



# STRATEGIC MANAGEMENT AND GOVERNANCE HANDBOOK

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# Preface

Dear Colleagues:

NASA has always been a stimulating and rewarding place to work, but it is particularly so at this time. Like the Apollo Program initiated by President Kennedy more than a generation ago, President Bush's "Vision for Space Exploration"—aimed at returning human exploration to the Moon and then on to Mars and beyond—presents us with an immense challenge. Before astronauts can once again set foot on worlds beyond our own, we must return the Space Shuttle to flight, complete the International Space Station, develop a new human-rated spacecraft, and develop suitable launch systems. On top of that, we are committed to retaining leadership in scientific and aeronautics research.

Tough challenges such as these require extraordinary talent, commitment, and discipline. Fortunately, these attributes are hallmarks of the people at NASA. My responsibility is to ensure that the Agency has a management framework that makes the fullest possible use of these resources. I pledge to support your efforts by providing strategic direction that paves the way for clear decisions and efficient operations.

From the beginning, I have placed a high priority on updating NASA's Strategic Management Handbook, and what follows is the result of that initiative. This concise reference, designed for ready use, describes how we are to govern and meet top-level requirements and presents directives for strategic planning. While strategic planning is beneficial for most professional groups, public and private, large and small, for NASA it is nothing short of essential. We plan because federal law requires it. We plan because the President has stressed, in the strongest possible terms, that we should. But most of all, I believe we must plan because it is the smart thing to do. The success of our mission depends on it.

I call on everyone with a strategic management role at NASA to take the contents of this handbook to heart. The requirements and principles compiled in this volume will instill the discipline and organizational rigor we need on our path to the Moon, Mars, and on to other objectives.

**Michael D. Griffin,**  
NASA Administrator

## Table of Contents

Change History	ii
Effective Dates	iii
Introduction	1
Purpose	3
Core Values	5
Strategic Management Framework and Principles	7
Strategic Management Framework	7
Strategic Management Principles	8
Lean Governance	9
Responsibility and Decision-Making	10
Sensible Competition	10
Balance of Power	13
Checks and Balances	13
Integrated Financial Management	13
Strategic Management of Capital Assets	13
Strategic Management of Human Capital	14
Strategic Planning	15
Mission, Goals, and Objectives	15
Internal Requirements	15
External Requirements	16
Documents	16
Management and Reporting of Goals/Objectives	17
SWOT Analysis	18
Budgets	18
Strategic Planning Process	19
Strategic Management Framework Responsibilities	20
Implementation	21
Developing Implementation Plans	23
Implementation Planning Responsibilities	24
Monitoring and Control	25
System and Data for Metrics Collection	25
Assessments and Audits	25
Internal Metrics	27
External Metrics	27
Monitoring and Control Responsibilities	27

## Table of Figures

Figure I-1	Governance Structure	1
Figure 1.0-1	Handbook Purpose	3
Figure 2.0-1	NASA Values	5
Figure 3.1-1	Strategic Framework	7
Figure 3.2.3-1	Competition	11
Figure 4.0-1	Strategic Planning	15
Figure 4.3.1-1	Federal Requirements	16
Figure 4.3.2-1	Strategic Roll-Up	18
Figure 4.3.5-1	Roles and Responsibilities	20
Figure 5.0-1	NASA Organization	21
Figure 5.0-2	Strategic Goals/Objectives	22
Figure 5.0-3	Funded Initiatives	22
Figure 6.2-1	Monitoring and Control	26



# Introduction

## Introduction

This handbook describes the process and principles of strategic management for NASA. It is an overview of core strategic management requirements and is intended to give a basic understanding of how NASA is managed and what internal and external requirements drive this management strategy.

NASA is a mission-driven Agency, and the strategic management approach requires all organizations in NASA to manage requirements, schedule, and budget, according to a program/project management method. A mission is defined as a core function or job of the Agency and is not limited to flight.

The guiding principles of NASA's Strategic Management approach are:

- Lean Governance
- Responsibility and Decision-Making
- Sensible Competition
- Balance of Power
- Checks and Balances
- Integrated Financial Management
- Strategic Management of Capital Assets
- Strategic Management of Human Capital

This handbook is composed of six chapters, each of which includes a brief written explanation of its subject, a visual graphic of the identified process, and a table of organizational roles and responsibilities. Related policy documents are cited for further description.

In this handbook, a requirement is identified by the use of "shall."

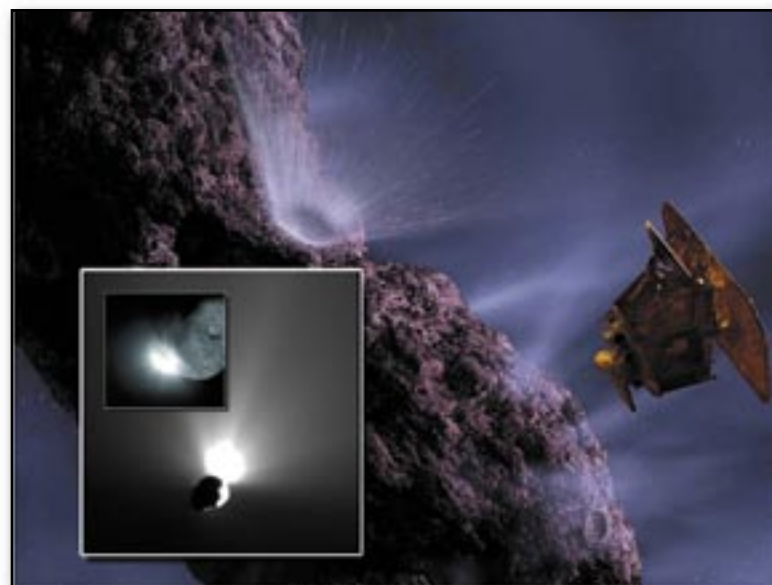
In support of a mission-driven organization, the new governance structure is composed of three councils, as shown in Figure I-1. These councils are essential components of strategic planning, providing oversight and guidance in each phase of the strategic management framework. No other chartered governing councils are required.



**Figure I-1** Changing Times: NASA's new governance structure is based on three management councils.



*"Life, forever dying to be born afresh, forever young and eager, will presently stand upon this earth as upon a footstool, and stretch out its realm amidst the stars." -- H. G. Wells, The Outline of History, 1920*



Artist's impression of Deep Impact at Tempel 1.

Inset: This image shows the view from Deep Impact's flyby spacecraft as it turned back to look at comet Tempel 1. Fifty minutes earlier, the spacecraft's probe was run over by the comet (as seen in the smaller inset). That collision kicked up plumes of ejected material, seen here streaming away from the back side of the comet. This image was taken by the flyby craft's high-resolution camera.

Image Credit: University of Maryland Image



# Purpose

## 1.0 Purpose

*"The actual plan was secondary. It was the planning process which ensured our success."*

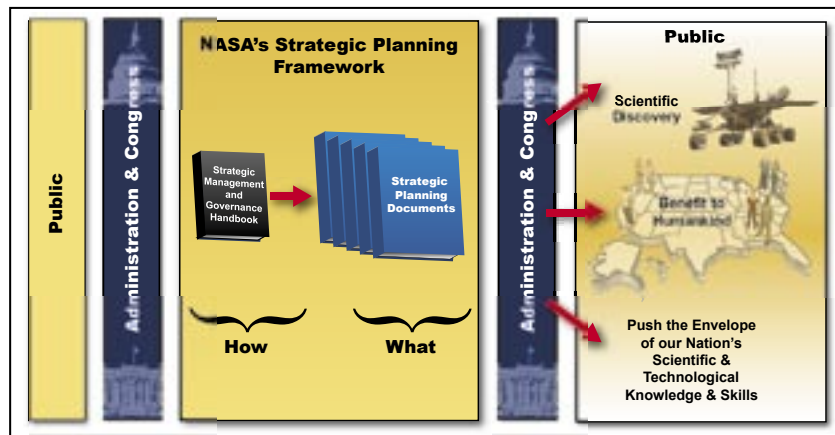
-- General Dwight D. Eisenhower regarding D-Day preparations

This handbook has two primary aims: (1) to set forth the principles by which NASA will strategically manage the Agency and describe the means for doing so; and (2) to identify the specific requirements that drive NASA's strategic planning process, leading to products such as the Strategic Plan and the Annual Performance and Accountability Report.

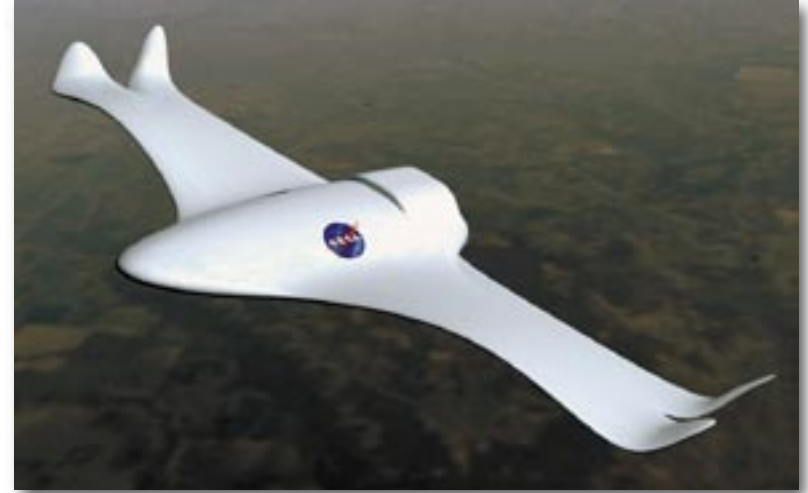
The strategic planning process sets in motion the preparation for the comprehensive five-year plan and the longer-range vision for NASA. The Strategic Management and Governance Handbook (SMGH) defines NASA's strategic operational methodology, the role of key officials, and the governance structure by which the Administrator and his senior staff provide leadership. The purpose of this handbook is to present the following:

- Principles by which NASA manages.
- NASA's organizational plan to meet the Agency's Mission.
- Roles and responsibilities of Agency and Center functions related to strategy.
- Process by which strategy is converted into implementation and outcomes.
- Key Agency stakeholders responsible for strategic planning.
- Guidance for Mission Directorates and Centers to execute programs and projects.
- Guidelines consistent with government requirements for strategic planning.
- An approach for goals, measurements, and feedback on progress.

As a federal Agency, NASA must comply with government laws and policies for the management of federal agencies, such as the Government Performance and Results Act of 1993 (GPRA) and OMB Circular A-11. (See Section 4.3.2.) The strategic management framework for the Agency must encompass these requirements in a clear and traceable manner that demonstrates public accountability.

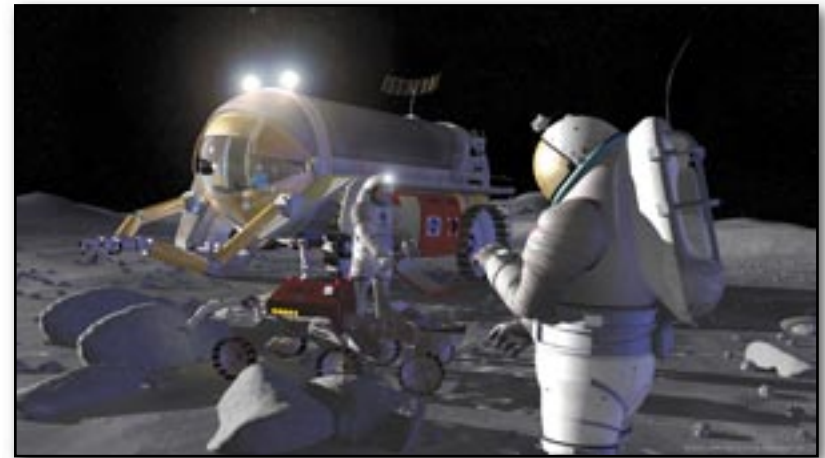


**Figure 1.0-1** - NASA is obligated to its stakeholders to meet the intent of the National Aeronautics and Space Act of 1958, which established the Agency for the purpose of expanding human knowledge for the benefit of all humankind. This handbook is NASA's organization plan to fulfill and meet the objectives of the Agency's mission.



NASA Dryden Flight Research Center Collection  
NASA Photo: ED01-0348-1 Date: 2001 Photo by: NASA

*An artist's rendering of the 21st Century Aerospace Vehicle, sometimes nicknamed the Morphing Airplane, shows advanced concepts NASA envisions for an aircraft of the future.*



*"I think that space flight is a condition of Nature that comes into effect when an intelligent species reaches the saturation point of its planetary habitat combined with a certain level of technological ability.. I think it is a built-in gene-directed drive for the spreading of the species and its continuation."*

-- Donald A. Wollheim, The Universe Makers, 1971

## 2.0 Core Values

NASA is privileged to take on missions of extraordinary risk, complexity, and national priority. NASA employees recognize their responsibilities and are accountable for the important work entrusted to them. If good strategic planning provides the long-term direction of our Agency, our shared core values express the ethics that guide our behavior. We value:

**Safety** - NASA's constant attention to safety is the cornerstone upon which we build mission success. We are committed, individually and as a team, to protecting the safety and health of the public, our team members, and those assets that the Nation entrusts to us.

**Teamwork** - NASA's most powerful tool for achieving mission success is a multi-disciplinary team of competent people. The Agency will build high-performing teams that are committed to continuous learning, trust, and openness to innovation and new ideas.

**Integrity** - NASA is committed to an environment of trust, built upon honesty, ethical behavior, respect, and candor. Building trust through ethical conduct as individuals and as an organization is a necessary component of mission success.

**Mission Success** - NASA's reason for being is to conduct successful space missions on behalf of this Nation. We undertake missions to explore, discover, and learn. And we believe that mission success is the natural consequence of an uncompromising commitment to safety, teamwork, and integrity.



Figure 2.0-1 - NASA is committed to a core set of values in everything it does.



*"The human space program has existed in the collective unconscious of humanity since the dawn of awareness."*— Frank White, 'The Overview Effect: Space Exploration and Human Evolution,' 1987.



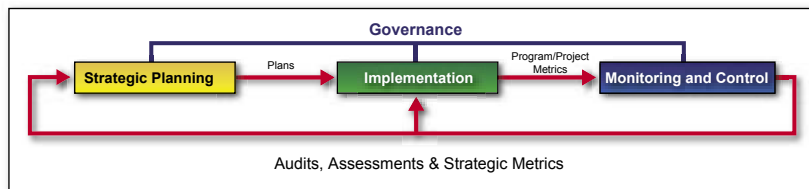
*"Astronomy compels the soul to look upward, and leads us from this world to another."*— Plato, 'The Republic,' 342 B.C.

## 3.0 Strategic Management Framework and Principles

Sections 3.1 and 3.2 discuss the framework and principles for strategic management at NASA.

### 3.1 Strategic Management Framework

The strategic management of NASA is conducted in three stages: strategic planning; implementation; and monitoring and control. These stages form a continuous feedback loop to ensure that the planning and execution stages incorporate and benefit from the objective performance assessments generated in the monitoring and control stage.



**Figure 3.1-1** - The three stages of strategic management form a continuous feedback loop.

**Governance** refers to how Agency-level decisions are made above the level of line organizations. Governance by council is used only in those cases where the decisions require a high degree of visibility, integration, and approval. Examples include approval of the Agency Strategic Plan or approval for a major project to transition from formulation to implementation. Governance also has a role in the approval and oversight of strategic planning; implementation of the Agency's programs, projects, and activities; and in monitoring and controlling activities for which operational baselines have been established. While governance is not a stage of the strategic management framework, it does provide oversight of the Agency's strategic management. As indicated in Figure 3.1-1, governance touches all the major processes of strategic management.

**Strategic Planning** refers primarily to the development of the Strategic Plan and supporting documents that comprise the Agency's strategic management framework. Strategic planning is a management tool. In short, strategic planning is a disciplined effort to produce fundamental decisions and actions that shape and guide what an organization is, what it does, and why it does it, with a focus on the future.

**Implementation** refers to the execution of the Strategic Plan. Each Mission Directorate will develop an Implementation Plan. One Implementation Plan shall be developed for the Institutional offices and shall have clear requirements traceability back to the Strategic Plan in order to verify compliance to the plan, to define the baseline from which monitoring and evaluation will occur, and to enable the development of performance reporting to external stakeholders. NASA is a mission-driven and project-oriented Agency, so implementation planning is ultimately reflected in program and project plans. Successful execution of programs and projects satisfies the intent of the strategic plan.

**Monitoring and Control** is the process by which the Agency receives quantitative or qualitative data collected from the planning and implementation phases and evaluates the level of success in executing the Strategic Plan. At the level of governance, feedback is received in the form of audits and assessments of program, project, and institutional activities and in the form of metrics from the Agency's strategic performance goals that are used in the Annual Performance and Accountability Report to Congress.

**Table 3.1-1** - NASA's Governance over its Strategic Management Framework

### 3.2 Strategic Management Principles

The basic principles for governing, managing, implementing, monitoring, and controlling the work of the Agency are addressed in Table 3.2-1. They set the tone for strategic management, but they also apply generally to all decision-making. A more detailed discussion follows in later chapters.

**Lean Governance** – NASA shall govern with three councils: the Strategic Management Council, the Operations Management Council, and the Program Management Council, and receive advice and assessment from external bodies within the science and research community. Governance by council shall be used only in the cases where decisions require high degrees of integration, visibility, and approval. The ultimate decision-making authority for each council is the chair. Generally, decisions are the responsibility of line organizations. This document does not impact regulatory, statutory, or program control councils. Any additional boards and councils will be chartered by exception and will be time limited. (See Section 3.2.1)

**Responsibility and Decision-Making** – Managers are responsible for making and executing decisions within their authority. Accordingly, they will have authority over their budgets, schedules, and human and capital assets. Managers are responsible for working across organizational lines to perform appropriate integration functions, and in general, management decisions are not subject to higher governance. (See Section 3.2.2)

**Sensible Competition** – Competition will be used to the best advantage of the Agency. In general, competition shall be used in cases where a market exists and the costs of competition are reasonable. In making such decisions, NASA will work to achieve a balanced acquisition approach, which may mean making decisions to protect institutional capabilities in certain cases. (See Section 3.2.3)

**Balance of Power** – The Agency will strive to reach a reasonable balance of power between Headquarters and Centers. In accordance with this principle, the Center Directors will report organizationally to the Associate Administrator. Mission Directorates report to the AA and will have no institutional oversight of Centers. Headquarters Mission Directorates maintain control of architectures, strategy, top level requirements, schedules, and budgets. Centers execute programs and projects. (See Section 3.2.4)

**Checks and Balances** – NASA employs a system of checks and balances for effective internal control and to ensure the successful achievement of missions, assigning proper levels of influence and action to different organizations. Program and project management focuses upon execution. Engineering maintains independent authority by setting technical requirements below the Directorate-owned top-level requirements and approving any deviation from such requirements. The Safety & Mission Assurance organization maintains responsibility for verification of programmatic compliance through strategies, policies, and standards. Mission Support offices also provide institutional checks and balances. (See Section 3.2.5)

**Integrated Financial Management** – NASA shall comply with the principles of full cost management in order to understand the true costs of doing business. To enable full cost data collection and proper assessment, a standard data structure has been established that begins at the mission level and decomposes the cost components down to the project work breakdown structure. Full cost data shall be collected at the mission, program, project, and activity level. (See Section 3.2.6)

**Strategic Management of Capital Assets** – As a mission-driven Agency, a proper balance must exist between program requirements, maintaining unique specialized facilities/infrastructure and competitiveness. To maintain this balance, a corporate capital account shall be established for unique or highly specialized facilities or infrastructure. NASA will distinguish between full-cost management and full-cost recovery. Accordingly, the Agency will optimize the utilization of its capital assets through competitive pricing. (See Section 3.2.7) The process for this will be described in the Implementation Plan Development Guide discussed in section 5.0.

**Strategic Management of Human Capital** – Strategic workforce planning is critical to ensure the workforce is aligned with the current and planned work of the Agency. The outcome of such planning should be used to guide human capital policy and program development. The Agency shall take actions in the near term which will increase workforce flexibility and reduce the risk of development gaps or surpluses in needed competencies. (See Section 3.2.8)

**Table 3.2-1** - NASA's Strategic Management Framework



## 3.2.1 Lean Governance

The purpose, principal activities, membership, and implementation of NASA's governing councils are described in Table 3.2.1-1.

GOVERNANCE - NASA Management Councils			
NASA controls all strategic management processes through its governance structure, which consists of three Agency-level management councils:			
The <b>Strategic Management Council</b> determines NASA strategic direction at the vision and mission level, and it assesses the Agency's progress on this level as well. The Office of Program Analysis & Evaluation (PA&E) provides functional support for this council.			
The <b>Program Management Council</b> guides program and project performance, defining successful achievement of NASA strategic goals and objectives. PA&E provides functional support for this council.			
The <b>Operations Management Council</b> reviews and approves institutional plans. PA&E provides functional support for this council.			

Council	Strategic Management	Program Management	Operations Management
<b>Purpose</b>	• Determine NASA Strategic Direction	• Baseline and Assess Program Performance	• Review and Approve Institutional Plans
<b>Principal Activities</b>	• Approve Strategic Plan • Establish Mission & Budget Priorities • Determine Communication Strategy • Strategic Budget Guidance	• Approve and Review New Programs • Approve Program Entry into Subsequent Phasing • Periodic Program Reviews • Program Commitment Agreements • Independent Assessments	• Review and Approve Capital Investments • Review and Approve Human Capital Plan • Institutional Budget Guidance
<b>Frequency</b>	Monthly	Monthly	As Needed
<b>Membership</b>	• Administrator - Chair • Deputy Administrator - 1st Alternate • Associate Administrator - 2nd Alternate • Chief of Staff - 3rd Alternate • Center Directors • Chief S&MA • Chief Engineer • CFO • Chief of Strategic Communication • General Counsel • Associate Administrators, Mission Directorates • AA, PA&E • I&M	• Associate Administrator - Chair • Deputy Administrator - 1st Alternate • Chief Engineer - 2nd Alternate • Associate Administrators, Mission Directorates • Chief S&MA • Center Directors • AA, PA&E • CFO • I&M	• Deputy Administrator - Chair • Chief of Staff - 1st Alternate • AA, PA&E • Associate Administrators, Mission Directorates (Deputies are alternates) • Assistant Administrators, Mission Support Offices • Center Representatives • CFO • I&M
<b>NOTE:</b>	1) The ultimate decision-making authority for each council rests with its Chair. Council issues are fully discussed and then put to a recorded vote. The Chair then uses the dialogue to determine outcome. 2) Any additional boards and councils will be chartered by exception and have a limited lifetime.		

**Table 3.2.1-1** The three councils that comprise NASA's governance structure review strategic planning, program commitments, and institutional budgeting. The ultimate decision-making authority for each council rests with the chair.

## 3.2.2 Responsibility and Decision-Making

As a mission-driven organization, NASA relies on the line organization for execution and integration. Execution takes place primarily at the project level, where requirements, budget, and schedule are managed. No NASA organizations are exempt from this. Integration primarily occurs during implementation planning. Its purpose is to examine synergy, redundancies, and the effectiveness of resource utilization.

In exceptional cases, at the request of the Administrator, special ad hoc teams or elements in the formal organization, such as the PA&E organization, will deal with integration issues that cross Mission Directorates, Mission Support Offices, and Centers.

## 3.2.3 Sensible Competition

The goal is to have a balanced approach to competition and institutional health. Competition should be used as a tool to promote best approaches and solutions, and to encourage innovation and efficiency. It is intended as a clear strategy to take advantage of state-of-the-art techniques, methodologies, and solutions available within NASA, industry, academia, other federal agencies, and international partners (within restrictions permitted by ITAR). At the same time, the Agency must maintain a balanced approach to competition that benefits NASA without undercutting the essential competency of the organization. In order to preserve institutional competency, NASA should foster competition when it helps achieve the mission. Sensible competition is where the costs of competition do not outweigh the benefits. NASA endorses full and open competition, which shall be the preferred approach for competition. The decision flow for this approach is shown in Figure 3.2.3-1. The Agency's competition strategy for a given scenario fits within one of four categories, as shown in Table 3.2.3-1.

NASA will maintain program management and systems engineering competencies within the civil service workforce. Because NASA most often builds one-of-a-kind systems rather than high-production units, it is essential to have strong in-house capabilities for the development phases of programs/projects. As a rule, NASA expects to engage prime contractors in the development of major systems such as launchers, upper stages, crew vehicles, and habitat. NASA will typically manage the interfaces between major systems.

In addition to the traditional NASA-prime contractor arrangements, NASA intends to pursue commercial partnerships where there is an appropriate ratio of risk to reward. For example, the Agency will encourage industry to provide commercial cargo delivery services to low Earth orbit. A healthy commercial space industry benefits NASA and the Nation.



Artist's Conception of Cassini Saturn Orbit Insertion.

*On July 1, 2004 Coordinated Universal Time (UTC) the Cassini spacecraft approached Saturn from below the ring plane, crossing through the large gap between the F Ring and G Ring.*



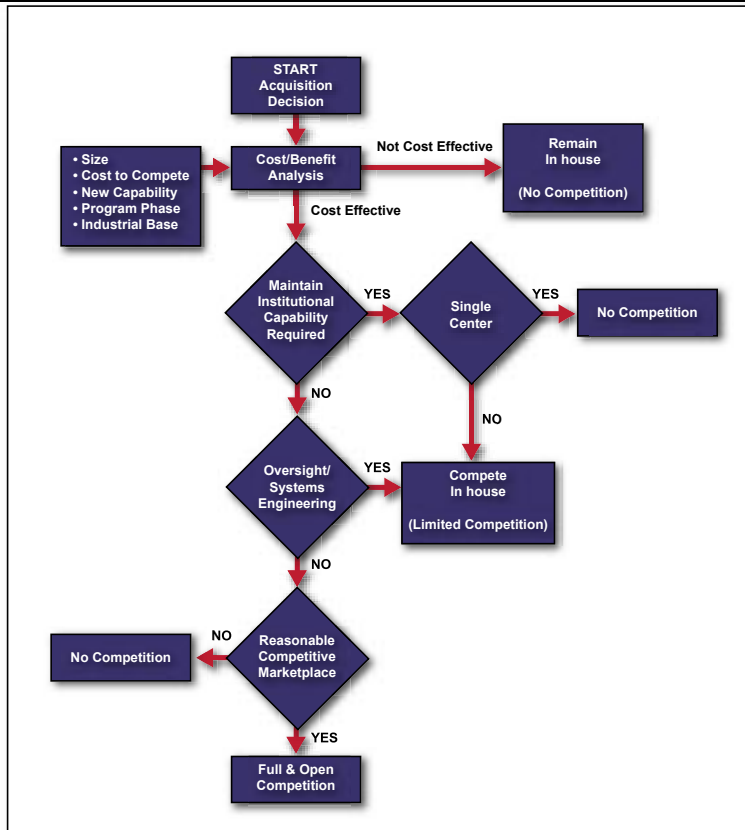


Figure 3.2.3-1 A thorough analysis shall be done with all competitive opportunities

**No Competition:** If a program is so big that the costs of competition would lead to a waste of cost, integration, and resources or would unnecessarily imperil a core competency, then NASA will assign responsibility without competition. Some aspects of Human Space Flight are too large for competition. Therefore, NASA must choose one location for these operations. In these situations the Agency must employ rigorous standards, controls, and feedback systems to ensure effectiveness and efficiency.

**Full and Open Competition** - NASA fully endorses full and open competition, and it shall be the preferred approach for competition. All responsible sources are eligible to compete. Required by the Competition in Contracting Act (1984).

**Limited Competition** – For many programs, projects, tasks, and services, competition will be used to encourage innovation, effectiveness, and efficiency. In the area of middle-sized robotic spacecraft, institutional services, and scientific missions there is the opportunity to benefit from viable competition. While a “center of excellence” might exist in a given area, this should not be construed as a monopoly or a lock on future work. NASA will encourage competition for programs in order to promote effectiveness, efficiency, and best ideas. This will be done with the commitment that there must be a preservation of the institutional core. In other words, competition will drive selection for work at Centers, but decisions will sometimes be made based on institutional requirements.

**Limited Competition in Research & Technology Work** – When the transaction costs of competition are greater than the benefit of the proposed work, then competition will not be the driver. However, on research and technology projects, the internal market of Principal Investigators competing for work will encourage a natural open-market type of competition. There will be competition for the Research and Development portfolio, while maintaining the balance of a stable organization base.

Table 3.2.3-1 Defining Competition at NASA



“Just remember - when you think all is lost, the future remains”  
-- Dr. Robert H. Goddard



In 1969, just days before the Apollo 11 Moon landing, the New York Times retracted the editorial it had published 49 years before on Dr. Robert H. Goddard. “Further investigation and experimentation,” said the paper, “have confirmed the findings of Isaac Newton in the 17th century, and it is now definitely established that a rocket can function in a vacuum as well as in an atmosphere. The Times regrets the error.”

“Every vision is a joke until the first man accomplishes it; once realized, it becomes commonplace.” -- Dr. Robert H. Goddard response to the New York Times, 1920



## 3.2.4 Balance of Power

NASA's success is dependent upon a proper balance of power between Headquarters and Centers. Headquarters has responsibility for providing the strategic direction and oversight of NASA's mission. The Centers are responsible for execution of the mission through programs, projects, and institutional assets. Successful mission outcome requires an appropriate level of tension.

## 3.2.5 Checks and Balances

A mission-driven organization needs a "checks and balances" organizational model that creates the appropriate level of management tension for the successful execution of high-risk endeavors. For example, the organization developing and setting requirements should not be waiving or determining completion of those same requirements. It is important for engineering to maintain technical purview over requirements and any deviations. Likewise, verification compliance is the responsibility of Safety & Mission Assurance.

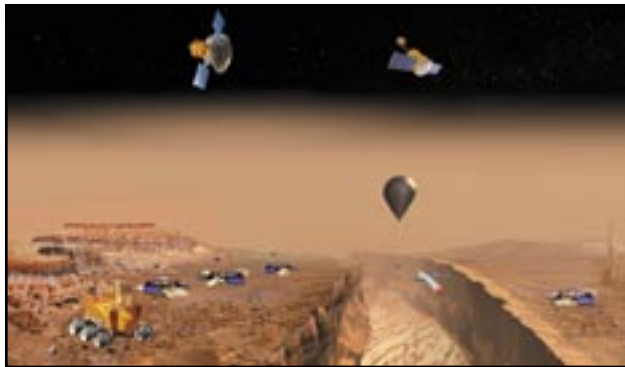
## 3.2.6 Integrated Financial Management

All Agency offices shall employ full cost management. Full cost management ties all Agency direct and indirect costs to major programs and projects. The full cost of a project is the sum of all direct costs, service costs, and associated general and administrative (G&A) costs. Since G&A costs cannot be immediately and directly identified with specific programs, projects, and activities, cost pools are used to accumulate these costs.

## 3.2.7 Strategic Management of Capital Assets

A proper balance must be maintained between program requirements, facilities/infrastructure, and staying competitive. No one Center should have to bear the full costs of a critical NASA and/or national asset in the Center G&A. The costs for these facilities and assets will be moved to the Agency's G&A accounts. Capital asset accounting will enable each Center to remain competitive and compete on a level playing field.

The establishment of a corporate capital account for unique or highly specialized facilities and infrastructures will increase utilization and promote institutional excellence. This will support competitive pricing of NASA capital and unique assets.

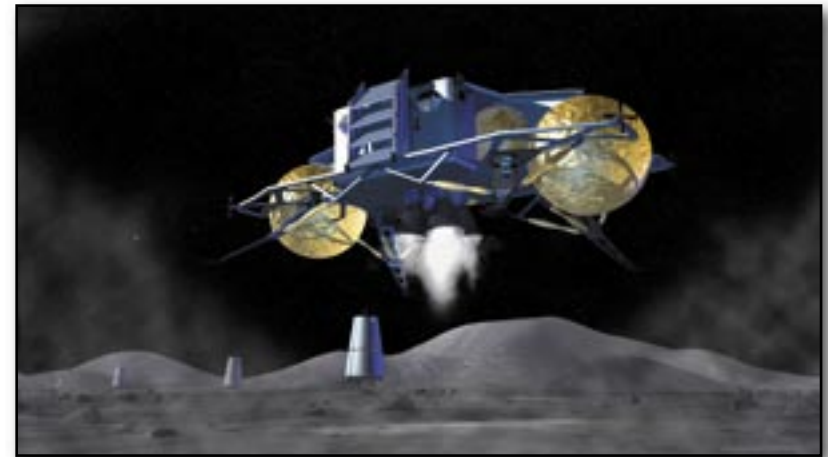


*Planned for launch in 2007 is a Scout mission, Phoenix, a lander designed to study the surface and near-surface environment of a landing site in the high-northern latitudes of Mars.*

## 3.2.8 Strategic Management of Human Capital

NASA's most critical asset in accomplishing its mission safely is the excellence of its workforce. We must ensure the Agency continues to have the scientific and technical expertise necessary to preserve the Nation's role as a leader in aeronautics, earth and space science, and technology, as well as maintain a cadre of professionals to address NASA's financial, acquisition, and business challenges. NASA must have an integrated, Agencywide approach to human capital management.

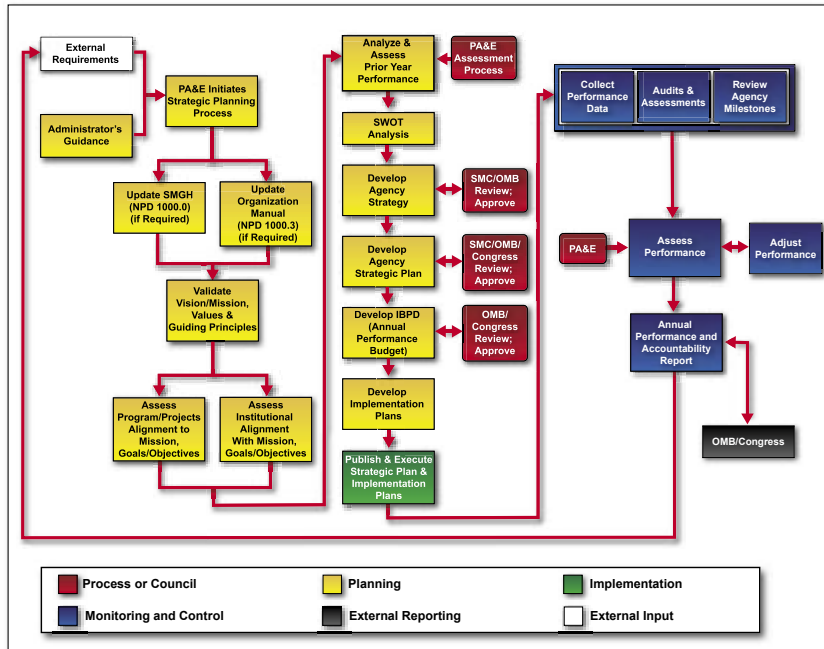
Strategic workforce planning is critical to ensure the workforce is aligned with the current and planned work of the Agency. Long-term planning should include scenario planning, long-range sizing, risk analysis, and total workforce assessment. The outcome of such planning should be used to guide human capital policy and program development. The Agency shall take actions in the near term which will increase workforce flexibility and reduce the risk of developing gaps or surpluses in needed competencies.



*"This is the goal: To make available for life every place where life is possible. To make inhabitable all worlds as yet uninhabitable, and all life purposeful."*  
-- Hermann Oberth, Man Into Space, 1957

## 4.0 Strategic Planning

Strategic planning is part of the strategic management approach. It is the process of identifying strategic goals and objectives and then developing and implementing plans to reach them. A comprehensive view of NASA's strategic management process is shown in Figure 4.0-1.



**Figure 4.0-1** NASA's top-level strategic planning process assigns responsibility and clearly identifies three primary phases: Strategic Planning, Implementation, and Monitoring and Control.

### 4.1 Mission, Goals, and Objectives

The Agency's priorities are set by the vision established by the President. The vision forms the basis for NASA's Mission. The Agency Mission is achieved through strategic goals/objectives, which are pursued tactically through specific performance goals. Performance goals, which are synonymous with requirements, are met through programs and projects. Performance goals can be traced down to Individual Performance Plans. (See Glossary for definitions of these terms.)

### 4.2 Internal Requirements

In order to function cleanly and efficiently, NASA shall have one strategic plan (the NASA Strategic Plan). The Strategic Plan sets the course for the Agency, establishes

the highest-level metrics against which to measure its performance, and communicates these expectations to NASA stakeholders.

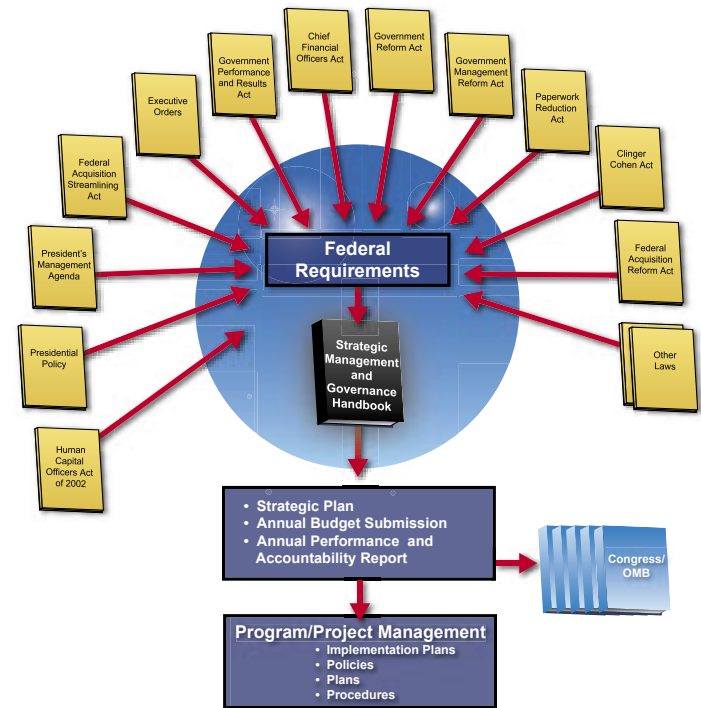
Mission Directorates shall develop Implementation Plans to execute the strategic goals/objectives outlined in the Strategic Plan. Implementation Plans serve as the bridge between strategic planning and execution.

## 4.3 External Requirements

The SMGH (NPD 1000.0) is NASA's highest-level requirements document for strategic planning. The external sources of its requirements are public laws and presidential executive orders. Although the requirements are stated more generally here, NASA has developed a requirements traceability matrix that identifies those laws and orders to ensure Agency compliance with them. Figure 4.3.1-1 shows the relationship between external requirements and internal documents.

### 4.3.1 Documents

The Strategic Plan is one of the externally-required Agency-level documents that comprise the overall strategic planning framework. The others are the Annual Budget Submission and the Annual Performance and Accountability Report. The NASA Organization Manual (NPD 1000.3) is also a key strategic management document, though it is not mandated by federal requirements.



**Figure 4.3.1-1** NASA uses the SMGH, which is NASA's highest-level requirements document, to produce planning documents and to govern NASA.

## 4.3.2 Management and Reporting of Goals/Objectives

The Government Performance and Results Act of 1993 (GPRA) instituted formal requirements for strategic planning and performance measurement in the federal government. Under GPRA, which aims to improve government performance, NASA is required to address some basic questions:

- What is the Agency’s mission?
- What are NASA’s goals and how will it achieve them?
- How can NASA measure its performance?
- How will it use that information to make improvements?

GPRA further requires NASA to act on the answers to those questions by setting goals, measuring performance, and reporting on accomplishments. When defining the Agency’s mission, GPRA stipulates that NASA consult with Congress and other stakeholders. GPRA requires NASA to establish long-term strategic goals, as well as annual goals that are linked to them. (Annual updates to GPRA guidance are issued in the A-11 Circular from the Office of Management and Budget.) NASA must then measure performance against its strategic goals and publicly report its progress toward meeting these goals.

Similar to GPRA, the Information Technology Management Reform Act of 1996 calls for NASA and other agencies to set goals, measure performance, and report on progress in improving operational efficiency. This legislation stipulates that information technology be used for those purposes.

The President’s Management Agenda (PMA) contains five government-wide and nine Agency-specific goals to improve federal management, and deliver results that matter to the American people. It is meant to achieve breakthroughs — not just marginal improvements — in management and program performance. The five mutually reinforcing government-wide initiatives are:

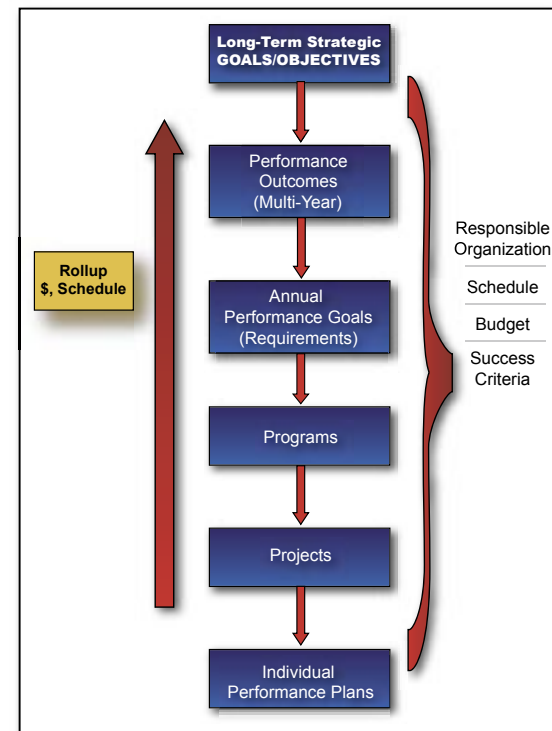
- Strategic Management of Human Capital
- Competitive Sourcing
- Improved Financial Performance
- Expanded Electronic Government
- Budget and Performance Integration

NASA includes two other categories in its progress reports on the PMA: Real Property and Research, and Development Investment Criteria.

Since NASA is organized around programs and projects, NASA offices are required to manage those programs and projects in a manner consistent with the Strategic Plan and to document in Implementation Plans how they intend to accomplish this. Mission Directorates, Mission Support Offices, and Centers must manage to meet requirements, budget, and schedule and document their plans for doing so in Implementation Plans. Implementation Plans shall show how a series of requirements from programs and projects demonstrate performance of the Agency’s strategic goals.

The terms “goals” and “objectives” are synonymous with strategic goals and objectives in this document and shall be reserved for the NASA Strategic Plan. All goals/objectives,

programs, projects, and actions/tasks/events shall identify a responsible organization (owner), schedule, budget (actual and planned), and success criteria (outcomes). Figure 4.3.2-1 shows the relationships among these.



**Figure 4.3.2-1** Employee’s Individual Performance Plan shall show the linkage from projects up through the Agency’s strategic goals/objectives.

## 4.3.3 SWOT Analysis

As part of Strategic Planning, NASA is required by GPRA to identify the key external and internal factors affecting achievement of strategic goals/objectives. To accomplish this, the PA&E office shall perform a SWOT analysis. (See Glossary for definition.) The results of the SWOT analysis shall be documented in the Strategic Plan.

## 4.3.4 Budgets

As a federal Agency, NASA has an obligation to account for the tax dollars it spends. The Chief Financial Officers (CFO) Act of 1990, which mandates that all federal agencies must have CFOs, also requires the same kinds of financial reporting that are standard practices in the private sector and in state and local governments.

As part of the strategic planning framework, NASA is required to submit an Annual Budget. The CFO is responsible for developing these and submitting them to OMB and Congress after approval by the Strategic Management Council.



## 4.3.5 Strategic Planning Process

The Associate Administrator shall conduct an organizational assessment and then update the NASA Organization Manual (NPD 1000.3) as appropriate. It is essential to begin with this step for the simple reason that any planning conducted without a thorough understanding of the organization's structure cannot be considered strategic.

After the AA has completed the update to NPD 1000.3, PA&E shall develop the NASA Strategic Plan. The Strategic Plan is the central document in the strategic management framework and sets the overall course for the Agency as it strives to implement the vision articulated by the Executive Branch. Development of the Strategic Plan should begin 9-12 months prior to its due date in February once every three years. The next Strategic Plan is due to Congress no later than February 2006. Internal and external requirements must be considered when developing the Strategic Plan. The chair of the Strategic Management Council has final approval authority over the Strategic Plan. An advance copy of the plan shall be submitted to OMB at least 45 days before transmitting the plan to Congress in compliance with policy on interagency clearance of certain material being sent to Congress. OMB Circular A-11 should be consulted for detailed procedures on drafting and submitting the Strategic Plan.

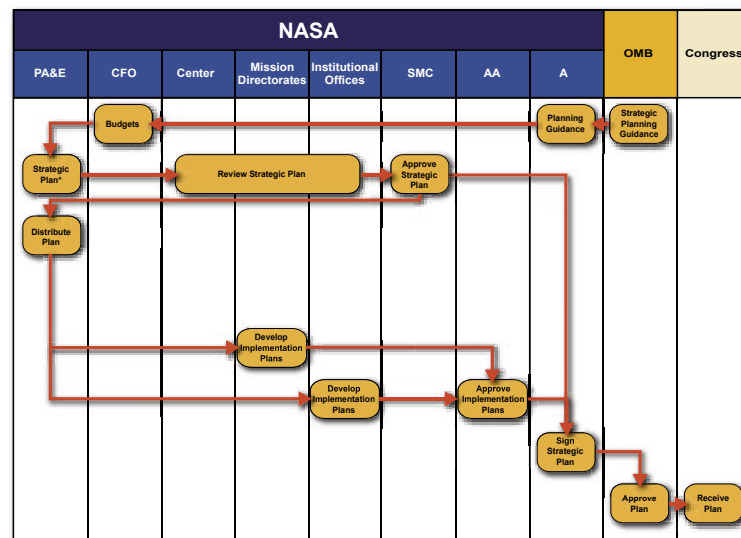
As part of the strategic planning framework, NASA is required to submit to OMB an Annual Performance Budget. This document, referred to at NASA as the Integrated Budget and Performance Document (IBDP), includes the Annual Budget and the Annual Performance Plan for a given fiscal year.

Once the Strategic Plan is approved, each Mission Directorate shall develop one Implementation Plan to carry out the Strategic Plan. All institutional offices shall contribute to one Institutional Plan. The Implementation Plan(s) must take into account all relevant information from the Annual Budget and the Integrated Budget and Performance Document. The Associate Administrator may elect to develop only one Implementation Plan for the Agency.

The Mission Directorates shall develop Implementation Plans. The Institutional offices shall develop inputs that will be combined to form one Institutional Implementation Plan. All plans shall identify programs and projects (if necessary) and show how they contribute to the Agency's Strategic Goals, as shown in Figure 4.1-1. Implementation Plans shall also be required for institutional capabilities where the costs are captured in G&A pools.

The Strategic Management and Governance Handbook will be updated before the beginning of each new cycle of strategic planning, if required. As previously stated, both internal and external requirements influence NASA's strategic management framework.

The strategic planning cycle starts with the President's budget, followed by a kickoff letter from the Administrator. After this, the process follows an iterative sequence from planning to implementation, as shown in Figure 4.3.5-1.



**Figure 4.3.5-1** Roles and responsibilities of organizational stakeholders associated with strategic planning approach.

## 4.3.6 Strategic Management Framework Responsibilities

Table 4.3.6-1 is a summary of the products generated by the NASA team throughout the strategic planning cycle. It also shows the schedule and owner(s) for each product. Consult the latest OMB Circular A-11 Annual Guidance to confirm all specific dates.

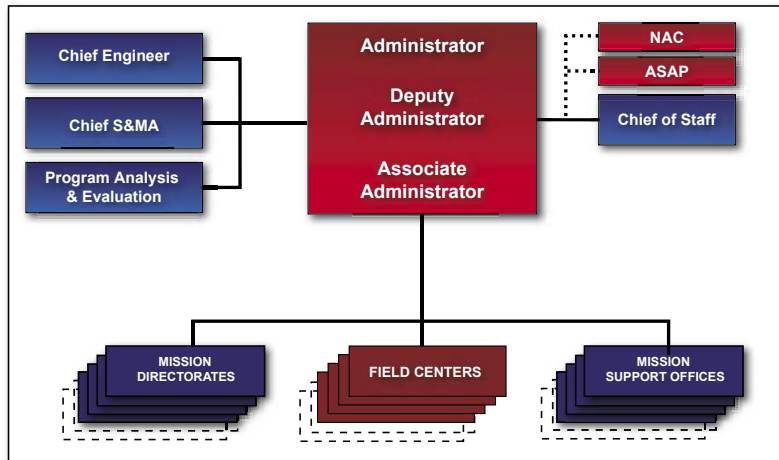
Products	Responsibility	Signature Authority	Schedule
Strategic Plan	PA&E	Administrator	Once every three years or as required.
Annual Budget	Chief Financial Officer (CFO)	Administrator	Annually - February
Annual Performance Plan (included with submission of Annual Budget)	PA&E	Associate Administrator	Annually - February
Annual Performance and Accountability Report	PA&E	Administrator	Annually - November
NASA Organization Manual	Associate Administrator	Associate Administrator	Updated at the beginning of the planning process each year, or within 30 days of an organizational change
Implementation Plans	Mission Directorates; Institutional Offices	Associate Administrator	Annually in place by October 1.
Individual Performance Plans	All	Managers	As required
Strategic Management and Governance Handbook	Office of The Chief Engineer (OCE)	Administrator	Annually at the beginning of the planning process

**Table 4.3.6-1** Products generated as a result of NASA's strategic planning cycle.

## 5.0 Implementation

The primary program roles for Headquarters will be: (1) development of strategy and mission architectures; (2) integration across program and mission boundaries; and (3) program assessment. The primary role of Centers is program/project management and mission execution. This “checks and balances” model aligns capability with responsibility and creates the appropriate level of management tension required for the successful execution of high-risk endeavors.

NASA is program/project driven, and its organization reflects that focus. Figure 5.0-1 is a notional representation of the NASA organization that will be the reference point for the discussion on roles and responsibilities.



**Figure 5.0-1** The NASA organization employs a “checks and balances” model to ensure that high-risk endeavors receive scrutiny from a cross-section of senior management.

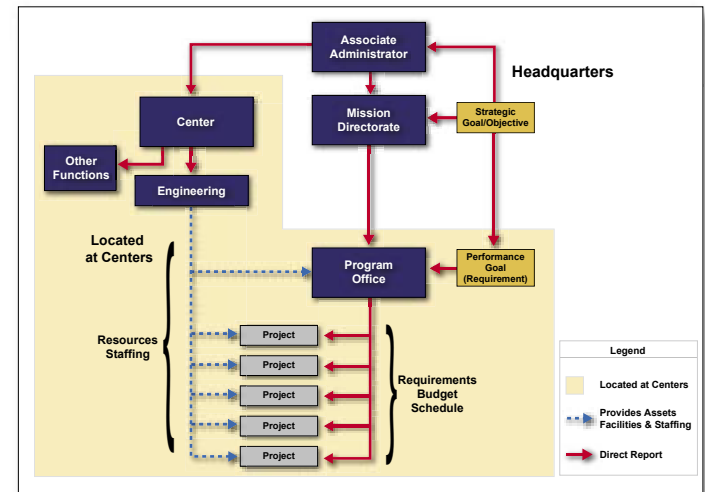
The NASA strategic management framework depends on the management of programs and projects for ultimate implementation and specific outcomes. Through programs and projects, goals are translated into specific objectives and measurable outcomes. The framework links broad national priorities with specific goals/objectives, performance goals (requirements), programs, and projects.

Program and project management is located and executed at the Centers for Mission Directorate Assigned Programs. All other organizational elements exist to support successful program and project execution. Accordingly, strategic goals and objectives are defined in project terms – requirements are assigned to specific projects to maintain reporting traceability as shown in Figure 5.0-2 and 5.0-3. The Agency’s integrated financial management system, which is designed to comply with full cost principles, is based on cost traceability to program and project activities.

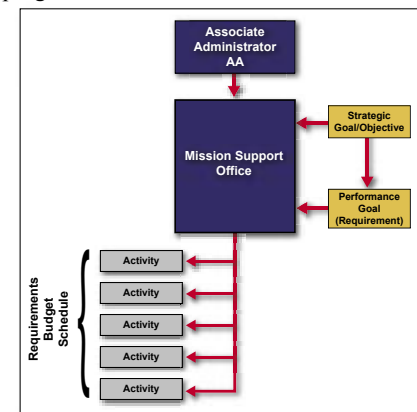
Programs and projects are different and require different skills and professional resources. Management of NASA programs and projects shall comply with the NASA policy NPR 7120.5C, Program and Project Management Processes and Requirements. The following definitions are used in NPR 7120.5C to distinguish between the two:

- Program – a strategic investment by a Mission Directorate or Mission Support Office that has defined architecture, requirements, funding level, and a management structure that supports one or more projects.
- Project – a specific investment identified in a Program Plan having defined requirements, life cycle cost, a beginning, and an end. A project yields new or revised products or services that directly address NASA’s strategic needs. They may be performed wholly in-house, by government-industry-academia teams, or nearly completely under contract.

The NASA strategic management framework is designed to strike a balance between the constantly evolving state of space and aeronautical science, exploration, and current space operations on the one hand, and the stability needed to successfully accomplish the Agency’s broad portfolio of programs and projects on the other. The framework links broad national priorities with specific goals/objectives, performance goals (requirements), programs, and projects.



**Figure 5.0-2** Strategic goals/objectives are achieved by projects meeting requirements that are placed on programs.



**Figure 5.0-3** Funded initiatives at the Mission Support Offices will be “projectized” and accordingly will manage requirements, budget and schedules.

A key component of NASA's strategic management framework is a budget framework. NASA's budget planning and development process incorporates Mission Directorates' programs and projects, which are then incorporated into the strategic goals/objectives and performance goals (requirements). This arrangement also provides for financial control of Agency investments and oversight of program and project execution.

<b>Administrator and Deputy Administrator</b>	The Administrator (A) and Deputy Administrator (DA) are responsible for all aspects of the Agency's business, including its day-to-day operations. They also control external interfaces with entities such as the Congress, Office of Management and Budget, and heads of other federal or foreign agencies.
<b>Associate Administrator</b>	The Associate Administrator (AA) is responsible for technical and programmatic integration at the Agency level. As such, the AA is the primary interface to the mission directorates and field centers.
<b>Chief of Staff</b>	The Chief of Staff directs the Administrator's support staff and is responsible for supporting all aspects of the Administrator's daily business.
<b>PA&amp;E</b>	PA&E has the responsibility to independently assess program performance, make programmatic and institutional recommendations, perform cost analysis, and conduct strategic planning activities. PA&E shall ensure all aspects of a major decision are considered and obtain pertinent information required to assist the Administrator in making well-informed, timely decisions. PA&E will have no budget authority or line responsibility for any Agency programs.
<b>Chief Engineer</b>	The Chief Engineer provides policy direction oversight and assessment for the NASA engineering and program/project management. Serves as the principal advisor to the Administrator and other senior officials on matters pertaining to technical readiness in execution of NASA programs and projects. Also responsible for Agency-level standards and policies as applied to engineering and program management.
<b>Chief, Safety and Mission Assurance</b>	The Chief, Safety and Mission Assurance ensures the safety and enhances the success of all NASA activities through the development, implementation, and oversight of Agencywide safety, reliability, maintainability, and quality assurance policies and procedures. Serves as the principal advisor to the Administrator and other senior officials on matters pertaining to the safety and quality of NASA programs and projects.
<b>Mission Directorates</b>	The Mission Directorates are primarily responsible for managing program portfolios at the theme level. As such, they own the budgets, schedule, and top-level requirements for the Agency's programs. Programs and projects are delegated to the Centers. If integration across Mission Directorate lines is required, then the Mission Directorate that has ownership of the affected program is responsible for integration of external requirements and interfaces with that program. In extraordinary cases, the Administrator may charter special study and design teams outside Mission Directorate authority in order to define architectures or perform very high levels of integration.
<b>Mission Support Offices</b>	The Mission Support Offices are responsible for maintaining the institutional capabilities necessary for execution of NASA's programs and projects, and as appropriate, ensuring NASA compliance with external regulations.
<b>Centers</b>	Centers are responsible for establishing and maintaining the institutional capabilities (human capital, facilities, processes, etc.) required for programs, projects, and missions. Programs and projects are executed at the field centers under direction from HQ mission directorates.

**Table 5.0-1** Roles and Responsibilities of NASA Management

## 5.1 Developing Implementation Plans

Mission Directorates shall develop Implementation Plans to execute the Strategic Plan. Institutional offices shall contribute to the development of one Implementation Plan. A NASA Procedural Requirements document will be developed that describes the process and procedures for developing an Implementation Plan. The Annual Performance and

Accountability Report shall demonstrate the relationship between Mission Directorate Implementation Goals and the higher-level Agency Strategic Goals.

An integral component of NASA implementation planning and assessment is the President's Management Agenda. Organizational responsibility of the PMA elements are listed in Table 5.1-1.

PMA Elements	Responsibility	Signature Authority
Strategic Management of Human Capital	Assistant Administrator for Human Capital	Associate Administrator
Competitive Sourcing	Assistant Administrator for Procurement	Associate Administrator
Improved Financial Performance	CFO	Associate Administrator
Expanded Electronic Government	CIO	Associate Administrator
Budget and Performance Integration	PA&E	Associate Administrator
Real Property	AA	Associate Administrator
Research and Development Investment Criteria	PA&E	Associate Administrator

**Table 5.1-1** is a summary of the PMA elements.

## 5.2 Implementation Planning Responsibilities

The products generated by the NASA team throughout the implementation planning cycle are summarized in Table 5.2-1. It also shows the schedule and owner(s) for each product.

Products	Responsibility	Signature Authority	Schedule
Implementation Plans	Mission Directorates; Institutional Offices*	Associate Administrator (all)	No later than 1 October of each year
Plans, Policies, Procedures	Mission Directorates; Mission Support Offices; Centers	CD Assistant Administrator MD; Assistant Administrator MSO	As required
Annual Performance and Accountability Report	PA&E	Administrator	15 November

\* All Institutional Offices will contribute to the development of one institutional Implementation Plan.

**Table 5.2-1** is a summary of the implementation planning process. It shows the products generated by the NASA team throughout the planning cycle, and it shows the schedule and owner(s) for each product.

## 6.0 Monitoring and Control

A mission-driven organization must have the ability to monitor all aspects of performance and then use the performance measures stated below to control the programs and projects. Monitoring and control of programs and projects is critically dependent on all stakeholders using the same:

- Financial systems, for budget versus actual performance.
- Schedule.
- Requirements.

This approach depends on the use of single accessible databases, which are imperative in the case of financial information. A program or project may have several technical databases, but they shall have only a single accessible database when using them to collect program or project metrics. These single validated databases become the Authoritative Data Source (ADS) for budgeting, planning, and execution.

### 6.1 System and Data for Metrics Collection (Authoritative Data Source)

NASA's Integrated Enterprise Management Program (IEMP) is NASA's Agencywide financial system. Core Financial is the IEMP "backbone" supporting NASA's financial management activities. As NASA's accounting and budget tool for full cost management, it provides the means to understand cost drivers, determine total program costs, and relate costs to performance. The CFO is responsible for maintaining the Core Financial ADS as part of IEMP.

Programs and projects shall practice full cost management through Earned Value Management (EVM). EVM is a program management technique that integrates technical performance requirements, resource planning, and schedules. It provides an objective measurement that allows a management team to compare how much work has actually been completed with the amount of work planned. (See NPR 7120.5C for details about EVM implementation at the program/project level.)

Full cost management is institutionalized in NASA. Full cost management is mandated at the Agency, and is the right way to do business. This accounting method if properly implemented, shows where every dollar was spent and by whom. NASA also uses the full cost concept for budgeting. Full Cost Budgeting directly links each program with all of the resources it benefits from or consumes.

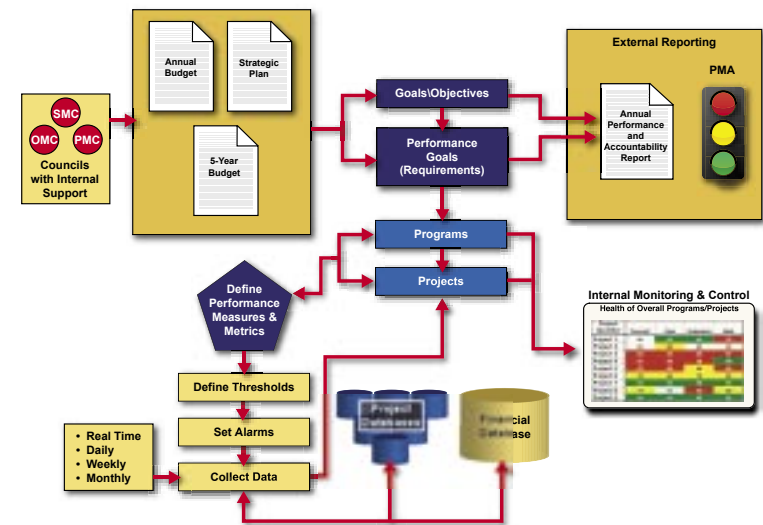
Managers shall report program and project cost by drawing data from IEMP's Core Financial structure. It is imperative that everyone is looking at the same financial data during the evaluation process and decision making.

### 6.2 Assessments and Audits

The Office of Program Analysis & Evaluation (PA&E) conducts assessments and audits to evaluate the effectiveness of NASA's strategic planning and program/project effectiveness. Independent Technical Authority (ITA), NESCA, Mission Support Offices, and S&MA also conduct assessments and audits at various levels.

NASA leadership requires on-line, near-real-time access to planning, budgeting, and analytical and programmatic information to enable rapid decision-making, take corrective actions, and maintain the ability to respond in a timely manner to the President, OMB, Congress, and mission requirements. NASA identifies issues of concern through a strong network of oversight councils and internal and external auditors including NASA's governance councils (OMC, PMC, SMC), National Research Council (NRC), Office of the Inspector General (OIG), the National Academy of Sciences (NAS), the National Academy of Engineering (NAE), and the Government Accountability Office (GAO). The decision-making environment requires:

- The use of one common database and format for financial data, as shown in Figure 6.2-1. This becomes the Authoritative Data Source (ADS) for budgeting, planning, and execution. Using one financial ADS enables organizational consolidation, reporting, and analysis for rapid decision-making.
- The ability to trace budget and actual costs from a single project up through an Agency strategic goal/objective.
- The Strategic Plan to be linked to Implementation Plans that support strategic goals/objectives.
- A link between budgeting and both operational and strategic planning.
- A budget that mirrors the way NASA runs its business.
- The Finance Organization, Mission Directorates, Mission Support Offices, and Centers using Core Financial for all phases of a given mission.
- Assessments and audits using this same database.



**Figure 6.2-1** NASA must operate and make decisions in real-time, and one of the key requirements is one common database for financial information, allowing budgets and actual and assessment data to be pulled from the same source.





The NASA management team must have the ability to:

- Measure performance, including key performance indicators (KPIs) and metrics.
- Monitor ongoing status of operations and events, including the current status of resources.
- Make real-time decisions when business rules are violated and action must be taken.
- Analyze “what-if” scenarios using actual historical data and simulating likely outcomes.
- Set performance goals at any level of the organization.
- Establish measures and criteria for monitoring progress.
- Gauge the organization’s overall health.

## 6.3 Internal Metrics

NASA collects two kinds of internal metrics: programmatic and institutional. Programmatic metrics are those generated by programs and projects. Institutional metrics relate to the Agency’s administration, facilities, human capital, and other elements that fall outside the purview of programs and projects.

## 6.4 External Metrics

External metrics are those reported to OMB and Congress. Requirements for external metrics are derived from GPRA, OMB Circular A-11, and the PMA. These metrics are reported in the Annual Performance and Accountability Report for strategic goals/objectives and performance goals (requirements). Mission Support Offices report other external metrics as required by law, regulation, or Executive Order.

## 6.5 Monitoring and Control Responsibilities

Table 6.5-1 is a summary of the products generated by the NASA team through the monitoring of programs and projects and through the collection of metrics. It also shows the schedule and owner(s) for each product.



*“It’s human nature to stretch, to go, to see, to understand. Exploration is not a choice, really; it’s an imperative.”*  
- Michael Collins, Gemini and Apollo astronaut

Products	Responsibility	Signature Authority	Schedule
Authoritative Data Source	CFO	N/A	Continuous
Earned Value	Per NPR 7120.5C	N/A	As required
Special Assessments	PA&E NESC ITA	PA&E AA OCE Chief OCE Chief	As required
Agency Strategic Goals/Objectives	PA&E	Administrator	Monthly; Annual Performance and Accountability Report
Performance Goals (Requirements)	Mission Directorates	AA	Monthly; Annual Performance and Accountability Report
Audits	PA&E OCE (Technical) CFO (Financial) SMA	PA&E AA OCE CFO AA SMA	As required

**Table 6.5-1** defines the roles and responsibilities for monitoring and control. This list is intended as a summary and is not all-inclusive.



*“... the United States was not built by those who waited and rested and wished to look behind them. This country was conquered by those who moved forward, and so will space.”*— President John F. Kennedy, Rice University, Houston, Texas, 12 September, 1962

# Glossary

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**Acquisition** – The conceptualization, initiation, design, development, test, contracting, production, deployment, operations logistic support, modification, and disposal of systems, supplies, or services (including construction) to satisfy NASA needs, intended for use in, or support of, NASA missions.

**ASAP** - The Aerospace Safety Advisory Panel (ASAP) is a senior advisory committee that is to advise the Administrator with respect to the hazards of proposed operations and with respect to the adequacy of proposed or existing safety standards.

**Assessment** – The classification of a program or project with respect to its accomplishments and performance in meeting requirements.

**Audit** – An examination of records or financial accounts to check their accuracy.

**Authoritative Data Source** – The approved and configuration-controlled source that the Agency uses to measure and monitor programs and projects. This allows organizational consolidation, reporting, and analysis for rapid decision-making.

**Competition** – An acquisition strategy whereby more than one Center or contractor is sought to bid on a service or function; the winner is selected on the basis of criteria established by the activity for which the work is to be performed. The law and NASA policy require maximum competition throughout the acquisition life cycle.

**GPRA** – The Government Performance and Results Act of 1993 was established to provide a measurement for strategic planning and performance throughout the Federal Government.

**Implementation** – To put in place the necessary resources and take action to perform a program or project.

**Initiative** – A “project-like” activity that is managed by the Mission Support offices.

**Institutional Management** – Institutional management is located at Headquarters as a G&A function. These offices are responsible for ensuring compliance with external requirements and laws, NASA-wide processes, procedures, standards, audits, and accounting.

**Integration** – A process for examining synergy, redundancies, and the effectiveness of resource utilization. Primarily done during Implementation Plan development, but also includes development of the annual budget, audits, and assessments.

**ITAR** – International Traffic in Arms Regulations.

**Line Organization** – An organization that provides personnel to staff the programs/projects, located at the Centers. It also includes the engineering, safety, industrial, and overhead functions required to run the Center. NASA relies on the line organization for execution and integration. Execution takes place primarily at the project level, where requirements, budget, and schedule are managed.

**Metric** – The various parameters or features of a process that are measured. A standard of measurement.

**Mission** – The core function(s) and primary job(s) of the Agency.

**NAC** - The mission of the NASA Advisory Council (NAC) is to provide the Administrator with counsel on specific NASA programmatic areas and issues.

**NPR 7120.5C** - NASA's Program and Project Management Processes and Requirements. Agency policy governing management of programs and projects. NASA shall have only one policy document for managing programs/projects.

**Objective** – A specific milestone or target level necessary to realize goals.

**OMB Circular A-11** – A policy from the Office of Management and Budget that offers annual guidance on the requirements federal agencies must meet for budget submission and strategic planning.

**Outcome** - Outcomes are a multi-year performance measures of NASA's progress toward achieving longer-term Strategic Objectives and Strategic Goals. Performance on an outcome is determined by weighing the performance of associated Annual Performance Goals against management's timeline for achieving the outcome.

**Output** - The level of activity or effort that will be produced or provided over a period of time or by a specified date, including a description of the characteristics (e.g. timeliness) established as standards for the activity.

**Performance Budget** - A budget that clearly links performance goals with costs for achieving a target level of performance. In general, a performance budget links strategic goals with related long-term and annual performance goals (outcomes) with the costs of specific activities to influence these outcomes about which budget decisions are made.

**Performance Goal** - A target level of performance at a specified time or period expressed as a tangible, measurable outcome, against which actual achievement can be compared, including a goal expressed as a quantitative standard, value, or rate. A performance goal is comprised of a performance measure with targets and time frames. The distinction between “long-term” and “annual” refers to the relative time frames for achievement of the goals.

**Performance Measures** - Indicators, statistics, or metrics used to gauge program performance.

**Program** - A strategic investment by a Mission Directorate or Mission Support Office that has defined goals, objectives, architecture, a funding level, and a management structure that supports one or more projects.

**Program Assessment** - A determination, through objective measurement and systematic analysis, of the manner and extent to which federal programs achieve intended objectives.

**Project** - A specific investment identified in a Program Plan having defined goals, objectives, requirements, life cycle cost, a beginning, and an end. A project yields new or revised products or services that directly address NASA's strategic needs. They may be performed wholly in-house, by government, industry, academic partnerships, or through contracts with private industry.

**Strategic Goal or Strategic Objective** - A statement of aim or purpose included in a strategic plan (required under GPRA) that defines how an Agency will carry out a major segment of its mission over a period of time.

**Strategic Management** – A series of integrated activities that enable the Agency to establish and execute strategy, make decisions, allocate resources, formulate and implement programs and projects, and measure their performance.

**SWOT Analysis** - A strategic planning tool used to evaluate an organization's Strengths, Weaknesses, Opportunities, and Threats. Strengths and weaknesses are internal, while opportunities and threats typically originate from outside the organization. A SWOT analysis, usually performed early in the strategic planning process, facilitates understanding of those internal and external factors.

**Target** - A quantity, or otherwise measurable characteristic, that conveys how well and by when a program must accomplish a performance measure.

**Vision** – A concise description of a point in the near or far future where the leadership desires the Agency to go.

## A

Administrator 8, 9, 20, 28  
Annual Performance and Accountability Report 3, 7, 16, 20, 23, 27  
Assistant Administrator 9, 24  
Associate Administrator 9, 19, 20, 22, 23, 24  
Authoritative Data Source (ADS) 25, 26, 28, 29

## B

Balance of Power 1, 13

## C

Center 3, 7, 8, 13, 17, 21, 23, 26, 29  
CFO 18, 20, 25, 28  
Checks and Balances 1, 8, 13, 21  
Chief, Safety and Mission Assurance 9, 23  
Chief Engineer 9, 23  
Chief Financial Officers (CFO) Act of 1990 18  
Chief of Staff 9  
Competition in Contracting Act (1984) 11  
Core Values 5

## D

Deputy Administrator 9

## E

Earned Value Management (EVM) 25

## G

Governance 7  
Governance Structure 1  
Government Performance and Results Act of 1993 (GPRA) 3, 17, 18, 27

## I

Implementation 7, 15, 21  
Implementation Plans 16, 17, 19, 20, 23, 26  
Implementation Plan Development Guide 8  
Individual Performance Plan 18, 20  
Information Technology Management Reform Act of 1996 17  
Integrated Financial Management 1, 13, 21  
Integrity 5

## L

Lean Governance 1, 8, 9

## M

Mission Directorate 3, 7, 8, 9, 10, 15, 16, 17, 19, 20, 21, 22, 23, 24, 26, 28  
Mission Success 5  
Mission Support Office 8, 10, 17, 25, 22, 26, 27  
Monitoring and Control 7, 15, 25

## N

NASA's Integrated Enterprise Management Program (IEMP) 25  
NASA Organization Manual 16, 19  
National Aeronautics and Space Act of 1958 3  
NPR 7120.5C 21, 25

## O

Office of Chief Engineer (OCE) 27, 28  
OMB Circular A-11 3, 19, 20, 27  
Operations Management Council 1, 8, 9

## P

President's Management Agenda 16  
Program 22  
Program Analysis & Evaluation Office (PA&E) 9, 10, 15, 18, 19, 23, 24, 25, 28  
Program Management Council 1, 9  
Project 22

## R

Responsibility and Decision-Making 1, 8, 10

## S

Safety & Mission Assurance 8, 13, 25  
Sensible Competition 1, 10  
Strategic Management Council 1, 8, 9, 18, 19  
Strategic Management Framework 7, 8  
Strategic Management of Capital Assets 1, 8, 13  
Strategic Management Principles 8  
Strategic Plan 3, 7, 15, 16, 17, 18, 19, 20, 23, 26  
Strategic Planning 7, 15, 18

## T

Teamwork 5

