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DEFENSE SYSTEMS MANAGEMENT COLLEGE



PROGRAM MANAGEMENT COURSE INDIVIDUAL STUDY PROGRAM

THE BUDGET FORMULATION PROCESS
WITHIN AIR FORCE SYSTEM PROGRAM OFFICES

STUDY PROJECT REPORT
PMC 77-1

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FORT BELVOIR, VIRGINIA 22060

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THE BUDGET FORMULATION PROCESS
 WITHIN
 AIR FORCE SYSTEM PROGRAM OFFICES

Individual Study Program
 Study Project Report
 Prepared as a Formal Report

Defense Systems Management College
 Program Management Course
 Class 77-1

by

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May 1977

Study Project Advisor
 Lt Col Porter Venn, USAF

This study project report represents the views, conclusions and recommendations of the authors and does not necessarily reflect the official opinion of the Defense Systems Management College or the Department of Defense.

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DEFENSE SYSTEMS MANAGEMENT COLLEGE

STUDY TITLE: THE BUDGET FORMULATION PROCESS WITHIN AIR FORCE SYSTEM PROGRAM OFFICES

STUDY PROJECT GOALS:

To understand how the annual budget submission is developed and documented within the System Program Office (SPO).

STUDY REPORT ABSTRACT:

This report was written to investigate the processes involved with the response to the annual budget "call" letter by System Program Offices. This was done through extensive search of the literature available. Interviews were conducted with personnel in selected Program Control Offices and with the AFSC Product Division Comptrollers to amplify written guidance and gain knowledge of how the budget system works. This study was developed because of the high degree of uncertainty involved with budgeting for future weapons systems in the current, dynamic financial environment, coupled with an apparent lack of formal guidance for the budget submission. Conclusions reached were that more extensive study of present practices in the use of Management Reserves is warranted and that the Program Offices are using sound business management practices in formulating the annual budget submission.

KEY WORDS: BUDGET PROCESS WITHIN SPO MISSION BUDGET
AIR FORCE

| NAME, RANK, SERVICE | CLASS | DATE |
|-----------------------------|----------|-------------|
| Paul F. Breen, Lt Col, USAF | DSC 77-1 | 10 May 1977 |
| David Hendrick, Major, USAF | | |

EXECUTIVE SUMMARY

The budget process, a part of the Department of Defense Planning, Programming, and Budgeting system, is a complex and vitally important function in the acquisition of weapon systems. Programs must not only be approved, but must in fact be funded. This paper is an in-depth look at the procedures required of an Air Force System Program Office (SPO), accumulating and presenting the required data in response to the annual "call" for the budget submission. Our approach in evaluating procedures was to review the pertinent directives, the AFSC request for budget submission, and interviews with both SPO financial management personnel, and Product Division Comptrollers. Since Air Force procedures are more defined for the procurement appropriation than for the Research and Development appropriation, the focus of this study project is on developing the budget estimate for the Research and Development appropriation.

ACKNOWLEDGEMENTS

We would like to express sincere appreciation to Lt Colonel Porter Venn, Defense Systems Management College, whose guidance and experience kept this study channeled towards our objectives, and who added encouragement and insight into our approach to this study project. We would also like to acknowledge the contributions of the following Air Force Systems Command personnel who demonstrated their sincere interest and enthusiasm in this project by consenting to be interviewed on the budget formulation process within Air Force System Program Office. They are: Colonel Robert L. Zambenini, Colonel Dan B. Geran, Colonel Arcangelo M. D'Arcangelo, Colonel Robert W. Troop, Mr. Hugh F. Moore, and Mr. Charles Porter, from the Product Division Comptroller offices, and Lt Colonel John J. Render, Lt Colonel Jackson A Thomas, Lt Colonel Ron Cadieux, Lt Colonel Donald G. McCoy, Lt Colonel Valentine L. Denninger, Mr. Byron Lane, Major Bill Janecek, Major Jim Patrick, Mr. Bill Tolley, Major Elrod and Captain Gerry Polumbo. The assistance given us by these gentlemen formed the basis for the most rewarding and enlightening portion of our study project.

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CHAPTER I

Introduction

The purpose of this paper is to highlight the administrative procedures required of the personnel assigned to an Air Force System Program Office (SPO) in formulating their annual program budget requirements. In accomplishing this objective, we will set the stage with a brief discussion of the weapons system acquisition team, the importance of business management considerations and the financial management process associated with the acquisition process. We will segregate the financial management process into specific areas dealing with the annual budget call, mission program and mission support requirements, and the weapons system budget estimate format. After highlighting the administrative requirements we will present a synthesis of interviews with SPO personnel involved with the development of the annual budget estimate and the Product Division financial review process based on interviews with Air Force Systems Command (AFSC) Product Division Comptrollers.

Weapons System Acquisition Team

Within the Department of Defense, acquiring military weapon systems is a complex process which consumes billions of dollars annually in Research, Development, Test and Evaluation (RDT&E) and Procurement

funds. This multi-billion dollar process requires the dedicated efforts of professional managers from government and industry. These individuals form a team whose sole responsibility is to insure that the acquired weapon system satisfies the desired performance characteristics and is delivered on time for the agreed-upon price. The Department of Defense representative responsible for achieving this goal is the weapon system program manager.

The program manager's responsibilities include cost, schedule and performance parameters for the weapons system being acquired, as well as the normal functions and responsibilities generally associated with any managerial position involved with personnel, money, and material. To achieve his goal the program manager must rely on the professional judgment of technical specialists. These specialists represent multi-disciplined areas which form the backbone of the Systems Program Office (SPO). The principal technical areas represented on the SPO team are systems engineering, logistics, configuration management, procurement, data management, test and evaluation, and financial management. The program manager must synthesize the recommendations of these experts when making decisions which impact on the weapon system program.

Business Management Considerations

A program manager is unique when compared to other resource managers. His decisions have a major impact on the future capability of the defense establishment to maintain a deterrent posture. He must objectively weigh each proposed action against its impact on the overall cost, schedule

add performance of his system. Within the Department of Defense, each service has increased its emphasis and improved its visibility concerning these three important parameters. In a typical Air Force SPO there is a program control function, which is generally responsible for monitoring the cost and schedule parameters, two of the three general systems evaluation criteria. To effectively perform its function, the program control organization must be able to look ahead and control the program. This requires developing program estimates; preparing and executing financial budgets; developing schedules, and publishing plans which forecast implementation progress. In the overall system acquisition process, the program control function can be compared to a business management function which is responsible for obtaining and executing the resources required by the program manager in effectively managing his program.

Financial Management Process

In developing the topic of the functions of program control within the SPO we will limit our discussion to its role in the financial management process. The program control organization is the SPO's interface with the Defense Department resource management systems, the Planning, Programming and Budgeting system in particular. Annually, the SPO is required to submit an input for both the Program Objective Memorandum (POM) process and the annual budget process. These inputs are required by the Air Staff, Headquarters AFSC and the Product Divisions. The importance of these inputs cannot be overemphasized. If an acquisition program is not in the POM, it

will not become an approved program and, therefore, will not be in the annual budget, and if it is not in the budget, there is no money to run the program. Of course, without this critical resource, no program can progress or even survive. It is imperative that the program manager and the chief of program control understand and interface with the annual program budget process.

The interface document for the annual input to both the POM and the budget process is the Air Force Form 1537, Weapon System Budget Estimate. This form depicts the annual financial resource requirements for the acquisition of a weapon system throughout the acquisition cycle. It is used for both the RDT&E appropriation and the procurement appropriations. Our discussion of the budget formulation process within the Air Force SPO will be limited to the development of the AF Form 1537 which is prepared annually in response to the budget "call" from AFSC.

CHAPTER II

The Budget Call

The annual budget call, initiated at Air Force Headquarters, tasks commands to submit their requirements for the coming years by program element. In July of each year, the commands prepare detailed guidance to supplement or amplify existing regulations, and give specific directions for any special requirements, and disseminate this guidance to their next lower echelons within the command. The RDT&E appropriation is almost exclusively handled by AFSC which is primarily responsible for development and acquisition of new weapons systems for the Air Force. Within AFSC, the Product Divisions, Space and Missile Systems Organization, the Air Force Office of Scientific Research, and the Laboratories are required to compile fully justified budgetary requirements. This "call" letter provides guidance in three separate budget categories:

1. Mission Program/Project.
2. Laboratory Operations.
3. Mission Support Financial Program.

Mission Program/Project Budget

The mission program/project budget submission is based on two important documents. For the budget year, or the year in which the budget is being formulated in Congress, SPO's use the current President's budget

as a basis for their funding requirements, and for the out-years, the latest POM submission forms the baseline for these data. Further guidance and amplification of these master planning documents is found in the AFSC Five Year Program Document, which reflects the current plan for future weapons system acquisitions.

Laboratory Operations

Generally the laboratory operations/support costs are budgeted in three categories:

1. Laboratory operations costs, which are used for exploratory development research projects.
2. Customer direct cite cost, which occur when the customer gives the laboratory funds for use and the laboratory directly cites the customer funds.
3. Customer reimbursement for services, which are credited to the laboratory reimbursement account.

The objective of the laboratory budget call is to specifically identify the cost of laboratory support regardless of the source of funds. Laboratory costs are directly traceable to a weapon system program and must be identified to that system in the mission program portion of the budget submission. This paper will not specifically address the laboratory portion of the budget call.

Mission Support Financial Program

The budget call letter gives very specific instructions concerning

mission support RDT&E requirements, because mission support activities must stay within predetermined financial constraints. Because of these constraints the Mission Support Financial Plan is presented as an aggregate summary. The data entered in summary are used by the Air Staff Program Element Monitor (PEM), who has a good working knowledge of his programs and needs only generalized data to defend the mission support budget submission at HQ, USAF.

In the next two chapters, primary emphasis is placed on the specific guidance that is given in the mission program (Chapter III) and mission support (Chapter IV) budget submissions.

CHAPTER III

Mission Program/Project Submission

The Mission Program/Project submission includes all DOD Major Force Program VI RDT&E funds and related programs outside of program VI. The documentation required by the call in the mission program area encompasses funding decisions involving the Air Force Research and Development appropriation (3600) and the Air Force Procurement appropriations (3010, 3020, and 3080). Estimates submitted in response to the budget call letter are used to provide information essential to support the next fiscal year RDT&E apportionment and the program budget estimates for RDT&E and Procurement. The baseline for the coming fiscal year is the President's budget as amended by the Authorization Bill. The baseline for the budget year and beyond is the POM. Baseline data for individual programs/projects for the budget year and beyond are included in the AFSC Five Year Program Document. SPO's are advised of any changes as they occur.

The mission program submission guidance is generally unstructured and each program tailors its submission as necessary to appropriately and adequately identify major breakouts within the program element. However, there is specific guidance on how to handle unusual items, special subjects, etc., where, for one reason or another, further breakout is required. Some

of the major significant mission program submission requirements follow.

Budgeting For Reimbursable Support

There are two major categories of reimbursable support, laboratory support and test and evaluation support. Laboratory support costs are budgeted for by the Air Force Office of Scientific Research (AFOSR) as the single manager for research. AFOSR budgets for all exploratory development research through a special program element (PE61102F Defense Research Sciences). Program managers, on the other hand, must budget for all laboratory support used by their program.

Test and evaluation support is also budgeted for as a reimbursable support item. Program managers must budget for the direct cost of support required for designated test and evaluation facilities. Test and evaluation requirements are shown separately on the mission program budget submission as a reimbursable item. Because the item is included as part of the cost of the weapon system elsewhere in the budget submission, this reimbursable entry is entered as a non-add item. Non-add items are categories of costs that are broken out as a means of identifying specific costs, associated with special interest items. Normally, tests (development tests) are also handled as reimbursable entries. The program manager must budget for the direct cost of support required from designated T&E facilities. When requirements exceed \$100,000 at a single facility in any one year, the program office must also include the memorandum of agreement with that test facility as an attachment to the budget submission.

Independent Operational Test and Evaluation (IOT&E)

The Air Force Test and Evaluation Center (AFTEC) budgets for scheduled, planned tests for which they are responsible. The program manager must budget for any additive tests that cannot be satisfied through the normal test plan. Coordination with AFTEC and the user community is required to insure that all required testing is covered in the budget submission by one of the agencies. Special support costs, such as civilian personnel overtime or temporary hires, range costs, communications, etc., must be budgeted by the program office. This applies to those test or testing conditions that require additive support.

Federal Contract Research Center (FCRC)

Programs requiring funded support from FCRC's, such as MITRE, ANSER, AEROSPACE CORP, etc., submit these requirements as non-add items on the budget submittal.

Electromagnetic Compatibility and Analysis Center (ECAC)

Program funds are identified to reimburse ECAC for analysis services required, and to finance communication services equipment provided for the exclusive use of the program.

Component Improvement Program (CIP)

Component improvement is budgeted in the RDT&E appropriation until the successful completion of a program and acceptance of the first procurement funded aircraft. Subsequent CIP reimbursements are budgeted in the

3010 procurement appropriation. Indirect costs of production engineering support should not be included as CIP requirements.

Production Engineering Support

Estimated costs of aircraft engines procured for weapon systems are included in the procurement appropriation cited on production contracts. The production contracts should not be dependent upon another contract (e.g., Component Improvement Program) to provide essential production engineering support.

Pilot Production

Costs of pilot production and costs of test articles required for DT&E and IOT&E will be budgeted in RDT&E. Costs of pilot production beyond the test article requirement are budgeted in the procurement appropriation.

First Destination Transportation (FDT)

Estimates of requirements for FDT are included as add item requirements for procurement appropriations. Requirements are based on delivery schedules and costs are shown in the year in which delivery is expected. For RDT&E, FDT is shown as a non-add item.

Software

Acquisition of software or modification of software for computers procured with RDT&E funds are budgeted in RDT&E. This applies to either "executive" or "applications" software. It also applies to funding for the development of software for special purpose computers designed as an

integral part of an acquisition program.

New Start Candidates

Proposed new R&D programs are documented in the same manner as other R&D efforts. New effort proposals are submitted with the understanding that they must be held to an absolute minimum because of the limited capability to absorb new effort within the budget year.

Other Considerations

There are several other areas where special attention is given and specific instructions are provided. These subjects are applicable to all budget submissions and will be further explained in Chapter V. These areas include Value Engineering, Escalation, and Management and Support. The budget call letter further clarifies how many other breakouts of budget data should be handled. These areas are generally covered by program management funds. The main theme of the entire program budget system is to identify costs to the weapons systems which incur the costs, so that DOD can better evaluate the real cost of defense.

CHAPTER IV

Mission Support Financial Program

The Mission Support Financial Program portion of the budget "call" contains all elements of budgetary requirements that are not covered in the mission program/project portion, but which still must be funded through the RDT&E appropriation. In many ways it can be compared to the 3400 Air Force Operations and Maintenance Appropriation budget submission, in that guidance is very structured. Prior to preparation of the mission support budget submission, higher headquarters has already determined a "bogey" for that portion of the operational funding needs. Any amount over the target must be separately identified and fully justified. Increased funding in the area of mission support is difficult to obtain without strong justification. All mission support requirements must be prioritized prior to submission. In the event that further financial constraints must be applied, the lowest priority support funding requirement will be the one eliminated. The AFSC instructions for completing the mission support portion of the budget call are very definitive. Typical instructions include the following topics:

Zero Base

Requirements should be justified from a zero base as well as

increases/decreases occurring between fiscal years. Any increases in requirements over the "bogey" should be accompanied by strong justification and impacts on the program if not approved. Escalation will not be computed for mission support.

Narrative Justification

Justification must be submitted for all elements of expense, and should be adequate to justify the requirement. It is most important that sufficient detail be presented to enable reviewing activities to answer pertinent questions as to the requirement.

Price Basis

Actual prices at the time of submission will be used whenever possible. If this is not possible, cost estimate will be developed and complete rationale for the estimate will accompany the estimate. Anticipated price changes in the near future will not be included in the price submitted, but may be pointed out in the narrative, with impact of the anticipated change if it materializes. If dollar amounts are rounded, a note to that effect should be included.

Document Contents

Each submission for the mission support RDT&E budget contains seven sections, as follows:

- Section I - General Statement
- Section II - Summary of Requirements

SECTION III - Workload

SECTION IV - Requirements by Element of Expense

SECTION V - Requirements by Staff/Mission Support Activity

SECTION VI - Anticipated Reimbursements

SECTION VII - Over-Ceiling Requirements

A brief explanation of each of these sections follows:

Section I - General Statement

This section should contain the highlights of the submission, emphasizing specific items or problem areas requiring special attention. An organization chart is included, annotated to reflect manning authorized by officer, airmen, and civilian (GS and WG).

Section II - Summary of Requirements

The summary of requirements is organized by Element of Expense/Investment Code (EEIC), and is submitted on a format provided to Product Divisions in the budget call letter.¹

Section III - Workload

In this section, an overview of all planned workload for the next four years is mapped out. Guidance is particularly specific in this area, and examples with check lists of types of entries to be made here are provided. Workload is described by any factor that best describes the

¹Elements of Expense/Investment Codes are designed to identify the nature of services and items acquired for immediate consumption (expenses) or capitalization (investments).

work of that particular activity. Guidance indicates that the statements should address the total capability that could be accommodated for that particular workload area. Workload and appropriate analysis should be reflected by the using agency.

Section IV - Requirements by Elements of Expense

This section requires a separate form for each requirement. Here each form depicts a particular Element of Expense/Investment Code (EEIC) or group of EEIC's. Narrative justification accompanies each of these forms, to clearly justify the entries made in the form itself. The availability of concise summary statements greatly assists the development of the summary sheets which are prepared by the HQ AFSC staff for each program element.

Section V - Requirements by Staff/Mission/Support Activity

This section requires that the Staff/Mission/Support Activity resource requirements be presented in man-years and in New Obligational Authority (NOA) by staff activity.

Section VI - Anticipated Reimbursements

Anticipated reimbursements are computed under the Direct Cost Funding Policy where applicable, including refunds. Separate forms are prepared for each applicable fiscal year. Foreign Military Sales (FMS) collections are included and separately identified by EEIC.

Section VII - Over-Ceiling Requirements

Over-ceiling requirements are prioritized by the Product Division

and submitted in the highest to lowest order of priority. No justification is required for this submission but over-ceiling requirements should have been presented in the narrative justification portion of Section IV.

General

General guidance for the mission support portion of the budget submission indicates that the submission is designed to provide the headquarters with sufficient information to defend the program element requirements before the HQ, AFSC Program Evaluation Group (PEG) and USAF review organizations.

CHAPTER V

Weapon System Budget Estimate

Requirement

A Weapon System Budget Estimate, AF Form 1537, is developed twice a year within the SPO. This estimate is required for both the AFSC POM submission and for the program budget submission. The Director, Program/Budget, DCS/Comptroller, AFSC issues a separate request for POM submissions in November each year requiring field preparation of the estimates and supporting documentation. AFSC staff elements then prepare Program Element Summary Sheets (PESS) for command review and formulation of the AFSC POM submission to HQ, USAF.

In July of each year the Program/Budget Office requests Program Budget submissions from AFSC's Divisions, Centers, Laboratories, SAMSO, and the Air Force Office of Scientific Research. Within the Divisions and Centers the program budget estimates are developed within the SPO and forwarded through the appropriate intermediate headquarters Comptroller to the Director of Programs/Budget. These estimates will be used to provide essential information in support of the next fiscal year Research, Development Test and Evaluation (RDT&E) appropriation apportionment and the Air Force RDT&E and procurement budget estimates.

A separate weapon system budget estimate, AF Form 1537, is required for each program element within the mission program portion of the RDT&E appropriation. The mission program includes all RDT&E work performed under contract with private industry, educational institutions, federal contract research centers, and other Government agencies. Also included in the category are mission programs accomplished in-house.

The mission support financial program is not documented on the AF Form 1537, and the SPO has minimal input into that portion of the RDT&E budget submission. The RDT&E mission support program includes the costs associated with the operations and maintenance of research and development facilities which generally can be categorized as RDT&E funds for the pay of civilian personnel, and associated non-personnel costs such as travel, transportation, rents, utilities, contractual services, supplies and equipment.

Each SPO prepares a separate budget estimate for the procurement appropriations applicable to his weapon system. Estimates are prepared and submitted for aircraft procurement (3010) missile procurement (3020) and other procurement (3080) appropriations. These appropriations finance the procurement of weapons, training devices, support equipment, munitions, vehicular equipment, communications and electronic equipment, and other organizational and base support equipment.

Air Force Form 1537 Overview

The Weapon Budget Estimate, AF Form 1537, is a summary of financial program for each system as it progresses through its acquisition cycle.

The fundamental concept governing the completion of the AF Form 1537 is the program element. The purpose of the Program Element is to identify to a specific weapon system the costs of the men, equipment and facilities related to its development, acquisition, and operation. Using the Program Element structure we can measure the total cost of owning a weapon system. The AF Form 1537 is designed as the first step in achieving this goal.

The preparation of the AF Form 1537 is governed by the USAF Budget Manual, AFM 172-1 Volume I, Policies and Procedures and Volume II, Estimating Instructions. The minimal guidance specified in this directive is supplemented by the annual letter from Hq, AFSC requesting the program budget submission and is clarified, if appropriate, by the intermediate headquarters comptroller. The guidance for the procurement appropriations in AFM 172-1 is explicit and in great detail. To overcome the seeming high paper workload specified in the procurement appropriation instructions requires the estimates to be tailored to the individual program. The RDT&E guidance in the AF manual is very general while the guidance in the letter requesting the program budget submission is much more explicit.

RDT&E Submission

As specified in AFM 172-2 Volume II, Chapter VIII:

AF Form 1537, Program Budget Estimate, will be the basic form for submission of budget estimates and programming information for RDT&E funded programs except Mission Support programs. AF Forms 1537 are required for program elements in research, exploratory development, advanced development,

engineering development, the Federal Contract Research Centers (FCRC) in Management and Support for the RDT&E funded portion of systems identified in the Force Programs such as Strategic Forces or General Purpose Forces. Separate forms 1537 will be prepared for each program element.

The FY 78-82 Program Budget Submission letter from the AFSC Director, Programs/Budget, dated 2 July 1976, expanded the general guidance concerning the weapons system budget estimate as indicated:

AF Forms 1537 for RDT&E will be prepared at program element level showing project level detail. Laboratory Exploratory Development program elements will include the 06 operating projects as a single line entry. For systems and advanced development programs which are not subdivided into projects, show a separate line for each of the discrete efforts comprising the program. When AFSC has assigned responsibility for portions of a program element to different field organizations, each field organization will document only the portions of the program for which it is responsible. In those instances where no baseline is provided, document to requirements. HQ AFSC staff OPR will consolidate, adjust to program element baseline, and prepare a summary AF Form 1537. AFSC laboratories will provide an attachment to each AF Form 1537 for exploratory development showing the relation between previous project numbers and new project numbers for realigned program elements.

As the sample AF Form 1537 (Figure 1) indicates the entries required are reasonably self-explanatory. The required entries are:

BLOCK

- 1 - Category - enter appropriation title and numbers
- 2 - Weapon System - enter program element number and system/program number.
- 3 - Contractor - enter system program title
- 4 - Equipment - leave blank

WEAPON SYSTEM BUDGET ESTIMATE
(AMOUNT IN MILLIONS OF DOLLARS)

| DESCRIPTION | PROJECT | PARAS | WEAPON SYSTEM | | | | | | | | | | TOTAL |
|--|---------|-------|---------------|----------|---------|------|------|------|------|------|------|------|-------|
| | | | 76 | 77 | 78 | 79 | 80 | 81 | 82 | 83 | 84 | | |
| AAA DEV | 1373 | 1.8 | 1.5 | 4.0 | 1.4(10) | 2.0 | 3.0 | 2.7 | 2.5 | | | 18.9 | |
| | | | 1.0 | (2.51.0) | 1.0 | 1.7 | 2.0 | 1.5 | 0.5 | | | 8.9 | |
| Logic & Memory | 1834 | 1.120 | 0.5 | 0.5 | 3.6 | 4.0 | 3.0 | 2.0 | 0.7 | | | 14.3 | |
| | | | 1.0 | 1.2 | 1.0 | 1.7 | 2.0 | 1.5 | 0.5 | | | 8.9 | |
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| | | | (.1) | (.1) | (.1) | (.1) | (.1) | (.1) | (.1) | (.1) | (.1) | (.1) | 42.1 |
| Information Items - Non add | 1749 | 1.120 | (.1) | (.1) | (.1) | (.1) | (.1) | (.1) | (.1) | (.1) | (.1) | 42.1 | |
| | | | (.1) | (.1) | (.1) | (.1) | (.1) | (.1) | (.1) | (.1) | (.1) | (.1) | 42.1 |
| Management & Support Project Off Travel FCRC (Identify) First Dest Trans (FDI) Value Engineering AFTEC IOT&E T&E Direct Cost Escalation (Amt) Escalation (Wtd Index) | 1749 | 1.120 | (.1) | (.1) | (.1) | (.1) | (.1) | (.1) | (.1) | (.1) | (.1) | 42.1 | |
| | | | (.1) | (.1) | (.1) | (.1) | (.1) | (.1) | (.1) | (.1) | (.1) | (.1) | 42.1 |
| Baseline | | 1.8 | 3.0 | 5.7 | 6.0 | 7.7 | 8.0 | 6.2 | 3.7 | | | 42.1 | |
| AAA Dev | 1373 | | | | | | | | | | | +0.7 | |
| Total Rqmt exceeding baseline | | | | | | | | | | | | +0.7 | |
| TOTAL REQUIREMENT | | | 1.8 | 3.0 | 5.7 | 6.0 | 7.7 | 8.2 | 6.7 | 3.7 | | 42.8 | |
| THERE IS NO SIGNIFICANCE TO THE VALUE OF SAMPLE ENTRIES SHOWN ABOVE. | | | | | | | | | | | | | |

AF 178 69 1537 REPLACES AF FORM 745 FEB 64 WHICH IS OBSOLETE.

FIGURE 1

- 5 - Production Planning Schedule - leave blank
- 6 - As of Date - (as required by AFSC)
- 7 - Prepared by - submitting laboratory or division

COLUMN A - Description

- 1 - Research - enter sub-element titles
- 2 - Exploratory Development - enter project titles
- 3 - Advanced and Engineering Development - enter project titles

COLUMN B - MPC - enter R&D project numbers if applicable. Otherwise leave blank.²

COLUMNS D-J - Identify columns D through J as fiscal years. For each effort identified in Column A, where applicable show start and completion dates in Columns D to L by triangles. Indicate duration of effort by straight lines. Show fiscal year by funding increments in the proper fiscal year column. If the funding covers less than 12 months show in parenthesis above the time the number of months covered.

Each AF Form 1537 must clearly identify the effort which can be accomplished within the baseline specified in the program budget submission letter. If current program direction cannot be accomplished within the approved program, additional requirements will be shown in the lower portion

²The Material Program Code (MPC) is the management element subordinate to the Budget Program Activity Codes (BPAC). It provides a submission of the accounting classification below the BPAC level. The MPCs apply to the procurement appropriations in the submission of financial estimates in response to the Program Budget "call." BPAC's provide a subdivision of the accounting classification below the appropriation level. They are applicable to the Procurement and RDT&E appropriations to identify the major budget programs and activities. BPAC is used in these appropriations in lieu of budget programs and projects found in other appropriations (See AFM 300-4 Volume X for an explanation of BPAC's and MPC's).

of AF Form 1537. Requirements which exceed the baseline program must be lower priority items. When such items are shown they must reflect prioritized decisions by the program manager. When requirements exceeding the program baseline are caused by program direction which exceeds the approved program, the narrative backup will include discussion to identify the directive which created the additional requirement. Conversely, programs which are approved in excess of program direction should report excess fundings.

Supporting detail will be submitted for each RDT&F Appropriation AF Form 1537. The narrative back-up sheets will contain the following information.

- a. A brief description of each project or effort accompanied by a justification of the need or purpose served by its accomplishment.
- b. Justification for requirements which exceed the baseline and a statement of the impact if additional requirements are not funded.
- c. Explanation of the estimate basis or how it was developed. (contractor estimate, independent cost estimate, experience factors) to include the assumptions and the rationale.
- d. AFSC Form 643 - Test and Evaluation Direct Cost Summary (Figure 2). Parts I and II of the form will be completed to show the distribution of designated Test and Evaluation activities shown on the AF Form 1537.

Forward financing will be indicated on each AF Form 1537 by indicating below the schedule line the number of months and the dollar value of the current forward financed effort or anticipated effort.

TEST AND EVALUATION DIRECT COST SUMMARY

| | | | | | | |
|---|---------------------------|--------------|---------|---------|------------------------|---------|
| PROGRAM ELEMENT NO. | PROGRAM/PROJECT NO. | TITLE | | | | |
| APPROPRIATION | DATE SUBMITTED | SUBMITTED BY | | | | |
| SOURCE OF TAX SUPPORT | | | | | | |
| FY A | FY B | FY C | FY D | FY E | FY F | FY G |
| ADTC | | | | | | |
| AEDC | | | | | | |
| AETR | | | | | | |
| AFTTC | | | | | | |
| 1950th Test Wing (WPAFB) | | | | | | |
| SAWTEC | | | | | | |
| TAC FTR WPN CEN (Wallops AFB) | | | | | | |
| ARMY (Specify location) | | | | | | |
| NAVY (Specify location) | | | | | | |
| TOTAL | | | | | | |
| SCHEDULE (Enter start and completion dates) | | | | | | |
| | CURRENT FISCAL YEAR FY | | | | NEXT FISCAL YEAR FY | |
| ADTC | | | | | | |
| AEDC | | | | | | |
| AETR | | | | | | |
| AFTTC | | | | | | |
| 1950th Test Wing (WPAFB) | | | | | | |
| SAWTEC | | | | | | |
| TAC FTR WPN CEN (Wallops AFB) | | | | | | |
| ARMY | | | | | | |
| NAVY | | | | | | |
| REMARKS | | | | | | |

FIGURE 2

AFSC FORM 643 (TAB A)

Procurement Submission

Weapon system budget estimates (AF Form 1537) for the procurement appropriations may be limited to a summary page with Contractor Furnished Equipment (CFE) and Government Furnished Equipment (GFE) back-up pages for major aircraft, missile or space programs. A separate sheet indicating the anticipated expenditure profile in then year dollars for each fiscal year appropriation will be attached. These abbreviated budget estimates preclude submission of an AF Form 1537 for each systems category in the aircraft procurement appropriation. If a separate form was used to show the financial data for each applicable aircraft system there would be a maximum of 39 pages required to report each category of Contractor Furnished Equipment (CFE) and Government Furnished Equipment (GFE). Since the program budget estimate submission letter approves an abbreviated submission for the procurement appropriation it does not relieve the SPO program control personnel from tracking the appropriate cost categories for their specific programs.

Information Items

Specific information items are required to be shown as separate non-add line items on AF Form 1537 for both the RDT&E and procurement appropriations. The following explanation of these non-add items was extracted from the AFSC FY 78-82 Program Budget Submission letter:

- a. Escalation - Escalation will be computed for all procurement programs; and for all RDT&E programs with an estimated life-time cost of 50 million dollars or more. The latest OSD indices will be used for programs without a Hq USAF approved

index. The weighted index for each fiscal year will be indicated on the AF Form 1537.

- b. Value Engineering (VE)- "It is Air Force policy to include in all budget estimates amounts necessary to pay for Value Engineering Proposals and Value Engineering Change Proposals, testing and other costs arising from the VE program." (AFM 172-1, Volume 1, 8-27. Value Engineering will be shown in terms of then year dollars.
- c. Air Force Test and Evaluation Center (AFTEC) IOT&E - Program managers will budget for additive costs for Command Support and Special Support of IOT&E by AFTEC and the Commands designated to participate in IOT&E. The costs of coordinated additive IOT&E requirements, priced by AFTEC, will be shown as submitted by AFTEC as a separate non-add line entry.
- d. Test and Evaluation T&E) Direct Costs - Program managers will budget for the direct cost of support required from designated T&E facilities. T&E requirements will be shown as a separate non-add line entry. Supporting detail will be shown on AFSC Form 643, Test and Evaluation Direct Cost Summary, as discussed in the RDT&E submission.
- e. Federal Contract Research Centers (FCRC) - All programs/projects requiring program funded support from FCRC's will identify these requirements as a non-add information item on the AF Form 1537. The entries will identify the FCRC from which support will be required for each fiscal year.
- f. Management and Support - Management support will be budgeted by program/project managers to include the following:
 - (1) Travel and overtime of personnel assigned to program/project offices. This item is applicable only to RDT&E and will be shown as a separate non-add line item.
 - (2) Travel of non-project office personnel if required to provide direct support to the project office.
 - (3) Cost of support provided by AFSC Laboratories, for which reimbursement is required. The laboratory must be identified.
 - (4) Program/project office supplies and equipment.

This chapter has summarized the specific guidance for preparing the AF Form 1537, Weapon System Budget Estimate. The next step in the research was to determine "how the entries on the AF Form 1537's are developed in various SPO's."

CHAPTER VI

Program Budget Estimates

We have been discussing up to this point the administrative guidelines applicable to the preparation and submission of the annual program budget estimate. The question which remains to be answered is: how are these estimates developed?

To answer this question we backtracked through the financial management process starting with the Product Division Comptroller and ending up with the actual starting point in the budget formulation process, the System Program Offices. We interviewed each of the Product Division Comptrollers concerning the role of his office in the budget formulation process. At the conclusion of the interview the Comptroller was asked to recommend at least two different SPO Program Control Offices, which we could contact and request an interview with the Chief of Program Control. Without the cooperation of the Program Control Officers and the Division Comptrollers this study project would never have been completed. Nor would the baseline exist for future research.

The synthesis of the SPO Program Control personnel and the Product Division Comptrollers responses follows: We have to the best of our ability tried to merge the results of our interviews so that a specific SPO can not

be identified with our comments. In addition we are limiting our discussion to the RDT&E appropriation weapon system budget estimate. This limitation is warranted because the guidance for the RDT&E appropriation is more general in nature than the detailed guidance for the procurement appropriations as specified in the USAF Budget Manual, AFM 172-1, Volume I and II.

System Program Office Estimates

In each of the 11 interviews with SPO program control personnel we focused our discussion on the line items listed on the AF Form 1537, Weapon System Budget Estimate. Specifically we asked the following three questions:

1. What criteria do you use in developing item description categories reflected in Column A of the RDT&E appropriation AF Form 1537?
2. What process or procedures do you use in determining the actual dollar value per fiscal year which are reflected on your AF Form 1537?
3. Do you have a management reserve built into your program and if so how is it portrayed in your budget estimate?

The actual words used to describe some substructure of a system acquisition may seem to be a trivial item, however, after researching various weapon system AF Forms 1537 it is readily apparent that standardized generic item description categories for similar weapon systems (aircraft, missile, communications equipment, etc.) does not exist. Therefore, in order to intelligently discuss or analyze the budget estimate

requires an in-depth working knowledge of the system. Since trade-offs must be made in both the POM and budget process, some degree of standardization in other than the non-add items appears warranted

Item Descriptions

Determining the categories of the item descriptions appears to be a function of various criteria. The basic criteria is to comply with the specific item description required in the "call" letter or in the AF Budget manual. Satisfying these requirements, a second major criteria has to do with the manner in which the program is structured. After complying with description items specified in the call letter the SPO has the latitude to tailor their description items to the program. Some of the criteria used within the various program control sections to select aggregate description items were:

1. Major contracts associated with the overall system acquisition.
2. Core contract items identified in the Decision Coordination Paper (DCP).
3. Major subsystems of the overall weapon system - This criteria is of major significance if the overall system is composed of individual subsystems which can be singularly identified and individually justified.
4. In considering other methods of tailoring line item identification the program manager considers:
 - a. The prime mission product which can be identified by various subproducts such as: management support, government support, or federal contract research centers.
 - b. The program work breakdown structure, specifically at levels 2 or 3.

- c. The fact that higher headquarters has expressed an interest in certain facets of the program. Making this type of item a separate line item provides visibility and may eliminate the need for further justification to higher headquarters.

No matter what process or procedure is chosen by the SPO for line item identification there is in our opinion one overall driving criteria which is:

An appropriate macro-level identification category will be chosen such that the budget estimates associated with the category will not limit the program manager's flexibility in managing his program.

Dollar Estimates

The thrust of the budget formulation process is to develop the best estimate of the financial resources required on a FY programmed basis to successfully accomplish the acquisition program objective. To put it more succinctly, if the requirements are not in the POM they will not be in the budget, if they are not in the budget you will not be able to obligate or expend money for your program. Without dollars there will not be a program, so you have to get them in the POM, get them in the budget and get them obligated. Since almost everything can ultimately be reduced to some dollar value, we decided that it was worth our effort to determine how the SPO's actually develop the dollar amounts in the annual budget estimates.

In synthesising the answers to our second question they fall into two distinct categories depending on whether or not the program is a new

initiative not yet on contract, or an ongoing program which is on contract and has developed some form of financial data base.

The budget estimate for new programs are generally the result of some type of parametric cost estimate. This estimate is usually developed by cost analysts assigned to the Product Division's Comptroller function. Whether the estimate is purely parametric, an engineering build-up cost model or some combination the SPO is still responsible for the final number in the weapon system budget estimate. In discussing the dissimilarities in budget estimate techniques between new and ongoing programs the SPO's perception of the cost analysts, methodology had a definite influence on the final dollar value requested for new initiatives. If the analysts' estimate is considered to be conservatively high then the SPO might reduce the program dollar amount. On the other hand, if the analyst's estimate is considered to be optimistically low concerning the program the SPO might increase the estimate to a more reasonable amount. The essence of this comment is that no matter how factual or mathematically accurate the budget estimate model has proven, the human side of the organization will make the final adjustment in the program. This is reasonable. The program manager will have to live with and manage his resources toward that estimate.

Ongoing programs, which by our definition, are on contract and have accumulated some financial data base, are the other category of programs which develop budget estimates. In general our interviews indicate that the SPO's are using acceptable business practices in developing estimates

for ongoing programs. The mature SPO has the distinct advantage of a historical data base on which to build and a contractor's estimate to completion for consideration. Our interviews indicate that for mature SPO's the final budget estimate is the result of at least a three step process.

The first step is to request a budget estimate from the contractor. The second step is to develop within the SPO an independent budget estimate which costs out the program management plan in conjunction with the historical program cost data base. The SPO developed budget estimate is compared with the contractor's estimate. Differences between these estimates are analyzed and resolved. Final budget estimates for the weapon system, subsystem and tasks are developed, which accurately reflect the current best estimate of the dollar resources required to achieve the program objective. In following this process we were led to believe that the SPO's estimate are generally more reliable relative to cost growth than the contractor's estimates. This may be a function of the contractor's optimism, but we have no way of substantiating this conclusion.

Management Reserve

In the academic environment of the Defense Systems Management College the topic of management reserve receives considerable attention both in the classroom and in discussions with visiting program managers. We are confident in saying that management reserves are required as a hedge for managing problems associated with the risk of unknown--unknowns

developing in the program. The concept of Management reserves is given acceptability by the fact that a contractor is required to identify his "management reserve" under the Cost Schedule Control System Criteria reporting systems.

Our discussion on the subject of management reserve leads to the generalization that all weapon system budget estimates have a specific dollar value for management reserve built into the aggregate identified line item budget estimates. Two important qualifications concern that generalization. First, management reserve is not identified as a separate line item entry on the AF Form 1537 sent to higher headquarters. (We understand that the current procedure may change in the near future). Secondly, the reserve is "spread around" within the specific line items. However, we can say based on our interviews that the exact amount of management reserve is readily identifiable on the SPO's internal budget working papers and is internally managed as a separate budget line item during the budget execution process.

The amount of reserve and its location within the budget varies with each program. Generally the SPO's use a percentage figure from determining the amount of reserve. This may be a percentage of the total program, or the annual budget estimate. The percentage and baseline is another "tailored" function of the SPO. The spread of the reserve is also "tailored" by the SPO. Some SPO's manage a total aggregate amount and allocate it to the areas requiring more resources while other SPO's spread the reserve

across the program based on a forecasted need. We believe that managing the aggregate reserve provides better control of these resources. However management reserve when viewed from Air Force Systems Command Headquarters or from the Air Staff raises a penetrating question as to how much money in the annual RDT&E appropriation is being held idle as management reserve. We believe that this question merits further research.

CHAPTER VII

Reviewing The Program Budget Estimate

Role of Product Division Comptrollers

The weapon system budget estimate, developed in the SPO is forwarded to the appropriate Product Division Comptroller Office for review in compliance with a suspense date established in the "budget call" letter. Since the budget estimate is submitted through the Comptroller and subjected to some type of review by his functional specialists, we considered the role of the Comptroller to be next in importance to that of the SPO in formulating the annual systems acquisition budget.

We directed our interviews with the Division Comptrollers toward two areas. First, we were interested in determining if the financial specialist played a role in the development of the original SPO budget estimate indicated on the AF Form 1537. Secondly, we were interested in determining the objectives of the financial review process. We developed two general questions in these areas which were used as the starting points of our discussions with the Division Comptrollers. Our specific questions were:

1. What involvement does the Office of the Product Division Comptroller have in developing the SPO budget estimates?
2. What are the financial management objectives and the procedures used in reviewing the SPO's weapon system budget estimates?

Developing the Estimate

The involvement of the financial technicians in developing the budget estimate for ongoing programs (programs on contract) is minimal. Generally the cost and budget analyst's expertise is available to the SPO's program control office on request. In a program control office which is organizationally matrixed with the Division Comptroller's office the functional experts are assigned within the SPO and are used to develop the budget estimate.

For programs which are new initiatives (not on contract) the cost estimate developed by the Comptroller's cost analysts are used as the baseline for the SPO's budget estimate. This baseline (total dollar number) may or may not be adjusted within the SPO by the program manager before it is submitted as the final budget estimate.

Before concluding our discussion of budget estimates we must acknowledge the fact that the SPOs are the prime movers in developing the mission/program/project budget estimate, while the Comptroller is responsible for developing and administering the mission support budget. We discussed the mission support budget with each comptroller but we consider a lengthy discussion of this topic beyond the scope of this paper. A general observation is that the SPOs do provide an annual input into the mission support budget separate from the program/project budget. An oversimplification concerning the administration (execution) of the RDT&E mission support portion of the annual budget is to say

that it is administered in the same manner as the other Air Force Commands administer their annual (3400) Operation and Maintenance appropriation budget.

Financial Reviews

The financial review of the SPO's budget estimate is focused on two objectives: program sufficiency and administrative accuracy. The administrative accuracy review is performed to assure that the SPO has complied with all the appropriate instructions in developing its estimate; that there are no mathematical errors and that the form is filled in correctly. The program sufficiency review is the main thrust of the financial review process.

Webster's New Collegiate Dictionary defines sufficient as being"enough to meet the needs of a situation or a proposed end...." From a program manager's perspective it is imperative that he have sufficient financial resources to meet his program objectives. The sufficiency reviews generally include the following areas of concern:

- a. The program total dollar requirement.
- b. Program baseline and changes to the baseline since the last budget submission
- c. Computability with the latest POM and the current budget as amended to assure a cost track exists.
- d. Fiscal year phasing of program requirements to insure the resources are available when required.
- e. Forward financing requirements.
- f. The individual program's interface with the product division's corporate financial plan.

Each of the areas considered could be the subject of further research, however this generalized list of topic indicates that the financial review goes into substantive detail. The purpose of the review is not just to determine if a program has sufficient money, rather, it is to assure that the program has adequate financial resources properly phased through the fiscal year time frames for successfully achieving its objectives. In conducting the sufficiency reviews cost estimates are questioned and justified; cost tracks are established, reviewed, compared and extrapolated; the entire financial program for the SPO is justified.

The review process is a methodical, in-depth analysis of the program's financial requirement. To accomplish this task requires a cooperative team effort by the SPO personnel and the financial experts to assure program viability.

Synthesis

The Product Division Comptrollers are responsible for formulating and executing the Division's corporate financial program. The annual financial program is a series of documents which definitize the financial management responsibilities of every manager. Ultimately the program manager is solely responsible for the management of his program's dollars.

CHAPTER VIII

Conclusions

The purpose of this paper was to highlight the administrative procedures which impact the Systems Program Office in developing its annual weapon system budget estimate.

In our brief discussion of these procedures it is apparent that responding to the annual call for budget estimates requires an in-depth review of each weapon system acquisition program. The breath and depth of this review is indicated by the instructions contained in the annual budget call letter which specifies the details for the mission program/project budget estimate and mission support budget estimate.

We have discussed the Product Division review process after the appropriate estimates were developed within the SPO and recorded on the AF Form 1537, Weapon System Budget Estimate. Based on our interviews with Program Control personnel in 11 SPO's and with the Product Division Controllers we believe that the importance of the business management portion of the systems acquisition process will continue to receive ever increasing top management attention.

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8. Letter subject: FY 78-82 Program Budget Submission, Hq, Aeronautical Systems Division, Director Programs/Budget, Comptroller, 9 July 1976.
9. Interviewees:

Arcangelo M. D'Arcangelo, Colonel, USAF, Comptroller Space and Missile Systems Organization (SAMSO), Air Force Systems Command (AFSC).

Dan B. Geran, Colonel, USAF, Comptroller, Electronic Systems Division (ESD), AFSC.

Robert W. Troop, Colonel, USAF, Comptroller, Armament Development Test Center (ADTC), AFSC.

Robert L. Zambenini, Colonel, USAF, Comptroller, Aeronautical Systems Division (ASD), AFSC.

Ronald A. Cadieux, Lt Colonel, USAF, Chief, Program Control Division, SATIN IV SPO, EDS.

Valentine L. Denninger, Lt Colonel, USAF, Director, Program Control, NAVSTAR GPS, Joint Program Office, SAMSO.

Donald G. McCoy, Lt Colonel, USAF, Director, Program Control, Deputy for Space Defense Systems, SAMSO.

John J. Render, Lt Colonel, USAF, Chief, Program Control Range Instrumentation and Equipment SPO, ADTC.

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William Janecek, Major, USAF, Chief, Program Control Tactical Information Processing and Interpretation SPO, ESD.

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Gerard J. Polumbo, Captain, USAF, Resource Division F-15 SPO, ASD.

Byron W. Lane, USAF Civilian, Director Program Control DMSP, SAMSO.

Hugh F. Moore, USAF Civilian, Chief, Mission Requirements Budget, ADTC.

William Tolley, USAF Civilian, Program Control Office, F-16 SPO, ASD.