FY 3, and \$100K for FY 4.

Generally, research and development efforts are accomplished under contracts that span more than one fiscal year. The FMR provides the following specific guidance for estimating the budget requirement for the various fiscal years of an anticipated research and development contract that will span more than one year:

- Generally, for the initial, first year of a contract for a new start program, assume funding for a 9 month or lesser period because of the nature and timing of the congressional budget approval process.

- For the second and all succeeding full fiscal years of the contract, assume funding requirements on the basis of costs expected to be incurred for a 12 month period. In some cases, the assumption could be made that the contractor can finish the contracted work effort within the first 3 months of the following fiscal year. The Service or Defense Agency Comptroller must, in such cases, approve including that *additional* funding requirement for up to 3 months in the last full fiscal year's budget request. However, this should be closely monitored and if it becomes apparent that the work effort will take longer than 3 months into a following fiscal year, the programming and budgeting documents should be modified to reflect that change (i.e., put the funding requirement into the next fiscal year).
- In some cases, there may be a research and development requirement in which there is no logical way to divide the work; it is clearly unfeasible to limit the contract to a shorter period; or the planned technical effort is such that no contractor is willing to accept a contract for a less-than-completion increment. For these type efforts that take longer than 12 months but less than 18 months, the Service or Defense Agency Comptroller may approve financing of the total requirement in one fiscal year.

Full Funding

The rule governing the computation of budgetary estimates for procurement and military construction appropriations is called the "**full funding**" policy. The FMR discusses two basic views of the full funding policy:

- The first pertains to budgeting for the total cost of major procurement and construction projects in the fiscal year in which the contract for that action will be awarded. The full funding policy requires the total estimated cost of a complete, military useable end item(s) or construction project be available in the year in which the item is to be procured. If an appropriation in a future year is required for delivery of the end item, the end item is not fully funded. This policy prevents funding production and construction programs incrementally and provides a disciplined approach for program managers to execute their programs within cost. Regulations governing the full funding policy can also be found in Office of Management and Budget (OMB) Circular A-11.
- The second pertains to the requirement that funds be identified at the outset for the total estimated cost of a given program so that Congress and the public can be fully aware of the dimensions and cost when the program is first presented in the budget. The second view of the full funding policy pertains to the total program throughout the fiscal years envisioned to have production contractual actions while the first pertains to each individual fiscal year with a planned production contractual action (i.e., contract award or exercise of a previously negotiated contract option). This second view of the policy is also known as a "fully funded program" and generally refers to the fiscal years addressed in the Future Years Defense Program (FYDP), which is considered a reliable foundation for stating the total cost of acquiring defense systems.

Another way to state the first view of the full funding policy is "all funds required to complete the delivery of each buy will be included in the budget request for the year of the planned contract award, regardless of the date the contracted item(s) will be delivered". With respect to procurement programs, the full funding policy calls for providing funding each fiscal year to procure a specified

quantity of complete, military usable end items. For a construction project, the full funding policy requires that sufficient funding be budgeted in the targeted contract year for the total estimated price of the completed building or other facility. Thus, the piecemeal procurement of systems or the partial completion of a building is NOT permitted. This prevents DoD from ending up with large amounts of unusable parts, materials, or components – or an incomplete building – if the project is subsequently cancelled and further funding is not available.

The full funding budgeting concept can be confusing and can best be illustrated by stating what one may not do under that concept. For example, if the Army plans to purchase 1000 tanks at the rate of 100 per year for ten years, the Army may not contract for 1000 turrets in the first year, 1000 tracks in the second year, 1000 engines in the third year, and continue with piecemeal procurement until all components are acquired and all the pieces are assembled into the 1000 complete tanks. Instead, the Army must contract each year for the 100 completely finished and ready-to-fight tanks; then, as the contractor completes the tanks and they are accepted by the government, the tanks are deployed to the user community. By the end of the 10 year period, the Army has contracted for – and received delivery of – the entire planned acquisition of 1000 tanks.

Funded Delivery Period

To prevent programs from tying up excessive amounts of budget authority in a single year, DoD generally limits the budget request for procurement appropriations to the funding required for a quantity of militarily usable end items not to exceed what a contractor can deliver in a 12-month period, which is known as the *funded delivery period*. The funded delivery period encompasses a 12-month period that begins when the contractor can deliver the first item of a given procurement contract action (i.e., *production lot*) and ends the twelfth month thereafter. For example, assume the desire is to procure and deploy a total of 30 end items of a given system and the program office plans to award the production contract in FY 1. Further, assume it will take the contractor approximately 22 months to produce and deliver the first item of that planned production buy. The 22 months is known as the *production lead time*. While the program office might like to budget for – and ultimately award a contract for – all 30 end items in FY 1 – it is assumed or known that a contractor could not deliver all 30 items during a 12-month future period. Hence, the maximum quantity for which the program office can budget in FY 1 is limited to the quantity that can be delivered; in this example, that is the funding required for 10 items. The remaining 20 items can be delivered in the following 12-month period so the budget request for FY 2 should be for the funding required for that quantity. The contract action for FY 2 can be either a previously negotiated option to the original contract or a new contract negotiated that year.

The first scheduled delivery in this case occurs in the second quarter of FY 3. This funded delivery period covers the 12 months from that first delivery; hence, through the end of the first quarter of FY 4. In this 12-month window, all of the items associated with this production lot buy should be deliverable by the contractor. Delivery of the 20 items in production lot 2 should start in the second quarter of FY and be completed by the end of the first quarter of FY 5. In theory, this should have no adverse impact on the program. In practice, however, such “annual buys” tend to drive up the overall cost of procurement as contractors attempt to reduce their financial risk (see “Multiyear Procurement” below).

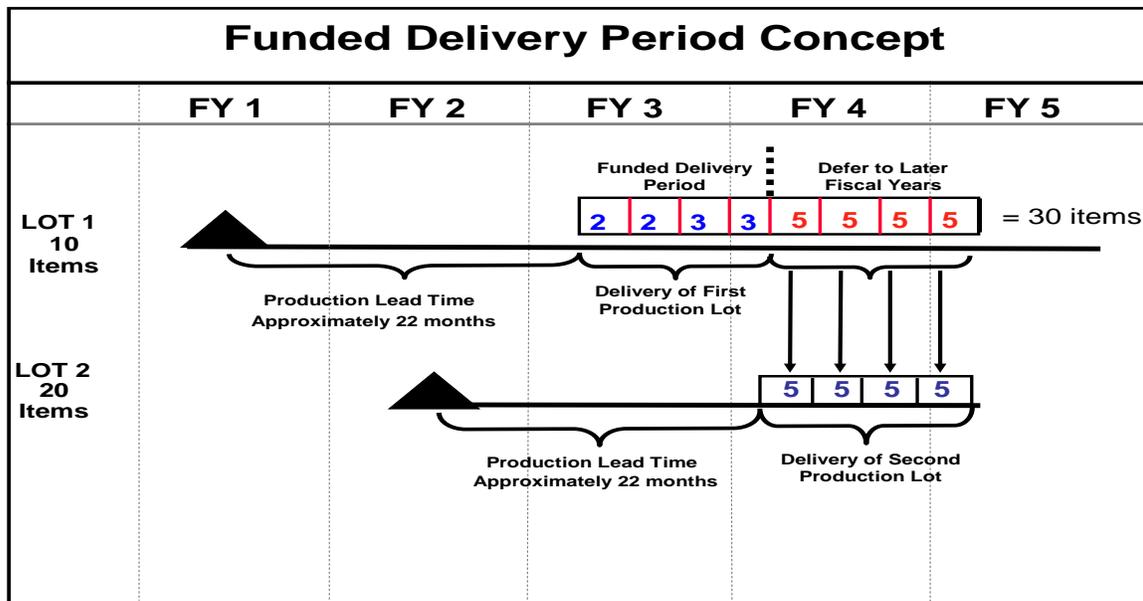


Figure 2

Exceptions to the Full Funding Budgeting Policy:

As with most policy statements, there can be exceptions. In the case of the full funding budgeting policy, there are two formal exceptions provided for in the FMR: **advance procurement** (long lead-time items) and **advance economic order quantity (EOQ) procurement** (associated with multiyear procurement). Although not a “normal” exception to the full funding policy, there is another manner in which Congress authorizes and appropriates budget authority for less than a usable end item. In a few instances, Congress has authorized and appropriated funds for procurement of a small number of navy ships partially in two consecutive fiscal years (i.e., half the cost of the ship in one year and the remaining half of the cost in the next year). This is not a common practice although it is periodically raised as a discussion item by the Navy and/or Congress. The supporting rationale for this approach is twofold: the cost of some ships is so high (relative to most other weapon systems) that fully funding a ship in a single year would result in funds not being available for other Navy requirements; in addition, there are often savings (based on economies of scale) by starting two ships of the same class at the same time rather than starting one per year for two consecutive years.

Advance Procurement

As previously stated, one exception to the full funding policy is the use of advance procurement for long lead-time items. Advance procurement can be described as funds needed to procure certain components, parts, or material when they have significantly longer lead-times than other items of the end-item being procured or when the efforts must be funded in an advance procurement timeframe in order to maintain a planned production schedule. Advance procurement may be used to: (1) maintain critical skills that would otherwise be lost between Engineering and Manufacturing Development and Full Rate Production; and/or (2) protect the schedule by providing necessary components at the right time for incorporation into the production of the weapon system (i.e., to prevent a slowdown or break in production). Each budget request for advance procurement must be sufficient to cover, as a minimum, the termination liability associated with the total cost of the long-lead items for which the advance procurement request is being made and will be budgeted consistent

with full funding procedures. Advance procurement funds for a system are budgeted as a procurement line item separate from the related end item (i.e., Exhibits P-1, P-5, P-10, and P-40). The relationship of advance procurement funds to the end item budget is identified in both accounts so as to prevent double counting. Generally, advance procurement funds are budgeted not more than one fiscal year in advance of the funds for the related end item.

Economic Order Quantity (EOQ)

As previously indicated, the second exception to the full funding policy is that of EOQ, which may be used only in connection with a multiyear procurement (MYP) action. MYP is a contractual vehicle for acquiring multiple years of requirements for systems or subsystems with a single contract, usually up to a maximum of five years. The purpose of MYP is to reduce program cost growth and introduce stability into the acquisition process. In theory, it does so by making a commitment to the contractor to procure a specific quantity of a weapon system over several years to be funded on a year-by-year basis. The contractor is thus incentivized to realize savings, particularly through EOQ purchases (i.e., bulk purchases), and investment in productivity enhancements.

The funding of EOQ buys associated with a MYP is considered an exception to the full funding policy in that the contracted end items will be delivered in a period greater than the normal 12 month funded delivery period. Funding for EOQ procurements is included in advance procurement budget requests unless an exception is granted by Under Secretary of Defense (USD) (Comptroller). Unless it would be more effective to fully fund the EOQ, or the USD (Comptroller) has granted an exception to the general policy to allow inclusion of EOQ costs in a cancellation clause, the advance procurement funding for an EOQ procurement shall cover, as a minimum, the estimated termination liability of the EOQ procurement.

Although MYP can benefit the government, it can also entail risks. Accordingly, U.S. Code, Title 10, Section 2306b, outlines criteria that multiyear candidates must meet to limit those risks.

- ***Substantial savings*** -The MYP will result in substantial savings compared to annual procurement of the same quantities to compensate for the reduction of future budget flexibility and added program risk. There is no officially defined “substantial” percentage or dollar value of savings for a MYP. In the past, minimum savings of 10% or more were expected, although very costly programs were able to obtain approval for MYP with less than this due to the high dollar value of the savings.
- ***Continuing/stable requirement*** - A stable requirement means that the minimum need for the property will not change significantly (particularly downward) over the term of the multiyear contract. Decreases in total procurement quantities, procurement rate, or production rate can cause increases in unit cost and subsequently reduce savings.
- ***Funding availability and stability*** -There should be a reasonable expectation that program funding at the required level for the procurement will be available throughout the multiyear contract period. Both DoD and the Congress must be committed to ensuring that sufficient funds are provided to complete the multiyear contract at planned production rates.
- ***Design stability*** - System or subsystem design should be stable before initiating MYP. Test and evaluation should be completed and demonstrate that the system or

subsystem is operationally effective. A program should be judged mature and stable only after research and development and one or two production runs have been successful.

- ***Realistic cost estimates*** - Estimates should be based on historical cost data for the same or similar item. Savings are calculated as the difference between cost estimates, proposals, or negotiated prices for the multiyear contract and the cost of procuring the same quantities in the same time frame with successive annual contracts.
- ***National security enhancement*** - The use of a multiyear contract should promote the national security of the United States.
- ***Impact on Industrial Base*** - Programs seeking approval for MYP must describe the impact on the industrial base, including improved competition, enhanced facilities investment, improvement in vendor skills, increased production capacity, etc.

MYP contracts cannot be initiated for over \$500 million unless specifically provided for in an appropriations act **and** an act other than an appropriations act. Congress has mandated the following requirements: (1) proposed multiyear contract costs must be provided for with the President's budget submission or as a budget amendment and (2) the House and Senate Armed Services and Appropriations Committees must be notified at least 30 days in advance of a proposed contract award that employs advance procurement or economic order quantity procurement in excess of \$20 million in any one year of the contract or an unfunded contingent liability of over \$20 million. In addition, thirty days prior to a contract award, SECDEF must certify to Congress that the support costs associated with a multiyear procurement of over \$500 million are fully funded in the FYDP. The certification letter must be then approved and signed by the defense committees.

"Cancellation ceiling" is a term that applies to MYP only. It represents protection to the contractor in the event that the government cannot continue the contract due to lack of funds. It is designed to reimburse the contractor for those costs that have been incurred as a result of ordering material in advance, or investing and facilitating for the procurement. There is a cancellation ceiling associated with each fiscal year and it decreases in dollar value in the later years of the contract. An exception must be approved by USD(Comptroller) to award a MYP contract with an unfunded cancellation ceiling. Congress must be notified a minimum of 30 days prior to awarding a contract with a cancellation ceiling in excess of \$100 million.

Congress and DoD have several concerns regarding MYP. The first is the amount of budget authority necessary to initiate a multiyear program. Due to the provisions for expanded advance buy and the cancellation ceilings, multiyear programs require more budget authority in the first year and have a large cancellation ceiling in the early years.

The second concern is reduced flexibility. It is expensive to cancel a MYP contract, therefore, once it is started it is generally wise to finish it. The budget is thus less flexible because large amounts of budget authority are now tied up for multiyear programs and are not available to be used somewhere else. Congress dislikes making commitments in the current year which have outyear consequences. DoD also likes to retain as much flexibility as possible to respond to changing requirements. **Low Rate Initial Production (LRIP) Assets**

There are three key references pertaining to LRIP assets: (1) U.S. Code, Title 10, Section 2400; (2) DoDI 5000.02 (Enclosure 2, paragraph 7); and (3) the FMR, Volume 2A, Chapter 1, Section 010213.

The referenced statute, which pertains specifically to major defense acquisition programs (i.e., ACAT I programs), addresses (a) the purposes of LRIP articles; (b) when the decision should be made as to whether a program will have LRIP articles; (c) the quantity of LRIP articles; (d) approval of LRIP; and (e) reporting to Congress relative to LRIP on a given program.

The statute identifies the three purposes for LRIP as “the minimum quantity necessary (1) to provide production-configured or representative articles for operational tests pursuant to Section 2399 of this title [Title 10, U.S. Code]; (2) to establish an initial production base for the system; and (3) to permit an orderly increase in the production rate for the system sufficient to lead to full-rate production upon successful completion of operational testing.” The statute further maintains that the determination as to the quantity of LRIP articles to be procured is made when the Milestone B decision is made and the determination is made by the same DoD official who made the Milestone B decision (i.e., for the program to enter the system development and demonstration acquisition phase). Additionally, the statute requires that any increase in quantity from that previously made may be made only with the approval of the DoD official making the original determination. The statute also stipulates that reporting to Congress relative to the quantity of LRIP articles on a particular program is done by a statement in the first Selected Acquisition Report (SAR) prepared/submitted after that quantity decision is made. If the quantity exceeds 10 percent of the total number of articles planned to be procured, the statement in the SAR shall include the specific reasons for such a quantity. While the referenced statute does not state that Congress must approve the LRIP quantity previously approved by the Milestone Decision Authority (MDA), it is recognized Congress does ultimately approve any production quantity of an acquisition program through the authorization and appropriation process.

Paragraph 7, Enclosure 2, DoDI 5000.02 discusses the Production and Deployment Phase of an acquisition program and addresses LRIP for MDAPs and major systems. Paragraph 7.c. (1) provides guidance for the LRIP effort for those systems and covers some of the same requirements specified in the referenced statute, to include identifying the same purposes of LRIP articles. This paragraph also states that (1) LRIP is not applicable to AISs or software-intensive systems with no developmental hardware; (2) LRIP for ships and satellites is production of items at the minimum quantity and rate that is feasible; and (3) unless specifically approved by the MDA, deficiencies identified in testing shall be resolved prior to proceeding beyond LRIP and any required fixes shall be verified in FOT&E.

The cited paragraph in the FMR addresses the (1) purposes of LRIP articles; (2) policies relative to determining the correct appropriation to be used for a LRIP buy; and (3) requirement to provide justification for LRIP articles in the budget request documentation that goes to Congress as part of the President’s Budget.

The three primary purposes for an acquisition program to obtain LRIP assets, as stated in the previously referenced statute, are also repeated in the FMR. Those purposes, and the appropriation category associated with each purpose, are found in the FMR in Volume 2A, Chapter 1, Section 010213, paragraphs C-5 a (3) and C-5 d:

- (1) To permit an orderly increase in production rate for the system. Required funding should be requested in the procurement appropriation that will be used for later full-rate production of the system and should be included in the proper P-Forms.
- (2) To establish an initial production base for the system. Required funding should be requested in the procurement appropriation that will be used for later full-rate production of the system and should be included in the proper P-Forms.

- (3) To provide production configured or representative articles for operational test. As previously stated, the default appropriation for such LRIP assets would normally be RDT&E. Funding for LRIP articles, however, is the area in which OSD allows the acquisition community some flexibility. For example, articles (including end items, weapons, equipment, major test vehicles, and components) of the type routinely procured to meet established general requirements such as operational training, operational use, or inventory assigned for use in support of approved research and development programs that are not consumed in testing may be financed by one of the procurement or O&M appropriations using the expense and investment criteria (i.e., an article costing less than \$250,000 would be considered an expense item and funded with O&M).

Within the FMR, the subject of LRIP assets is discussed in the Section dealing with “RDT&E Definitions and Criteria” and the paragraph on “Test Articles and Test Support” (Volume 2A, Chapter 1). The general rule is that all research and development-related tests and activities preceding and leading to acceptance of the system for operational use (i.e., actions prior to the Full Rate Decision Review Point) should be funded with a RDT&E appropriation. Generally, RDT&E is the default appropriation for development and pre-production prototypes that will be used for Developmental Test and Evaluation (DT&E); for development and pre-production prototypes that will be used for Operational Test and Evaluation (OT&E); or for LRIP assets that will be used for operational test purposes. However, OSD and Congress recognize the need for some flexibility at this critical point as the program transitions from development to production (and, therefore, transitions from using RDT&E to using procurement funds for its contracts).

While LRIP assets intended for operational testing purposes are normally funded with a RDT&E appropriation (the acquisition community usual preference), there may be circumstances when the program office believes procurement funding is more appropriate. For example, if the acquisition strategy states the LRIP assets will be used for operational test purposes and then placed into the operational inventory, procurement funding could be requested. On the other hand, if the acquisition strategy states the LRIP assets will be used for operational test purposes but does not address their disposition after testing, RDT&E funding should be requested. In the second example, if a later decision is made to place those test articles into the operational inventory, the cost to modify or refurbish the articles for operational configuration would be borne by either procurement or O&M, consistent with the expense and investment criteria as stated above. Whichever appropriation is considered appropriate under given circumstances, the program office must provide specific justification in the budget request documentation (R-Forms or P-Forms) prepared for the POM/BES submission to OSD and the follow-on President’s Budget submission to Congress.

The requirement for LRIP test articles, to include justification for the requested quantity, must be specifically identified in budget documentation. While the initial decision relative to LRIP for an acquisition program is made at MS B (both whether there will be LRIP and at what quantity), funding for specified quantities for given fiscal years is requested as part of the Production and Deployment approval decision process (i.e., MS C) consistent with the PPBE cycle in order for the appropriate funding be contained in the President’s Budget for the first year of LRIP. If LRIP assets greater than those required for testing purposes are requested, that quantity must be included in the Milestone decision documentation and a determination made as part of that decision process. As an exception to routine practice, ships and space systems do not have LRIP periods and, therefore, do not have “LRIP test articles” as do other systems. Specific guidance for those type systems is in the FMR in Volume 2A, Chapter 1, Section 010213, paragraphs C-5 and C-6.

Buy-to-Budget for Acquisition of End Items

Congress, by passage of a law that was incorporated into the US Code, has given DoD some additional flexibility and authorization relative to the acquisition of some end items. In accordance with US Code, Title 10, Section 2308, the head of an agency (read to include Services and Defense Agencies) making the acquisition may acquire a higher quantity of the end item than the quantity specified in applicable Appropriations Acts if the following conditions are met:

- (1) The agency has an established requirement for the end item that is expected to remain substantially unchanged throughout the period of acquisition.
- (2) It is possible to acquire the higher quantity of the end item without additional funding because of production efficiencies or other cost reductions.
- (3) The amount of the funds used for the acquisition of the higher quantity of the end item will not exceed the amount provided under that law for the acquisition of the end item.
- (4) The amount provided is sufficient to ensure that each unit of the end item acquired within the higher quantity is fully funded as a complete end item.

For noncompetitive acquisitions, the acquisition of additional quantities is limited to not more than 10 percent of the quantity approved in the justification and approval prepared in accordance with US Code, Title 10, Section 2304, and Part 6 of the FAR. The head of the defense agency must notify the congressional defense committees of a decision to buy more items than specified in an Appropriations Act not later than 30 days after the date of such decision.

Budgeting for Information Technology and Automated Information Systems

Information Technology (IT) and Automated Information Systems (AIS) that are not embedded in weapons systems and/or major end item procurements should be budgeted according to the investment and expense criteria applicable to the entire Defense Department.

Consistent with the investment and expense criteria, all research, development, test and evaluation requirements associated with IT and AIS, to include designing prototypes and process, should be budgeted in a RDT&E appropriation. Because costs incurred in the RDT&E appropriation may be considered either expense or investment, the \$250,000 dollar threshold is not critical; the purpose is more important. RDT&E funds should be used to develop major upgrades increasing the performance envelope of existing systems, purchase test articles and conduct developmental testing and/or initial operational test and evaluation prior to system acceptance. Generally, all developmental activities involved in bringing an IT or AIS program to its objective system are to be budgeted in RDT&E.

Acquiring and deploying a complete system with a cost of \$250,000 or more is an investment and should be budgeted in a procurement appropriation. The cost of a “complete system” is the aggregate cost of all components (e.g., equipment and software) that are part of, and function together, as a system to meet an approved documented requirement. For modification efforts, only the cost of the upgrade (e.g., new software, hardware, and labor) is counted towards the investment threshold. The total cumulative cost of the system is not considered when deciding what appropriation to use for a modification.

Expenses incurred in continuing operations and current services should be budgeted in an O&M appropriation. Modernization costs under \$250,000 are considered expenses, as are one-time projects such as developing planning documents and studies. Software releases categorized as iterations on the basic release and not involving significant performance improvements or extensive testing are considered a maintenance effort. Minor improvements in software functionality accomplished during routine maintenance may also be funded with O&M.

IT and AIS items purchased from a commercial source that can be used without government modification (e.g., COTS and nondevelopmental items) should be funded in either a procurement or O&M appropriation consistent with the expense and investment criteria.

IT and AIS items that are embedded in weapons systems and/or major end item procurements would normally be considered part of that system and would be considered an investment item. Therefore, such items would be budgeted in the same appropriation as the basic weapons system or major end item.

Product Improvement

Determining the correct appropriation to fund product improvements or modifications of an existing major weapon system has its own logic. A product improvement involves a change to an existing system or component, which usually either extends the system's useful military life or expands the system's performance capability. Funding of this change should be viewed in two phases. First is the development and testing of the modification; and second is the fabrication and installation of the modification (mod) kits. The logic of these two phases is depicted in **Figure 3** on the next page. In the first phase, three questions must be answered:

- (1) Does this redesign increase the performance capability?
- (2) Does this redesign require extensive developmental testing or operational testing (e.g., is it a major modification)?
- (3) Where is this system in its life cycle?

If the redesign increases performance capability or extends the useful life of the system beyond its original design parameters, it is necessary to use RDT&E funds for the development, test and evaluation of the modification. If the redesign does not increase performance capability (e.g., a safety modification) or merely extends the useful life of the system to its original design value, we need to ask if the modification requires extensive testing because it is classified as a major modification. If it is, then RDT&E dollars should again be used to pay for development, test and evaluation of the modification. If it is not, then we need to look at where the system is in the life cycle. If the system is in production, then we finance the development, test and evaluation of the product improvement with Procurement appropriations. If the system is no longer in production we finance the development, test and evaluation of the product improvement with O&M funds.

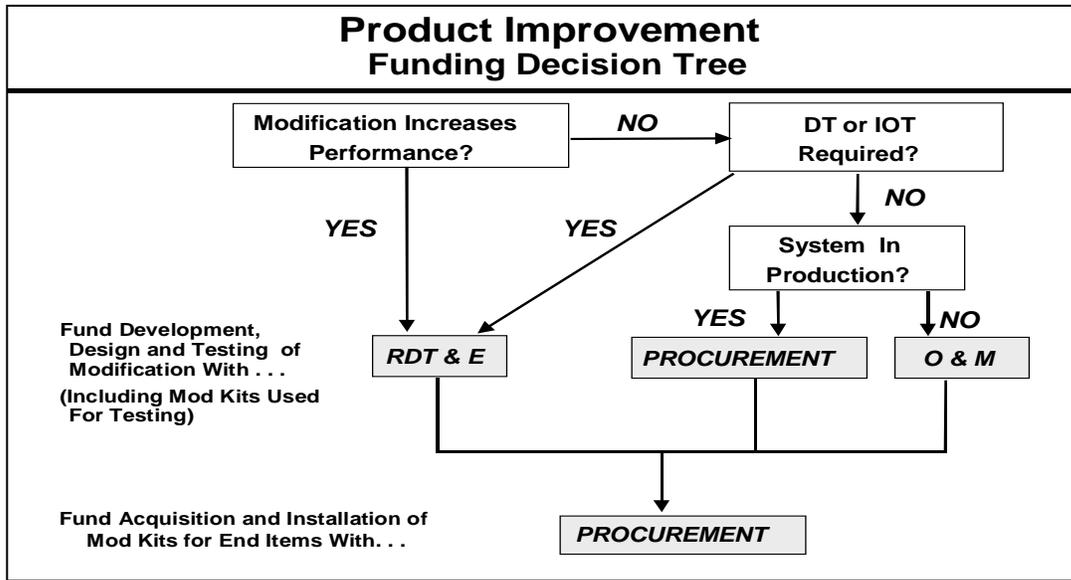


Figure 3

Funding for the second phase (fabrication and installation of the mod kits) is much more simple: regardless of the type funding used for the development and testing of the modification, the mod kits should be fabricated and installed using a Procurement appropriation of the same type as was used to originally procure the end item.

Aircraft engine improvements are exceptions to the general decision logic described above in that development and testing of these improvements are always funded by RDT&E appropriations.

Pre-Planned Product Improvements (P³I) are different from the Product Improvement efforts described above and are considered concurrent but separate research projects from the research being done for their corollary system. The primary purpose of this research effort is to push technology beyond current boundaries, thereby achieving greater performance capability than possible with existing technology. The P³I effort is planned before the system is produced and deployed and the R&D effort is actually done concurrently with the R&D for the main system (using existing technology, which is sufficient to achieve the user's threshold requirements).

BUDGET PREPARATION AT ORGANIZATIONAL LEVEL

After an organizational entity such as an acquisition program office understands (1) what activities are to be done during a fiscal year to accomplish its mission; (2) which appropriation(s) should be used for the required activities; (3) the funding policies associated the appropriation(s) required for those activities; and (4) cost estimates to accomplish those activities, it is time to prepare the resource requirements for input into programming and budgeting documentation that will submitted to higher headquarters. Ideally, cost estimates will have been prepared for the activities to be done in future fiscal years; however, those estimates will have been prepared in *constant year dollars*. Because programming and budgeting submissions are to be done in *then year dollars* for those specific future fiscal years, it is necessary to turn those constant year dollars into then year dollars. This is done through a process called *escalation*, which takes into consideration two factors: inflation and the economic impact associated with those future dollars

being outlaid (i.e., paid out of the U.S. Treasury to recipients of actual cash). Figure 4 provides a “notional” example of the process to convert the price of an item or activity in FY 2011 base year dollars to the dollar amounts required in FY 2013 and FY 2014. This generic process is necessary to ensure the dollars contained in the appropriation acts for those future years will be sufficient to pay for the items or activities planned for those years. The next several pages describe in greater detail the effects of outlay rates and inflation when converting from constant year dollars to then year dollars.

**“Notional” Example of Preparing Input for
FY 2013-14 Budget - Applying Escalation**

	Year Budget Prepared	Target Fiscal Years	
	<u>FY11</u>	<u>FY12</u>	<u>FY13</u> <u>FY14</u> <u>FY15</u> <u>TOTAL</u>
Base Year Price (\$)	\$\$		
Outlay Rate (%)			
Cumulative Inflation (%)			
Dollar “Value” (\$) When Outlaid			
“Required Budget” Estimate (Current/Then Yr \$)		\$\$\$	\$\$\$

To go from “Base Year Price” to “Required Budget”, multiple “Base Year Price” by proper Weighted (Composite) Index of Appropriation Account

Budget Estimate = “Base Year Price” plus inflation plus economic effects of outlays occurring in future years

Figure 4

Impact of Outlay Rates and Inflation on Future Budget Forecasts

Each of the various DoD appropriation accounts (e.g., RDT&E, Army and O&M, Navy) has its own unique outlay rate based on how actual cash is outlaid from the U.S. Treasury. The different outlay rates are dependent on the type of appropriation involved and the aggressiveness with which a Service manages their respective accounts. For example, expense-type appropriations such as MILPERS and O&M would be expected to outlay quickly because of the nature of the accounts; they pay for salaries and supplies. On the other hand, investment-type appropriations such as procurement and MILCON would be expected to outlay more slowly; these funds are obligated on contracts and the contractors receive payment based on contract terms, which generally call for either progress payments or payment upon delivery of the contracted end item. **Table 2** reflects typical outlay rates for several appropriations based on historical data. Although these outlay rate tables are updated periodically, the actual rates remain relatively constant from year to year. It should be noted that the number of years it takes for an appropriation to be fully outlaid is not the same as the number of years during which the appropriation is available for obligation purposes.

Using the three RDT&E appropriation accounts as examples, this is how to read this table: In all cases, we are talking about the percentage of the amount appropriated in FY 1 (i.e., the “first year” of its availability for obligation purposes) that will be outlaid in that year. Starting with RDT&E, Army, note that in the first year of the appropriation’s availability for obligation purposes, approximately 41% of the amount appropriated is actually outlaid; in the second year of availability, another 44% of that amount is outlaid; in the third year, another 9%; and so forth. It takes five years

for the entire amount of the “first year” appropriation to be fully outlaid. Considering the fact that the OSD goal for outlays (i.e., expenditures) in its first year of availability for obligation purposes is 55%, neither Army nor Navy meets that goal. Based on the above table, Air Force does a better job of managing its RDT&E appropriation than does the Army and Navy.

Illustrative Outlay Rates							
(Percent of Total Budget Authority Outlaid Each Year)							
	<u>First</u> <u>Year</u>	<u>Second</u> <u>Year</u>	<u>Third</u> <u>Year</u>	<u>Fourth</u> <u>Year</u>	<u>Fifth</u> <u>Year</u>	<u>Sixth</u> <u>Year</u>	<u>Seventh</u> <u>Year</u>
<u>Army</u>							
Aircraft Procurement	19.00	50.00	21.50	5.00	4.50		
Missile Procurement	10.00	29.50	48.00	10.70	1.80		
RDT&E	40.86	44.03	9.48	3.60	2.03		
<u>Navy</u>							
Aircraft Procurement	20.00	41.00	28.00	6.90	2.50	1.60	
Shipbuilding & Conv	17.34	23.57	21.19	19.69	10.13	7.66	0.42
RDT&E	51.01	38.65	8.06	1.31	0.97		
<u>Air Force</u>							
Aircraft Procurement	26.50	45.50	19.00	6.50	1.60	0.90	
Missile Procurement	38.38	39.10	13.58	4.65	1.79	2.50	
RDT&E	58.56	34.53	4.07	1.71	1.13		

Table 2

Because budget requests are projections into the future, it is necessary to budget today for what we expect to pay in the future (i.e., our budget estimate must account for inflation). **Inflation**, which is defined as an increase over time in the general price level, is a pervasive phenomenon affecting all aspects of financial planning and, therefore, directly impacts the development of program cost/funding forecasts for weapons systems. The OMB provides DoD the estimated rate of inflation for the various appropriation categories or, in some cases, individual products (e.g., fuel) within an appropriation category. OSD then provides those inflation rates to the Services and Defense Agencies for their use. The Services and Defense Agencies then combine the projected inflation rates and the historical outlay rates to provide **escalation rates** that their subordinate activities must use for budgeting purposes. In some cases and for some appropriations, a Service or Defense Agency might direct its subordinate activities to provide a budget estimate in constant year dollars and the higher headquarters then applies the proper escalation rate for the budget submission to OSD.

Another way to think about this escalation process is as follows: it is necessary to address both the effects of rising prices and the effects of the timing of when the contractor who will do the proposed work effort – or the individual who will perform the proposed services – will actually receive proper payment. For a contractor, the price level changes are felt as material or salary costs increase. The problem is to predict when a contractor is going to incur those costs and receive payment. Since budget requests must be made a significant period of time prior to receiving and negotiating contract cost proposals, it is necessary to develop estimates of the anticipated costs and the time-phased profile of their incurrence and payment. To estimate the profile of how those costs will be outlaid over time, we use DoD historical outlay rates based on similar programs and appropriations. Each Service uses that information to calculate then-year dollars. Then-year dollars are used in Program and Budget Documents and in the Future Years Defense Plan (FYDP).

As an example of the effect of inflation only, assume that in FY 2010 a program office plans to receive authorization and appropriation to contract for the purchase of a certain number of aircraft for the Navy. While the contractor will build the aircraft and will incur costs over several years, the office must (consistent with full funding) budget for the entire lot buy in the fiscal year authorized and appropriated by Congress. The estimated cost of this lot of aircraft expressed in constant year FY 2011 dollars is \$100 million. The inflation estimating community projects that the price level in FY 2011 will be 1.3 percent higher than the previous year (FY 2010); prices will be 1.5 percent higher in FY 2012 than in FY 2011; and so on according to the data in **Table 3**.

Illustrative Inflation Rates			
<u>Fiscal Year</u>	<u>Annual Inflation Rate</u>	<u>Raw Inflation Rate (FY 11 Base Year)</u>	<u>Raw Inflation Index (FY 11 Base Year)</u>
2010	1.3%	98.72%	0.9872
2011	1.3%	100.00%	1.0000
2012	1.5%	101.50%	1.0150
2013	1.7%	103.23%	1.0323
2014	1.9%	105.19%	1.0519
2015	2.0%	107.29%	1.0729
2016	2.0%	109.44%	1.0944

Table 3

Raw Indices

The far right hand column of **Table 3** provides a *raw index* (also known as *compound index*) which relates the price level for each fiscal year to a “base” year, which in this example is 2011. This **compounds** the yearly incremental price increase over the prior year such that inflation relationships between FY 2011 (base year) and any other year can be shown in a single number. It is obtained by multiplying the price level index for the prior year (1 or 100% is always assigned for the base year) by the price level rate of increase for the subsequent year. In Table 3, the price level in 2015 is predicted to be 7.29 percent higher than the price level in the base year 2011. This process is analogous to receiving interest on a savings account at the bank. In addition to being used to compute the weighted indices below, raw indices are also used to convert a constant dollar estimate from one base year to another base year for comparison with other programs. For example, if Program A’s cost estimate was done in constant FY 2011 dollars and Program B’s cost estimate was done in constant FY 2013 dollars, we could either convert Program A’s estimate to FY 2013 constant dollars or convert Program B’s estimate to FY 2011 constant dollars using the raw index to produce an “apples-to-apples” comparison.

The example at **Table 4** shows how to convert a cost estimate from FY 2011 constant dollars to FY 2013 constant dollars.

<p>ABC Program – Cost Estimate Conversion from FY 2011 Constant \$ to FY 2013 Constant \$ (\$ Millions)</p>

	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>
FY 2011 Constant Dollars	50.000	60.000	70.000	70.000	60.000	50.000	40.000
FY 2013 Raw Index							
Inflation Factor	1.0323	1.0323	1.0323	1.0323	1.0323	1.0323	1.0323
FY 2013 Constant Dollars	51.615	61.938	72.261	72.261	61.938	51.615	41.292

Table 4

Weighted Indices

Weighted indices (also known as *composite indices*) take into account both the historical outlay pattern of the appropriation and inflation rates associated with the fiscal year(s) when cash is outlaid from the U.S. Treasury. The weighted index is used to convert *constant dollars* into *then-year dollars*. Then-year dollars are used for program and budget documents and they are the type of dollars used in the FYDP. Combining the inflation rate data from **Table 3** with the historical outlay pattern for Navy aircraft procurement from **Table 2**, we can compute the inflation-adjusted forecast needed for the total FY 2011 aircraft buy. This is done in **Table 5**, which shows that instead of the \$100 million required for this aircraft purchase with no inflation, we really need \$102.21 million in then-year dollars. Inflation acting on the future outlays (costs incurred) has added - in this example - \$2.21 million to the expected cost of this aircraft purchase.

Applying Escalation Methodology (Dollars in Millions)						
Aircraft Procurement, Navy						
	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u>
(a) Procurement						
Price Index (raw index)	1.0000	1.0150	1.0323	1.0519	1.0729	1.0944
(b) Outlay rates for Aircraft						
Procurement Navy	0.2000	0.4100	0.2800	0.0690	0.0250	0.0160
(c) Price Escalated Outlays						
(a x b)	0.2000	0.4162	0.2890	0.0726	0.0268	0.0175
(d) Sum of Price Escalated Outlays						
(weighted index) (sum of line c)	1.0221					
(e) FY11 Lot Cost in						
CONSTANT FY11 dollars	\$100.00 M					
(f) Budget Entry for FY11						
in THEN YEAR dollars (d * e)	\$102.21 M					

Table 5

Computation of the inflation premium, while complex, is purely mechanical. Of greater concern is the validity of the inflation projections for future years made by the President's Council of Economic Advisors (CEA) and publicized by OMB. DoD must (in normal circumstances) use these projections in the program and budget formulation processes. However, the CEA's inflation numbers are not free from political forces. Officially published inflation predictions tend to become self-fulfilling prophecies, particularly if they are large. They will be used in contract negotiations and other arenas that affect future costs and compensations. Therefore, pressure is on the CEA to project the lowest possible rates of inflation – perhaps rates below those actually predicted by their econometric models. Actual inflation rates that exceed those used in the DoD budgeting process can contribute significantly to acquisition program cost overruns relative to budgeted amounts.

The Program Office will rarely, if ever, have to actually compute either a raw inflation index or a composite index. Each component publishes escalation indices to be used in preparing budget submissions, usually in January each year. A sample is shown in **Table 6**. A simple application of the appropriate fiscal year's weighted index is all that is necessary to complete the forecast.

Aircraft Procurement, Navy – Escalation Indices			
Base Year: Mid-FY 2011*			
Fiscal Year	Inflation Rate %	Raw Index	Weighted Index
2010	1.30	0.9872	1.0090
2011	1.30	1.0000	1.0221
2012	1.50	1.0150	1.0374
2013	1.70	1.0323	1.0551
2014	1.90	1.0519	1.0751
2015	2.00	1.0729	1.0966
2016	2.00	1.0944	1.1186

* Sample for Training Purposes Only

Table 6

The following example (**Table 7**) shows how to convert a FY 2011 constant dollar cost estimate to then year dollars for use in the Program/Budget documentation:

ABC Program - Cost Estimate							
Conversion FY 2011 Constant \$ to Then-Year							
(\$ Millions)							
	2011	2012	2013	2014	2015	2016	2017
FY 2011 Constant Dollars	50.000	60.000	70.000	70.000	60.000	50.000	40.000
Weighted Index Inflation Factor (Table 6)	1.0090	1.0221	1.0374	1.0551	1.0751	1.0966	1.1186
Then-Year	50.450	61.326	72.618	73.857	64.506	54.830	44.744

Table 7

SUMMARY

Many things need to be considered when developing or building a program budget. For each of the various program efforts, we must determine work content, time-phasing, expected costs, and the proper appropriation to be used. For each appropriation we plan to request, we must apply the relevant funding policy (annual, incremental, or full funding) and consider any exceptional circumstances (e.g., advance procurement or multiyear procurement) to properly time-phase the budget request. In addition, we must ensure that the correct escalation indices are applied to convert cost estimates prepared in base-year dollars to budget estimates submitted in then-year dollars. When a program puts together a cost estimate, it is usually done in constant year dollars, which are tied to a specific base year and which do not contain the effects of inflation from one year to future years. This is very useful for cost estimating, since it is easy to make changes across the years without having to consider the impact on the cost of money over time. It is also beneficial if you want to analyze a program to see things like cost growth and the impact of learning curves.

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