

The Program and Project Management Training and Development Initiative

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After the Challenger accident, a study team headed by General Sam Phillips conducted an assessment of NASA's management practices. The team, known as the NASA Management Study Group, conducted its review and prepared a report for the Administrator. A major recommendation was that NASA "institute formal training and development program(s) for program/project managers."

This recommendation confirmed a similar one that came from two project management workshops conducted in 1975. That recommendation resulted in the development of the Project Management Shared Experiences Program (PMSEP). The one-week PMSEP is an excellent interactive seminar, but it is limited in size and scope and cannot fulfill all of the agency's requirements.

The first step in implementing the Study Group's recommendation was to conduct an in-house requirements and feasibility study. This study, completed in October 1987, reached the following conclusions. First, the management of NASA programs and projects is becoming increasingly complex, and the demand for trained and experienced personnel is increasing as the available pool is being depleted. Second, in addition to our traditional programs and projects, we now have training and development requirements for people involved in research, facilities, and information systems activities that must be managed as projects. And last, the total population contained in these groups is approximately one-third of the NASA civil service workforce.

To assist in developing NASA user requirements, the study manager relied heavily on the project management knowledge, skills, and experience data developed at a Program and Project Management colloquium held at Wallops Flight Center in 1980. In

addition to this most valuable data, interviews were conducted and a questionnaire was administered to approximately 125 NASA employees attending agency development programs.

At the same time, we looked at what industry and the Department of Defense were doing. We collected in-depth information from 11 aerospace and non-aerospace companies. We visited the Defense Systems Management School at Ft. Belvoir, Va., and also examined the many other excellent DoD programs. In brief, we found the following:

- There are no quick fixes or magic bullets.
- There is a concentration on on-the-job training combined with formal training.
- Advanced degrees are common and frequently encouraged.
- Time in training varies from weeks to years.
- Contractors and universities are frequently used to design, develop, and deliver training programs.
- The average time in the project management cycle, from entrance to project manager, is about 15 years.
- There are similarities in curriculum content.
- There are a number of readily available project management training sources on the market; however, they vary widely in applicability and quality.

We completed our study with a look at several university degree programs and an examination of

what field centers were doing to train program and project management personnel. Although many centers offer short-term training opportunities, there is no comprehensive, requirements-driven program in place in NASA.

All of these findings were reported to the NASA Program Project Management Steering Group. This group, established in 1984, consists of members from the field centers and Headquarters program offices who have broad knowledge and experience in program and project management. The Group assists NASA management by providing a focus, although somewhat limited, for this most important function. The group has been active in reestablishing the Project Management Shared Experiences Program, has provided input to the Phillips Study Group, and advises management on appropriate NASA Management Instructions (NMIs).

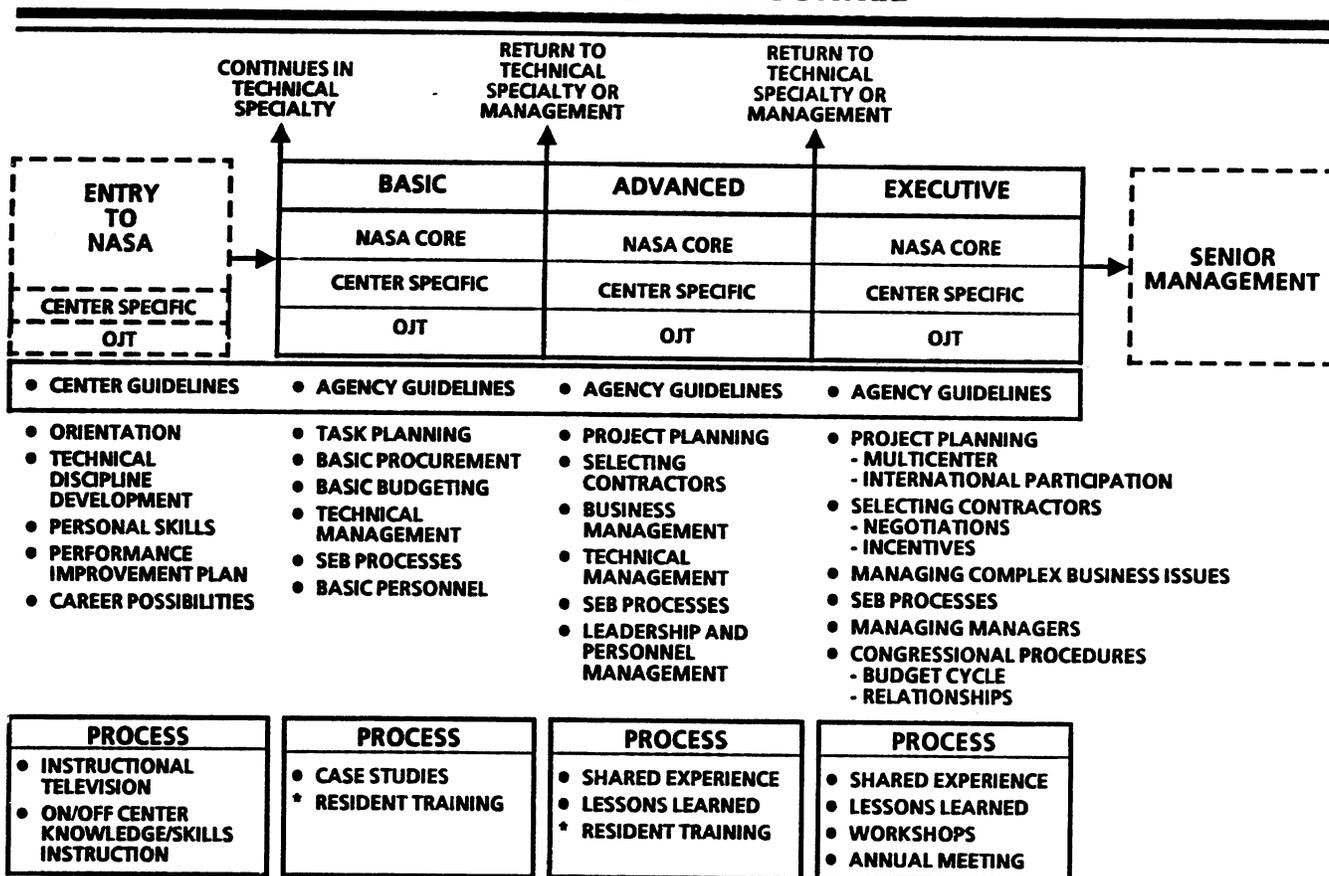
The Steering Group accepted the study findings and tasked the study manager with developing a NASA training and development model complete with

curriculum. A working group of the committee was appointed to assist. After three iterations, we have agreement on the model shown below.

Some important features of this model are:

- A commitment to training and development at any point in the cycle
- A partnership between the field centers and NASA Headquarters in the design and delivery of core curriculum
- Where practical, informal career paths and development plans will be used
- Training consists of knowledge and skills
- A modular design will be employed
- An employee may enter or exit the cycle at any appropriate level

PROGRAM/PROJECT MANAGEMENT INITIATIVE NASA MODEL FOR DEVELOPMENT AND TRAINING OF PROJECT MANAGEMENT PERSONNEL



The working group also spent much time developing the core curriculum for the Advanced Project Management Course. It was decided to concentrate on this level due to a pressing need in this area. The core curriculum includes program/project planning, business management, technical management, acquisition reviews, and lessons learned. The first offering of the Advanced Project Management Course occurred in October 1988. Pilot courses in systems engineering and program control were offered this past summer.

In addition to training courses, a number of related activities were also undertaken. It is widely agreed that we must build on our past experience in managing programs and projects. To do this we must collect and disseminate the lessons learned and shared experience of past and present management teams. A pilot lessons-learned videotape is presently being prepared. Using the "lessons learned" from this pilot, we hope, with the cooperation of the NASA Alumni League, to document our experiences from

Apollo to the present. We also plan to use live interactive television productions to deliver issues of interest to our program and project management workforce. We will soon establish a pilot computer network that will give us the potential for electronic mentoring. This publication, Issues in NASA Program and Project Management, is a direct result of our intention to capture and pass on our heritage and culture in the hope that some of this information will be of direct and immediate benefit to our workforce.

Our workforce is key to the agency's success, and this requires a highly motivated and competent staff. This is particularly challenging today because of the growing complexity of the agency's activities. As a result of the program/project management initiative, the agency has underscored its commitment to providing the very best training and development for our program and project workforce as well as providing them with the tools they need to meet the future challenges associated with the NASA mission.