Technology Transfer @NASA

Presented to the Technology & Innovation Subcommittee

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From Red Tape to Results: Creating a Government that Works Better and Costs Less (1993)

In 1993 Clinton Administration recommended:

- Technology transfer training for all employees.
- 10 to 20 percent of R&D budget goes to partnerships with industry.
- Improved metrics to measure its technology transfer performance.
- Mission objectives also include technology advancement and infusion into the private sector and that grant proposals should be evaluated on the basis of how such objectives would be achieved.

From Red Tape to Results: Creating a Government that Works Better and Costs Less (1993)

- All NASA contracts should require clearly defined technology transfer plans for the commercial application of technologies developed for NASA missions.
- NASA's Vision-Mission-Values (VMV) document should be amended to state that technology transfer is a major mission objective of the agency.

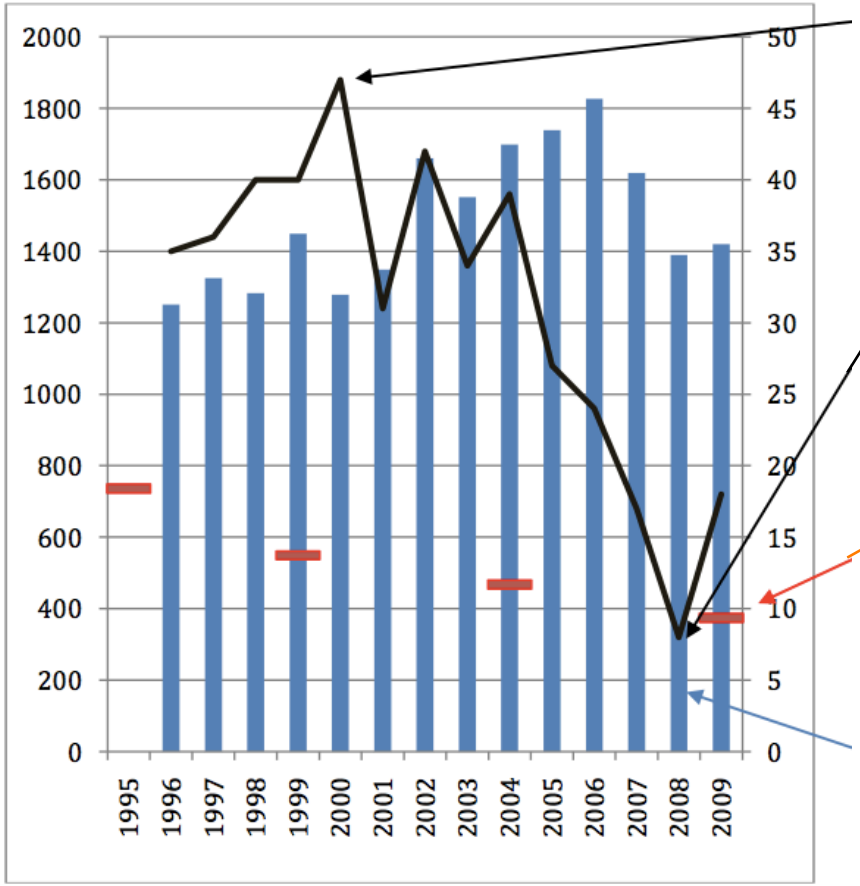
1994: A NEW WAY OF DOING BUSINESS

- In July 1994, NASA launched “NASA's Commercial Technology: Agenda for Change” which implemented the recommendations, and set out the Agency’s newly defined Commercial Technology Mission.
- Targeted 20% of Agency R&D to support commercial partnerships.
- Launched TechTRACs which modeled 50,000 work areas representing an annual NASA investment of approximately $12 billion to identify 2,700 new technologies.
- Instituted training across the Agency.
- All programs and contracts required to consider commercialization strategies.

THE ENTERPRISE ENGINE

- In FY 2004, NASA's Commercial Technology program under the "Agenda for Change" was cancelled.
- NASA's Technology Transfer Efforts were defunded in favor of an approach called the "Enterprise Engine" which refocused the Agency's partnership efforts on developing technologies with specific applications to NASA's mission needs.
- Shift from "spin-out" to "spin-in."
- Coincided with the Bush Administration's implementation of the Vision for Space Exploration.

What happened then?

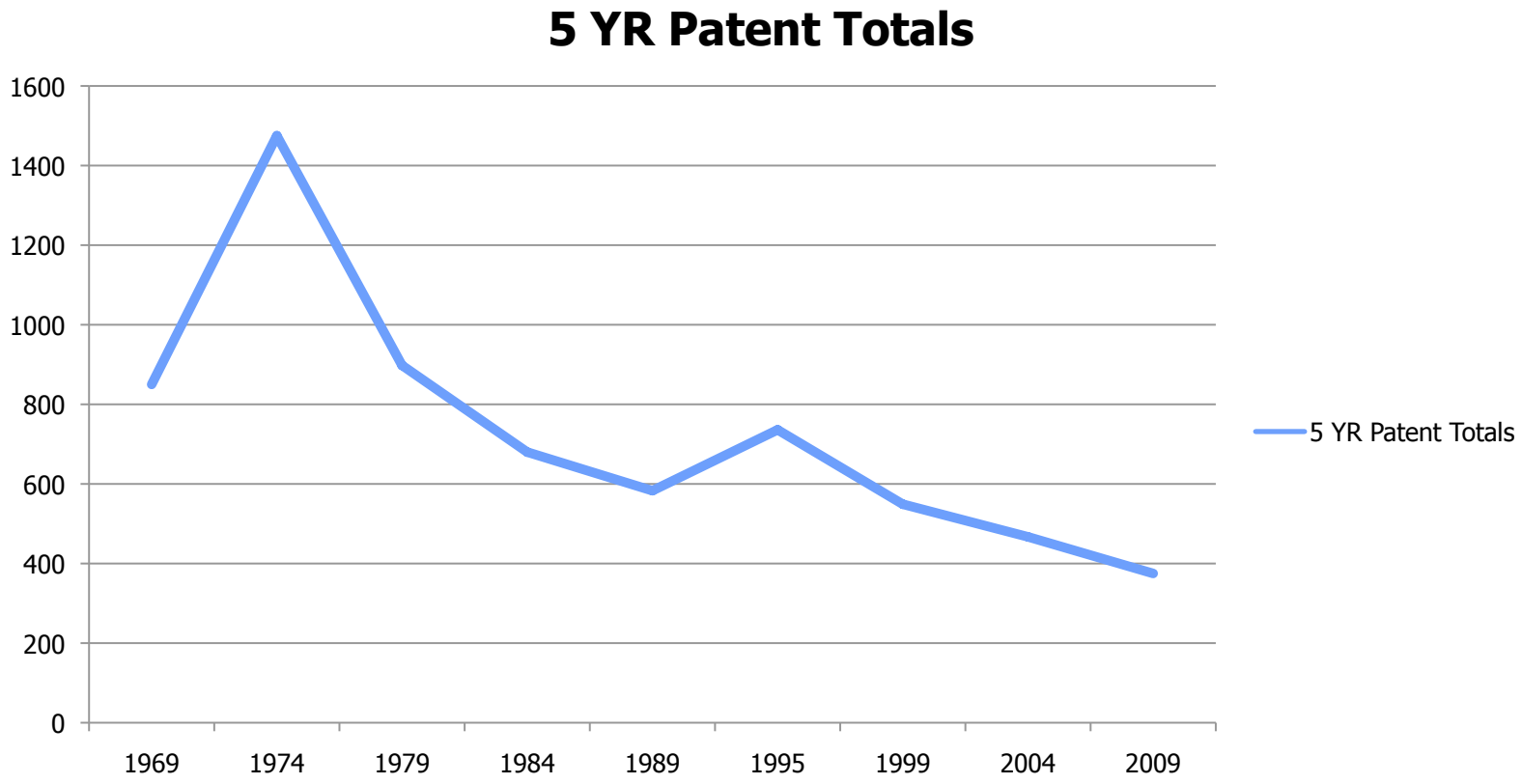


NASA Licenses:
High – 47 1999
Low -- 8 2008

Patents Issued:
(5 year total):
1990-95: 736
2005-09: 374

Invention Disclosures:
Steady or rising
1995-2009

Overall 5 Year Patent Totals



Bringing Innovation to NASA and the Nation

- Review conducted by the National Academy of Public Administration, released in November 2004.
- Recognized that successes of the Agenda for Change paled in comparison to NASA's historic contributions to the Nation.
  - The private and university sectors of the economy now conduct much more research and development (R&D) than the federal government.
  - The issues of technology and technology transfer are multi-national, and the development of space-related technologies has been globalized.
  - Small businesses are an increasing source of innovation for new technology.

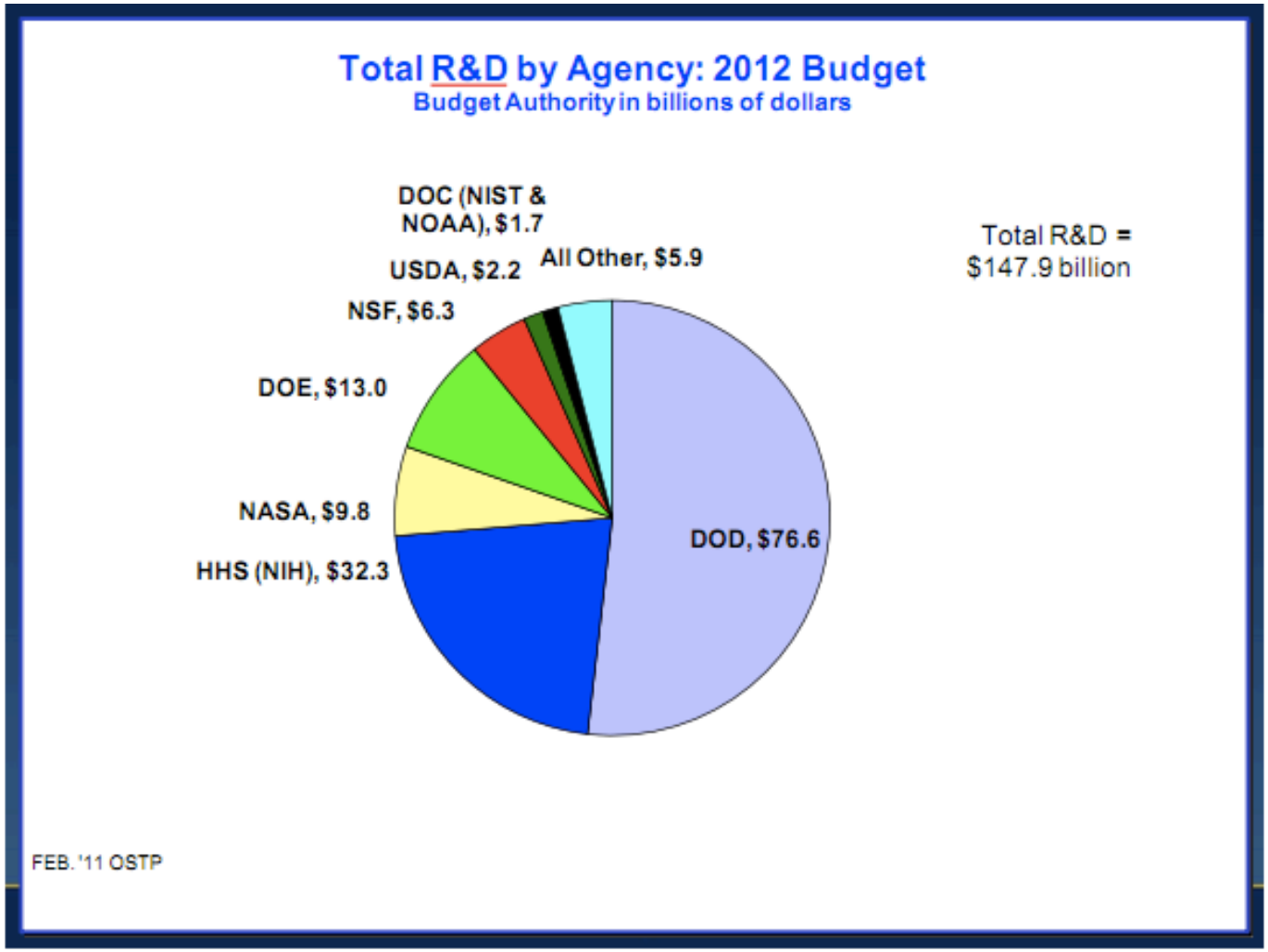
Bringing Innovation to NASA and the Nation

- Cont'd.
  - Congress, NASA, and the Office of Management and Budget (OMB) have different views about how to best accomplish technology transfer. This disagreement plays out through the budget process and has created significant uncertainty about the program throughout NASA's technology transfer network.
  - Organizations in the technology transfer network operate at the margins of the agency's overall operations, lack executive support, and are likely to be at odds with each other.
  - The technology transfer program has recently undergone major changes. In FY 2004, the Commercial Technology Program was terminated, and the program's emphasis was changed from a primary focus on diffusion of technology to the private sector to a much greater focus on the infusion of technology into the agency to help meet mission requirements.

Bringing Innovation to NASA and the Nation

- Specifically reviewed the Innovative Partnership Program Office
- Recommended:
  - Strong Leadership Commitment to technology transfer as a core element of the agency's mission.
  - Relocate IPP to the Administrator's Office to provide Agency-wide Accountability
  - Clarify Roles and Responsibilities for Spin-In and make better use of technology outside NASA.
  - Roles and Responsibilities for Spin-Out and make Center Directors responsible to support staffing and activities.
  - Improve the Timeliness of the Intellectual Property Process
  - Evaluate its technology transfer efforts to assesses the long-term economic and social impacts of NASA technology transfer, and establishes individual performance standards for all officials who have a role in technology transfer.

Why is this relevant NOW?



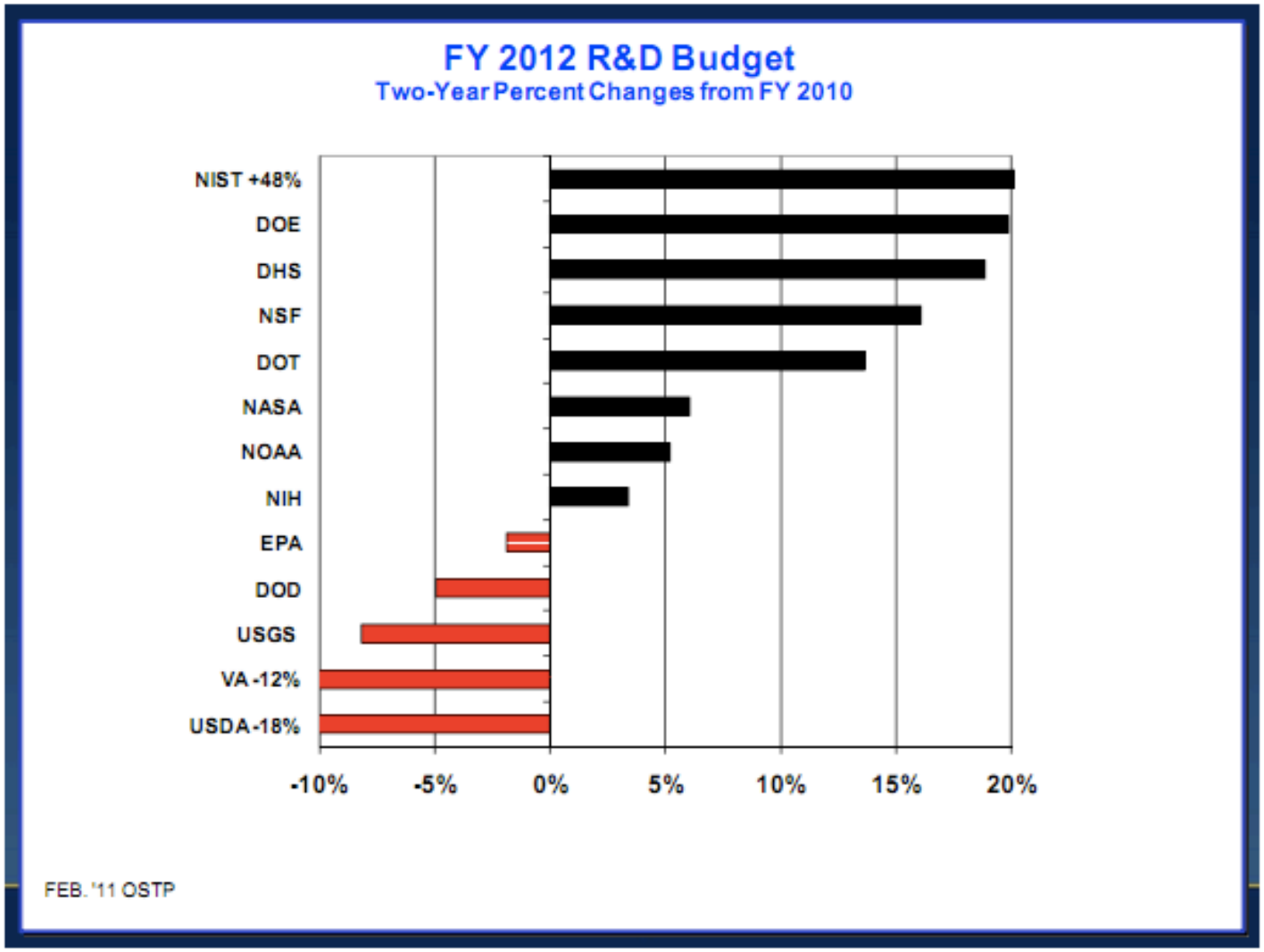
2009 – OSTP Strategy for American Innovation

EXECUTIVE OFFICE OF THE PRESIDENT
NATIONAL ECONOMIC COUNCIL
OFFICE OF SCIENCE AND TECHNOLOGY POLICY

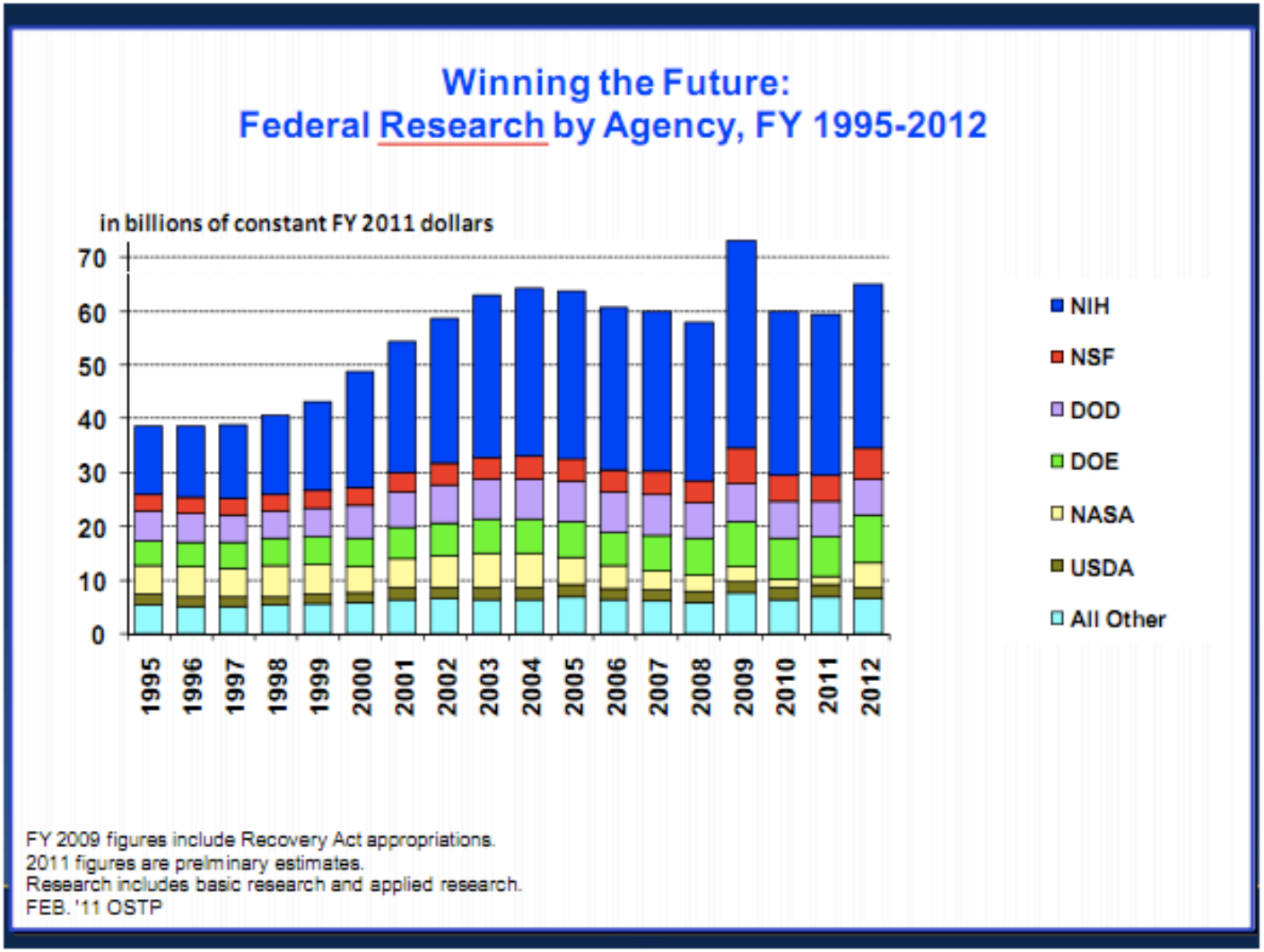
A STRATEGY FOR AMERICAN INNOVATION:
DRIVING TOWARDS SUSTAINABLE GROWTH AND QUALITY JOBS

NASA is not mentioned as an element of this Strategy

Modest Proposed Increase in R&D Budget



However, significant Increase in R&D Spending!



Summary

- Because of changes external to the Agency, NASA will likely never regain the level of technology contributions it made during Apollo.
- The Agency is still suffering from the cuts to the technology transfer program made in FY2004.
- An Agency culture with a focus on immediate and near term mission needs deemphasizes activities which do not appear to directly result in mission benefit.
  - This is amplified in times of tight budgets and uncertainty.
- The Agency must take advantage of the shift in mission and the reemphasis on new technologies.
  - This is independent of current budget process (OCT).
- The observations and recommendations in the 2004 NAPA review are relevant today and should be strongly reconsidered as part of NASA's new direction.