



CHAPTER ONE

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**INTRODUCTION**

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NASA began its operations as the nation's civilian space agency in 1958 following the passage of the National Aeronautics and Space Act. It succeeded the National Advisory Committee for Aeronautics (NACA). The new organization was charged with preserving the role of the United States "as a leader in aeronautical and space science and technology" and in its application, with expanding our knowledge of the Earth's atmosphere and space, and with exploring flight both within and outside the atmosphere.

By the 1980s, NASA had established itself as an agency with considerable achievements on record. The decade was marked by the inauguration of the Space Shuttle flights and haunted by the 1986 *Challenger* accident that temporarily halted the program. The agency also enjoyed the strong support of President Ronald Reagan, who enthusiastically announced the start of both the Space Station program and the National Aerospace Plane program.

### **Overview of the Agency**

NASA is an independent federal government agency that, during the 1980s, consisted of 10 field installations located around the United States, the Jet Propulsion Laboratory (a government-owned facility staffed by the California Institute of Technology), and a Headquarters located in Washington, D.C. Headquarters was divided into a number of program and staff offices that provided overall program management and handled administrative functions for the agency. Each program office had responsibility for particular program areas (see Figure 1–1). Headquarters also interacted with Congress and the Executive Branch.

NASA's structure was quite decentralized. Although Headquarters had overall program responsibility, each installation was responsible for the day-to-day execution and operations of its projects, managed its own facility, hired its own personnel, and awarded its own procurements. Each installation also focused on particular types of projects and discipline areas.

## Program and Project Development

NASA called most of its activities programs or projects. The agency defined a *program* as “a related series of undertakings which are funded for the most part from NASA’s R&D appropriation, which continue over a period of time (normally years), and which are designed to pursue a broad scientific or technical goal.” A *project* is “a defined, time-limited activity with clearly established objectives and boundary conditions executed to gain knowledge, create a capability, or provide a service. . . . A project is normally an element of a program.”<sup>1</sup>

NASA’s flight programs and projects followed prescribed phases (with associated letter designators) in their development and execution. This sequence of activities consisted of concept development (Pre-Phase A), mission analysis (Phase A), definition or system design (Phase B), execution (design, development, test, and evaluation) (Phase C/D), launch and deployment operations (Phase E), and mission operations, maintenance, and disposal (Phase F). Although most concepts for missions originated within a field installation, Headquarters retained project responsibility through Phase B. Once a program or project was approved and funded by Congress, the principal responsibility for program or project implementation shifted to the field installation. Internal agency reviews were held during and between each phase of a project. Before moving to Phase C/D, NASA held a major agency review, and approval and funding by Congress were required. Particular activities never moved beyond Phase B, nor were they meant to. For instance, many aeronautics activities were designed as research efforts and were intended to be turned over to the private sector or to other government agencies once Phase B concluded.

## NASA’s Budget Process

NASA’s activities relied on getting a reasonable level of funding from Congress. The federal budget process was quite complex, and a brief description as it relates to NASA is presented here. Additional information can be found in Chapter 8, “Finances and Procurement,” in Volume VI of the *NASA Historical Data Book*.

NASA operated on a fiscal year (FY) that ran from October 1 through September 30 of the following year. Through FY 1983, the agency budget was broken into three accounts or appropriation categories: Research and Development (R&D), Research and Program Management (R&PM), and Construction of Facilities (C of F). An additional appropriation, Space Flight, Control, and Data Communications (SFC&DC) was added in FY 1984 for ongoing Shuttle-related and tracking and data acquisition activities. Although a program office could administer activities from

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<sup>1</sup>NASA Management Instruction 7120.3, “Space Flight Program and Project Management,” February 6, 1985.

more than one appropriation category, such as the Office of Space Flight, which managed both R&D and SFC&DC activities, all funds were designated for particular appropriation categories and could not be transferred between accounts without congressional approval.

Congress appropriated operating funds each year. These appropriations were the culmination of a series of activities that required at least two years of effort by the installations and Headquarters.

Two years before a budget year began, Headquarters sent guidelines to each installation that contained programmatic and budget information based on its long-range plans and the budget forecasts from the Office of Management and Budget (OMB). Each installation then prepared a detailed budget, or Program Operating Plan (POP), for the fiscal year that would begin two years in the future. The installation also refined the budget for the remainder of the current fiscal year and the next fiscal year that it had already submitted and had approved, and it provided less detailed budget figures for later years. Upon approval from each installation's comptroller and director, this budget was forwarded to the appropriate Headquarters-level program office, to the NASA comptroller's office, and the NASA administrator.

Headquarters reviewed the budget requests from each installation, held discussions with the installations, and negotiated with OMB to arrive at a budget that looked realistic and had a fair chance of passage by Congress. Following these negotiations, NASA formally submitted its budget requests to OMB. This became part of the administration's budget that went to Congress in January of each year.

When Congress received the budget, NASA's proposed budget first went to the House and Senate science committees that were charged with authorizing the agency's budget. Each committee held hearings, usually with NASA administrators; reviewed the submission in great detail; debated, revised, and approved the submitted budget; and sent it to the full House or Senate for approval. The authorization committees could limit how much could be appropriated and often set extensive conditions on how the funds were to be spent. Each house approved its own authorization bill, which was then submitted to a House-Senate conference committee to resolve any differences. After this took place, the compromise bill was passed by the full House and Senate and submitted to the President for his signature.

The process to appropriate funds was similar, with the bills going to the proper appropriations committees for discussion, revision, and approval. However, in practice, the appropriations committees usually did not review the proposed budget in as great detail as the authorization committees. Upon committee approval, the appropriations bills went to the full House and Senate, back to a conference committee if necessary, and finally to the President. After approval by the President, OMB established controls on the release of appropriated funds to the various agencies, including NASA.

Once NASA received control over its appropriated funds, it earmarked the funds for various programs, projects, and facilities, each of which had an “account” with the agency established for it. Funds were then committed, obligated, costed, and finally disbursed according to the progression of activities, which hopefully coincided with the timing of events spelled out in the budget. NASA monitored all of its financial activities scrupulously, first at the project and installation level and then at the Headquarters level. Its financial transactions were eventually reviewed by the congressional General Accounting Office to ensure that they were legal and followed prescribed procedures.

In the budget tables that follow in each chapter, the “request” or “submission” column contains the amount that OMB submitted to Congress. It may not be the initial request that NASA submitted to OMB. The “authorization” is the ceiling set by the authorization committees in their bill. The “appropriation” is the amount provided to the agency. The “programmed” column shows the amount the agency actually spent during the fiscal year for a particular program.

R&D Programs			
1979	1980	1981	1982
Space Transportation Systems <ul style="list-style-type: none"> <li>• Space Shuttle</li> <li>• Space Flight Operations</li> <li>• Expendable Launch Vehicles</li> </ul>			
Space Science <ul style="list-style-type: none"> <li>• Physics and Astronomy</li> <li>• Lunar and Planetary</li> <li>• Life Sciences</li> </ul>	Space Science <ul style="list-style-type: none"> <li>• Physics and Astronomy</li> <li>• Planetary Exploration</li> <li>• Life Sciences</li> </ul>		
Space and Terrestrial Applications <ul style="list-style-type: none"> <li>• Space Applications</li> <li>• Technology Utilization</li> </ul>			Space Science and Applications <ul style="list-style-type: none"> <li>• Physics and Astronomy</li> <li>• Planetary Exploration</li> <li>• Life Sciences</li> <li>• Space Applications</li> <li>• Technology Utilization</li> </ul>
Aeronautics and Space Technology <ul style="list-style-type: none"> <li>• Aeronautical Research and Technology</li> <li>• Space Research and Technology</li> <li>• Energy Technology</li> </ul>			Aeronautics and Space Technology <ul style="list-style-type: none"> <li>• Aeronautical Research and Technology</li> <li>• Space Research and Technology</li> <li>• Energy Technology</li> </ul>
Space Tracking and Data Systems <ul style="list-style-type: none"> <li>• Tracking and Data Acquisition</li> </ul>			

*Figure 1-1. Program Office Functional Areas*

R&D Programs			
1984	1985	1986	1987
Space Transportation Systems <ul style="list-style-type: none"> <li>• Space Transportation and Capability</li> <li>• Space Transportation Operations</li> </ul>	Space Flight <ul style="list-style-type: none"> <li>• Space Transportation Capability Development</li> </ul>		1988
	Space Station Task Force <ul style="list-style-type: none"> <li>• Space Station</li> </ul>	Space Station <ul style="list-style-type: none"> <li>• Space Station</li> </ul>	Space Station <ul style="list-style-type: none"> <li>• Space Station</li> <li>• Industrial Space Facility</li> </ul>
Space Science and Applications <ul style="list-style-type: none"> <li>• Physics and Astronomy</li> <li>• Planetary Exploration</li> <li>• Life Sciences</li> <li>• Space Applications</li> </ul>			
External Relations <ul style="list-style-type: none"> <li>• Technology Utilization</li> </ul>		Commercial Programs <ul style="list-style-type: none"> <li>• Technology Utilization</li> <li>• Commercial Use of Space</li> </ul>	
Aeronautics and Space Technology <ul style="list-style-type: none"> <li>• Aeronautical Research and Technology</li> <li>• Space Research and Technology</li> </ul>			Aeronautics and Space Technology <ul style="list-style-type: none"> <li>• Aeronautical Research and Technology</li> <li>• Transatmospheric Research and Technology</li> <li>• Space Research and Technology</li> </ul>
			Safety, Reliability, and Quality <ul style="list-style-type: none"> <li>• Maintainability, and Quality Assurance</li> <li>• Safety, Reliability, and Quality Assurance</li> </ul>
Space Tracking and Data Systems <ul style="list-style-type: none"> <li>• Tracking and Data Acquisition</li> </ul>	Space Tracking and Data Systems <ul style="list-style-type: none"> <li>• Tracking and Data Advanced Systems</li> </ul>		

Figure 1-1 continued

SFC&DC Programs			
1984	1985	1986	1987
Space Transportation Systems <ul style="list-style-type: none"> <li>• Space Transportation and Capability Development</li> <li>• Space Transportation Operations</li> </ul>	Space Flight <ul style="list-style-type: none"> <li>• Space Production and Operational Operations</li> <li>• Space Transportation Operations</li> </ul>	Space Flight <ul style="list-style-type: none"> <li>• Shuttle Production and Operational Capability</li> <li>• Space Transportation Operations</li> </ul>	Space Flight <ul style="list-style-type: none"> <li>• Shuttle Production and Operational Capability</li> <li>• Space Transportation Operations</li> <li>• Expendable Launch Vehicles</li> </ul>
Space Tracking and Data Systems <ul style="list-style-type: none"> <li>• Tracking and Data Acquisition</li> </ul>	Space Tracking and Data Systems <ul style="list-style-type: none"> <li>• Space and Ground Network Communications and Data Systems</li> </ul>		

Source: NASA Chronological Histories, Budget Submissions, 1979-1988

Figure 1-1 continued