

Five Enterprise Strategic Plans

1. Human Exploration and Development of Space

by Stephen Cook and Stephan Fogleman

Since joining NASA in 1985, Stephen Cook has been involved in numerous teams studying management issues and advanced planning. He was previously the Advanced Studies Manager for Space Station Freedom and, in 1993, Chief of Staff for the Associate Deputy Administrator for Strategic Planning. He explained that "HEDS is an enterprise, not a program," and that programs and projects respond to Enterprise goals. "Our business creates opportunities," he said, "in developing space for science, technology, commerce and adventure."

Vision:

To expand the human experience into the far reaches of Space

Mission:

To open the Space frontier by exploring, using and enabling the development of Space

Stephan Fogleman, manager of the Human Systems and Strategic Development Mission from Planet Earth (MFPE) study office, outlined the draft goals and objectives of the HEDS effort:

- Goal 1: Understand and use nature's processes in space, especially gravity and countermeasures.
- Goal 2: Explore and settle the solar system through robotic probes and human missions, using the International Space Station.
- Goal 3: Achieve routine space travel through improved Shuttle operations, new transportation systems and space medicine.
- Goal 4: Enrich life on Earth through achievements in science, math, engineering and medicine with broader opportunities and international cooperation.

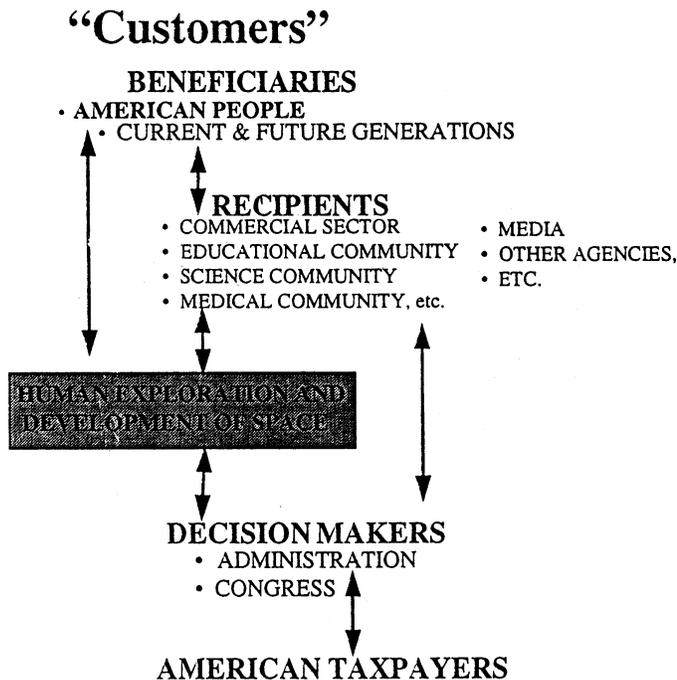


Figure 8. Human Exploration and Development of Space enterprise "customers" begin and end with american citizens.

Fogleman added, "We will not settle the solar system until commercial gains are determined," emphasizing the need to eliminate barriers to viable space commercialization.

2. Aeronautics

by Jay Henn

Jay Henn, director of strategy and policy in NASA's Office of Aeronautics, outlined the Aeronautics Enterprise Strategic plan "for a safe and efficient national aviation system." He noted that U.S. airlines have lost \$12 billion and 100,000 jobs in the past five years, with much of the loss attributed to technically competent, government-supported foreign competition.

To implement the Aeronautics Enterprise goals and objectives, Henn stressed relevance to customers, academia as a full partner, technology transfer and "synergy with other NASA Enterprises."

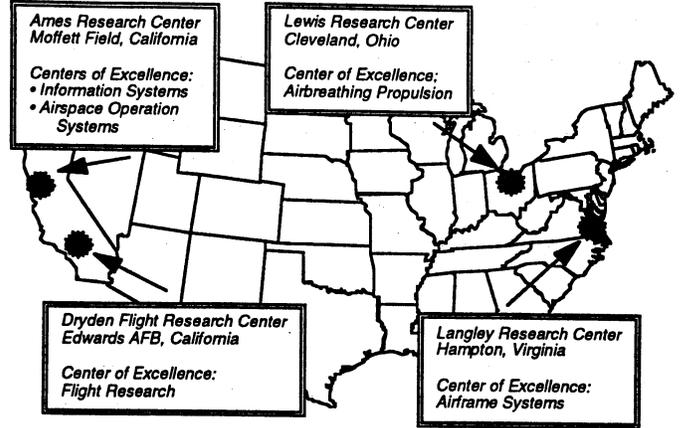


Figure 9. Aeronautics Enterprise Centers.

NASA Roadmap for the Aeronautics Strategic Enterprise

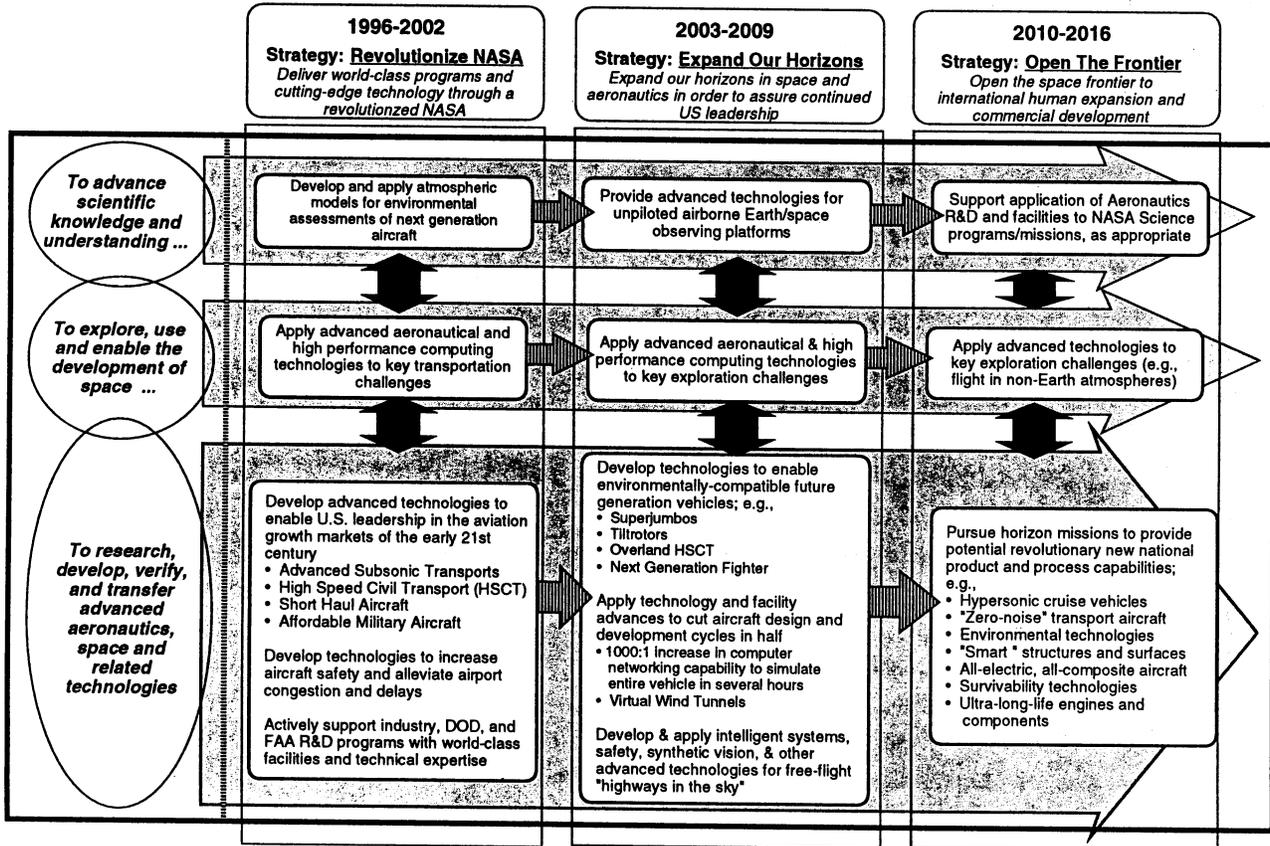


Figure 10. Aeronautics Enterprise Roadmap.

3. Mission to Planet Earth

by Doug Norton

Douglas Norton, Assistant Associate Administrator for Program Integration in the Office of Mission to Planet Earth (MTPE), spoke of “the effects of natural and human-induced changes on the global environment.” The MTPE Enterprise involves more than 27 spacecraft in the Earth Observing System alone and 20 agreements with more than 60 countries. With half the world’s population living within 50

miles of seashore and more than half the oxygen produced by Amazon rainforests, global change study takes on increasing importance.

Norton indicated that the MTPE Enterprise is “science-driven and policy-relevant,” so enhanced customer definition and communication become particular challenges in the strategic planning process.

NASA Roadmap for the Mission to Planet Earth Strategic Enterprise

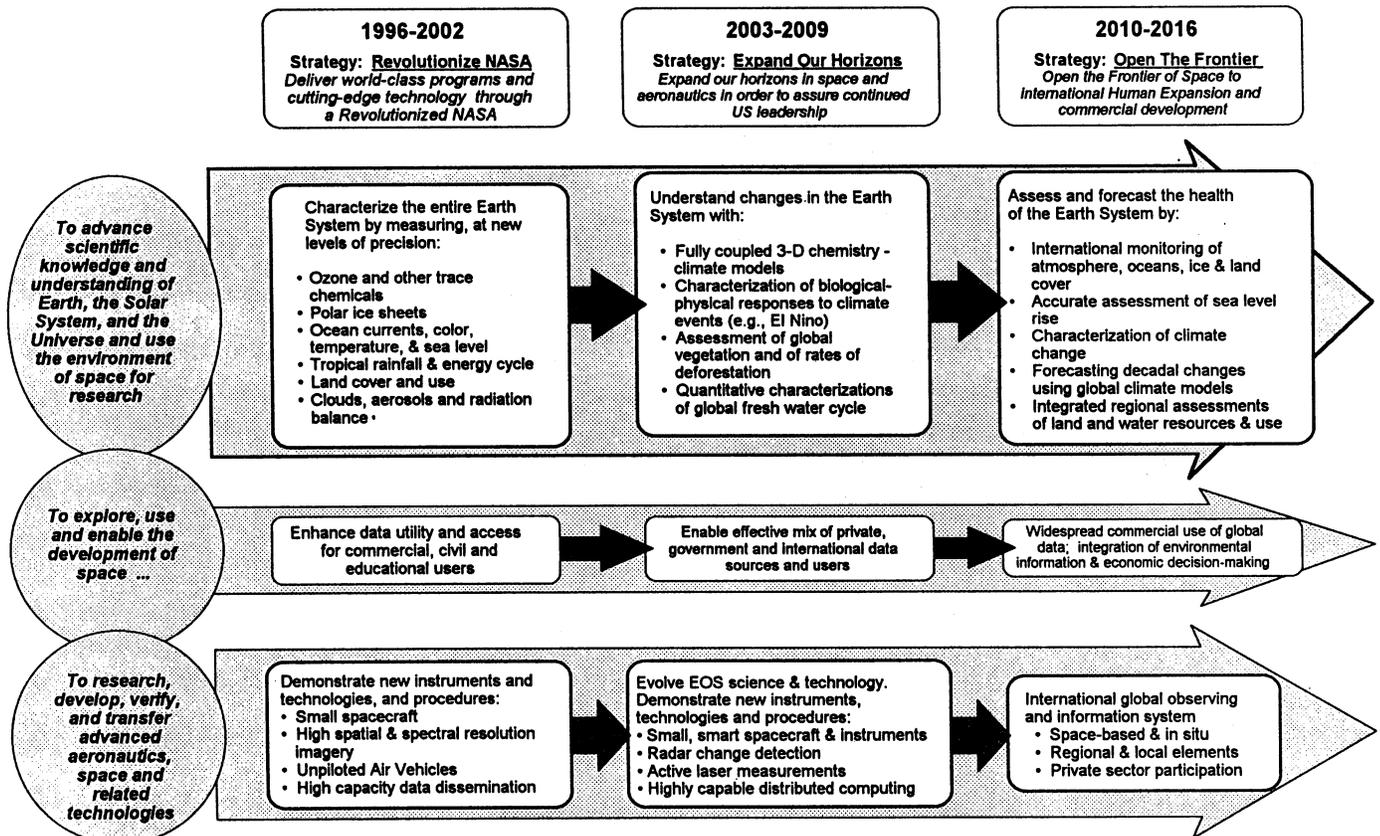


Figure 11. MTPE Enterprise Roadmap.

4. Space Science

by Mary Kicza

Mary Kicza, Assistant Associate Administrator of Technology for the Office of Space Science, addressed the 1995 PMSP Conference to raise fundamental questions about the origin and evolution of planetary systems. OSS strives to serve the science community with understanding and inspiration, the education community with imagination and stimulation, and the aerospace industry with the transfer of technology.

She noted that 4.2 million requests came in for a World Wide Web page on the Astro-2 mission. Contrary to predictions of the 1990 Augustine Commission, she said the 10-year duration flagship missions are giving way to 3-year Discovery and small Explorer missions. After the year 2000, many more lighter missions of even shorter duration will be launched to explore the universe.

Capable Microspacecraft Trends in Spacecraft Size

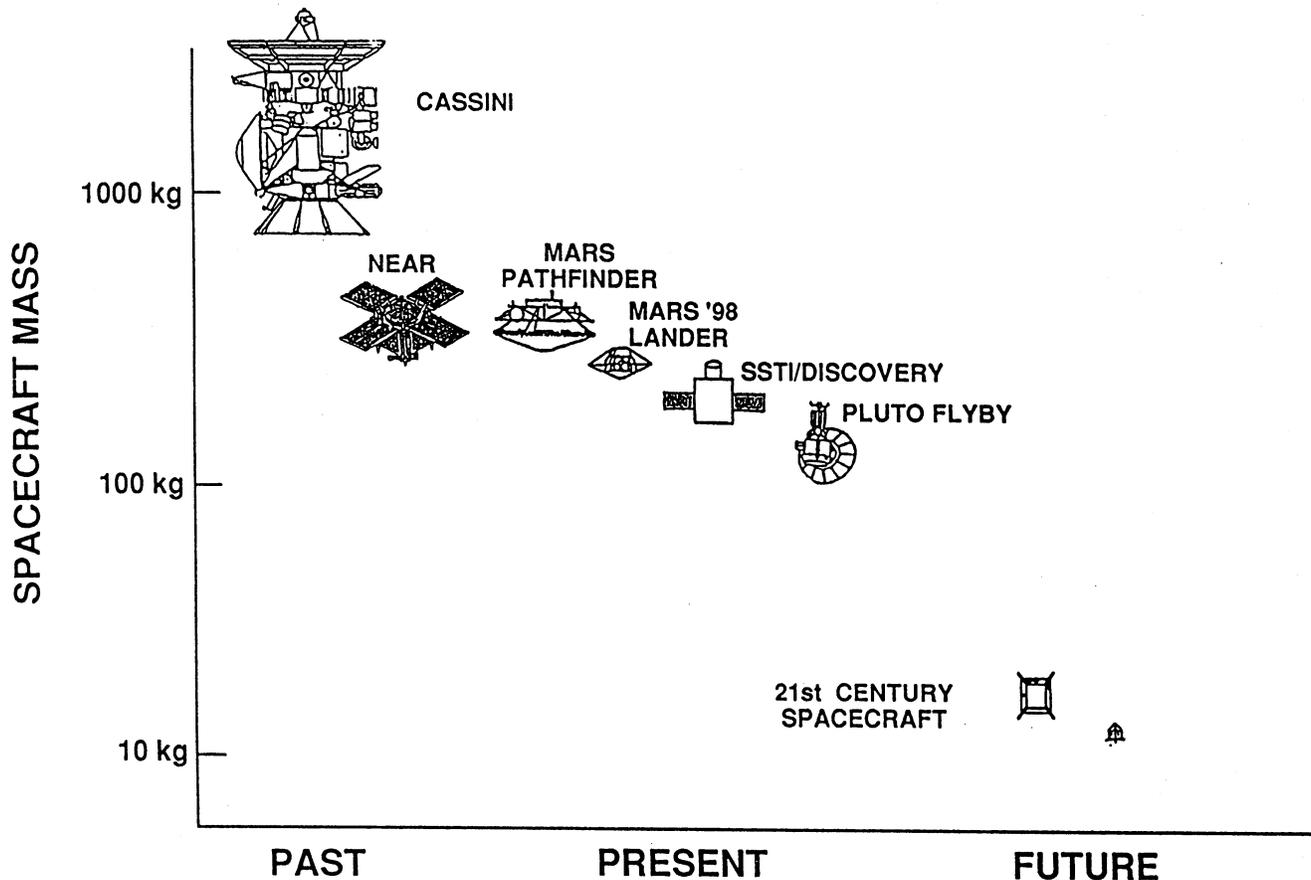


Figure 12. Trends in Spacecraft Size.

5. Space Technology

by Earl Van Landingham

Earl Van Landingham of the Space Transportation Division of the Office of Space Access and Technology outlined the goals of NASA's Space Technology Enterprise (STE). The first goal is to reduce the cost of access to space through cheaper launch vehicles and in-space transportation. Secondly, STE aims to provide innovative technologies (systems, instruments, operations) for ambitious future space missions. Third, meet customer user needs by focusing on communications,

remote sensing and space processing. Finally, share the discoveries through technology transfer and the "Agenda for Change," NASA's new way of doing business. "Commercialization of space is essential to NASA," he said, "and is everyone's job."

The matrix chart below shows the development of technology in the STE in cooperation with and responsive to user requirements.

MANAGEMENT MATRIX FOR SPACE TECHNOLOGY DEVELOPMENT

DRAFT 1/5/95

ACTIVITY	PLAN	PLAN REVIEW/ CONCUR.	BUDGET	EXECUTION	PROJECT REVIEW
Advanced Development System demonstration for a specific mission. Example: Prototype of a power system, to meet mission specific power levels, power to wt. ratio and life for use on a planned mission in the Van Allen belt.	USER <u>Developed by the Enterprise</u> with assistance from Space Technology Enterprise Office (2)	STE Plan developed by Enterprise Office, <u>reviewed by STE Office</u>	USER <u>Planned, advocated and reported in the Enterprise Office's budget</u>	USER <u>Performed by the agent of the Enterprise Office</u> with assistance from STE Office	USER <u>Enterprise Office</u> with assistance from STE Office
Focused Technology Technology development and demonstration in a relevant environment (may include space experiments) to address a range of applications . Example: Demonstration in the SSTI of a light weight, high eff., long life, radiation hardened power system	STE <u>Developed by STE Office based on collective inputs</u> from the Enterprise Offices & Industry	USER <u>Enterprise Offices concur on and industry reviews plan</u> developed by STE Office	STE <u>Planned, advocated and reported in the Space Technology Enterprise (STE) Office's budget</u>	STE <u>Performed by the agent of the Space Technology Enterprise Office (STE)</u>	STE <u>STE Office</u> with participation by Enterprise Office and industry
Exploratory Development Experimental evaluation, in laboratory of innovative power system technologies . Example: Multi-junction PV cells, common pressure vessel batteries and adaptive, high efficiency power management.	STE <u>Developed by STE Office</u> based on known or projected mission limiting technology issues	STE <u>Enterprise Offices and industry review</u> plan developed by STE Office	STE <u>Planned, advocated and reported in the Space Technology Enterprise Office's budget</u>	STE <u>Performed by the agent of the STE Office</u>	STE <u>STE Office</u> with participation by Enterprise Offices and industry, as desired

Corporate NASA R&D

Figure 13. Management Matrix for Space Technology Development.