6

NASA

Introduction

As a means of comparison with another government agency, this report looks at NASA's implementation of modifications and upgrades. The purpose of the comparison is to explore an equivalent to the DoD milestone decision process and the level of approval oversight. NASA's Space Shuttle safety, obsolescence and performance upgrades provided the basis for an excellent comparison.

Overview

The Agency's Deputy Administrator serves as the Agency Acquisition Executive. The Agency is sub-tiered into Program Associate Administrators (PAAs). For example, the head of the space flight office is the PAA for both the Space Shuttle and Space Station. One could consider the PAAs to be similar to the DoD's Component Acquisition Executives. NASA tends to do business at a lower level than the DoD. The decision process is much more compartmentalized by systems and much more teamed within systems.

NASA used the DoD 5000 series as the model for their NASA Handbook (NHB) 7120.5, Management of Major System Programs and Projects. "This Handbook applies to program/projects for the purpose of development and operation of a major system... Program Associate Administrators (PAAs) shall determine how these policies and procedures should be tailored, and selectively applied, to non-major systems consistent with their size, complexity and sensitivity."[1]

In monetary terms, NASA considers a major program or project one in which the development cost commitment exceeds $200M. NASA does not make a distinction between modifications and upgrades. Since 1971, when the space shuttle program (SSP) began, the program has experienced numerous expensive modifications. There are also upgrades for safety, obsolescence or performance reasons; the performance upgrades are those that will enhance the shuttle's performance (i.e., lift capability) in order to use it in the assembly of the space station. Shuttle upgrades are budgeted at approximately $700M a year out of a total FY95 Shuttle budget of $3.1B.

There is not a requirement for small programs, those under $200M, to use the policies and procedures outlined in the NHB. However, since this document covers cradle

to grave program management, NASA is incorporating these kinds of processes, techniques and functions into all new and existing projects. Center Directors (center examples being Johnson Space Center, Kennedy Space Center and Marshal Space Flight Center), who are one tier down from PAAs, have management responsibility and authority over these smaller programs. Program directors, at the PAA level, manage major programs.

NASA expects tailoring of the NHB; however, agencies do very little tailoring. The DoD encounters a similar situation with published guidelines. Auditors, both in the DoD and NASA, are driving the process to be very rigid because of all the details for which they ask. (Significantly, in the DoD, there is no requirement for auditors to be acquisition literate.)

NASA does not have a DAB equivalent. However, NASA performs the same review functions without the kind of oversight staff that exists in DoD. NASA places its oversight responsibility for major programs with two entities: The Program Management Council (PMC) and the Comptroller's Office. The PMC, chaired by the Deputy Administrator, is comprised of the PAAs and headquarters staff. The PMC provides oversight through a quarterly status review. Also, detailed annual reviews are conducted by the comptroller and independent technical personnel and the results are presented

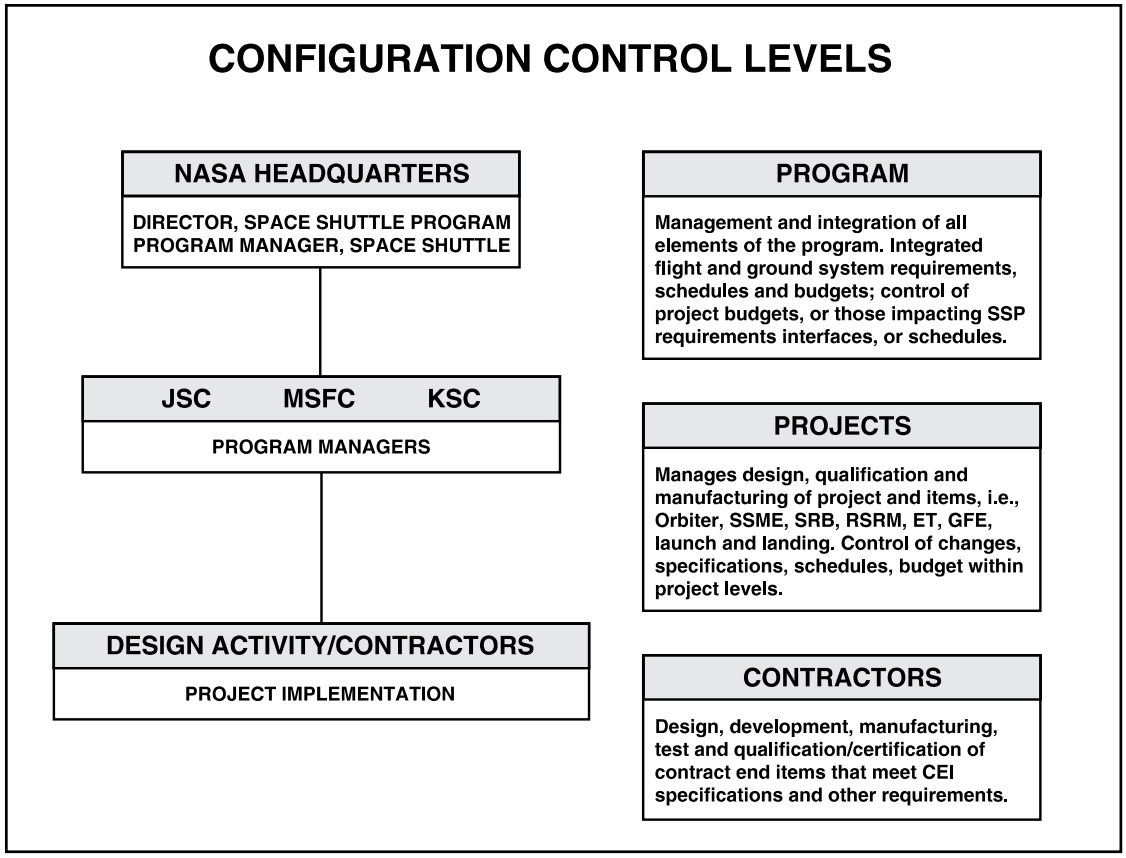

Figure 6-1. Configuration Control Levels

to the PMC. Thus, the primary audit function is performed by the Comptroller's Officer. This leads back to the auditing issue of having people who are not trained in acquisition significantly impacting a program.

Figure 6-1 shows NASA's configuration control levels. In the example, Director, SSP is level 1; the PM, Space Shuttle is level 2; the Project Managers at the Centers are level 3; and Project Implementation is level 4. Levels 1 and 2 constitute a program. NASA is trying to minimize level 1 and focus more program direction at level 2, the PMs. Actually, the PMs for space flight are in the field; not in Washington.

Anyone associated with the SSP can propose a change, as outlined in Figure 6-2. In the annual budget each project has a fiscal year operating plan with dollars associated for discrete contract items. Level 3 projects are free to spend funds as long as there is no deviation from the approved plan. Once deviation occurs, level 2 must approve any changes requiring additional funds or reprogramming. When presenting the request for changes, level 3 must provide justification, documentation and fiscal

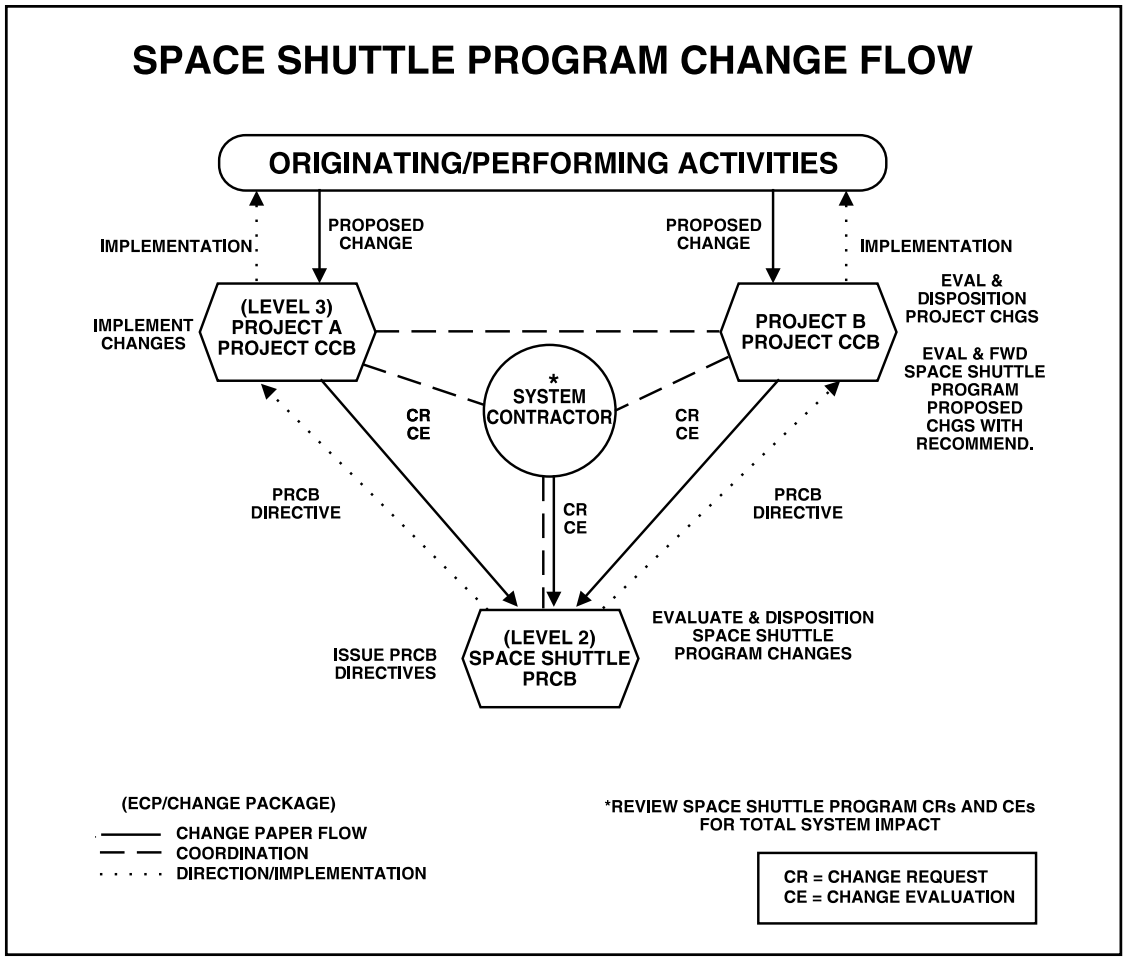

Figure 6-2. Space Shuttle Program Change Flow

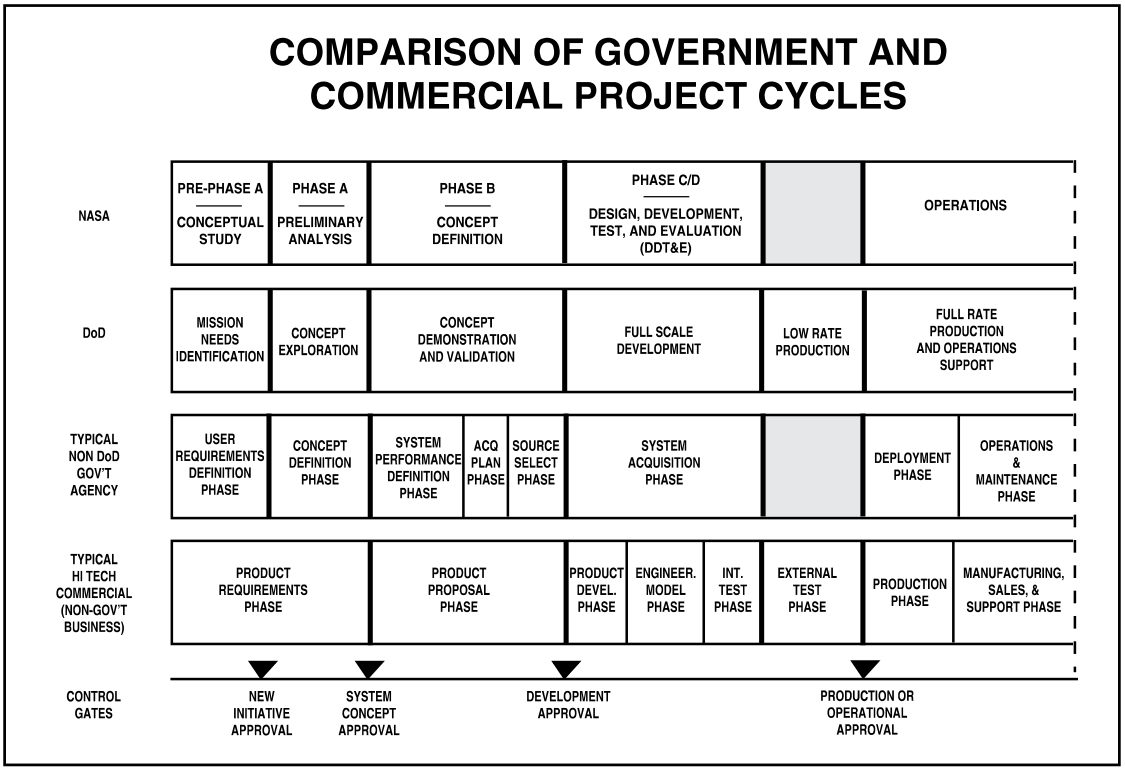

Figure 6-3. Comparison of Government and Commercial Project Cycles

year phasing. The level 2 approval process can take 6 months.

Figure 6-3 illustrates a comparison of government and commercial project cycles. For NASA, Phase B needs Congressional approval to go to Phase C/D for new starts and major upgrades. This is usually done through the normal appropriations' cycle. Also, it should be noted that a Preliminary Design Review is required at the beginning of Phase C/D. If there are major changes during the year, NASA notifies Congress by letter. There is a close working relationship with the staffers and informal notification is usually done prior to a formal notification. After formally notifying Congress, NASA waits 30 days and if there has been no reply then the change is implemented. Congress may notify NASA after the 30 day period to request further changes or nullify the changes implemented.

Summary

NASA has the same Congressional oversight as the DoD. However, NASAs' internal review and approval process are at a lower level than the DoD. They are focusing more of the decision making process at the Program Manager level and for smaller programs the decisions are made at the project level.

ENDNOTES

1. NASA Handbook 7120.5, p. 1