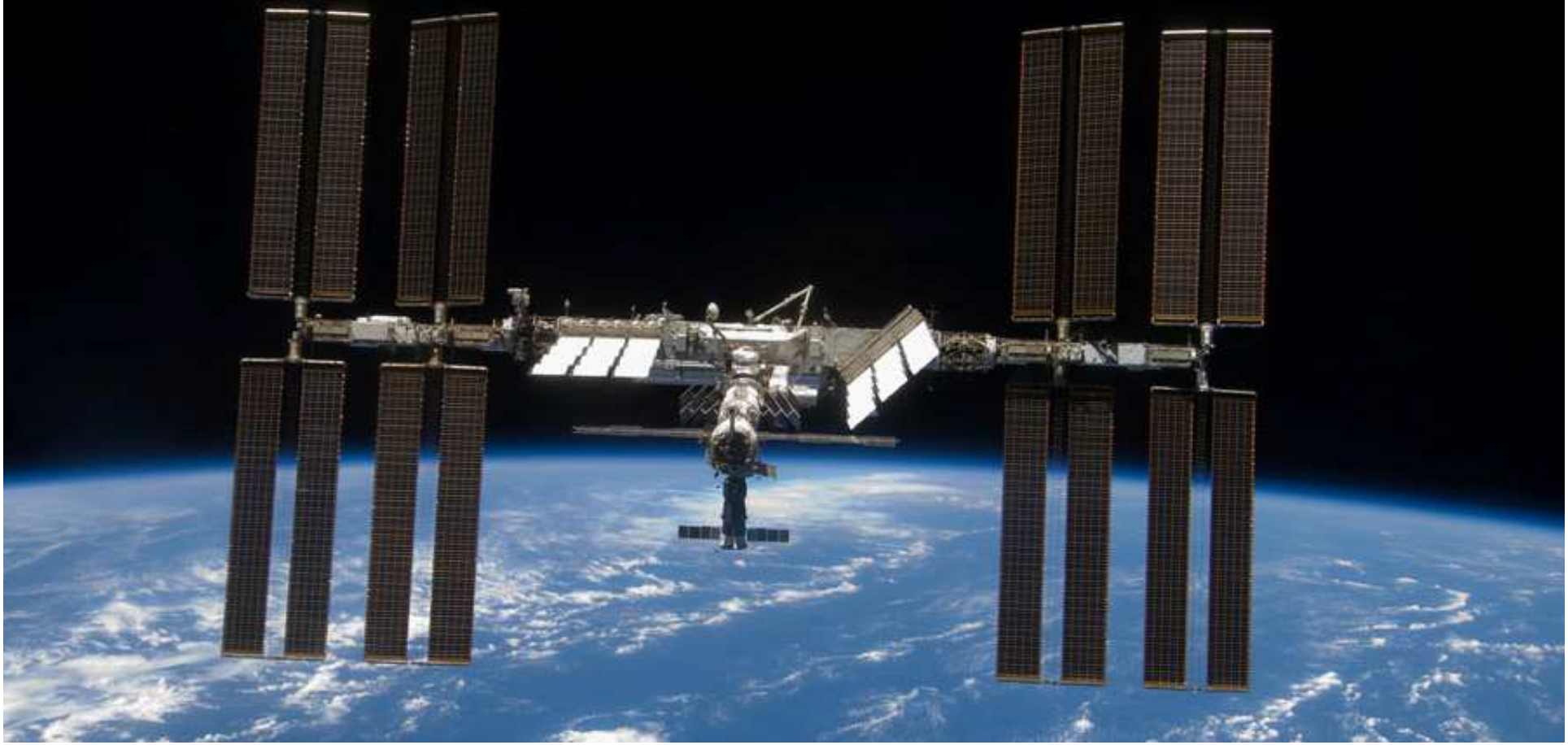
National Aeronautics and Space Administration

National Programs
International Collaboration
NASA: The Odyssey

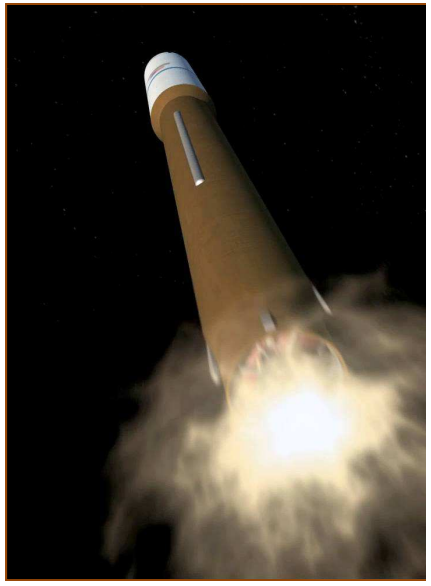


NASA's Vision

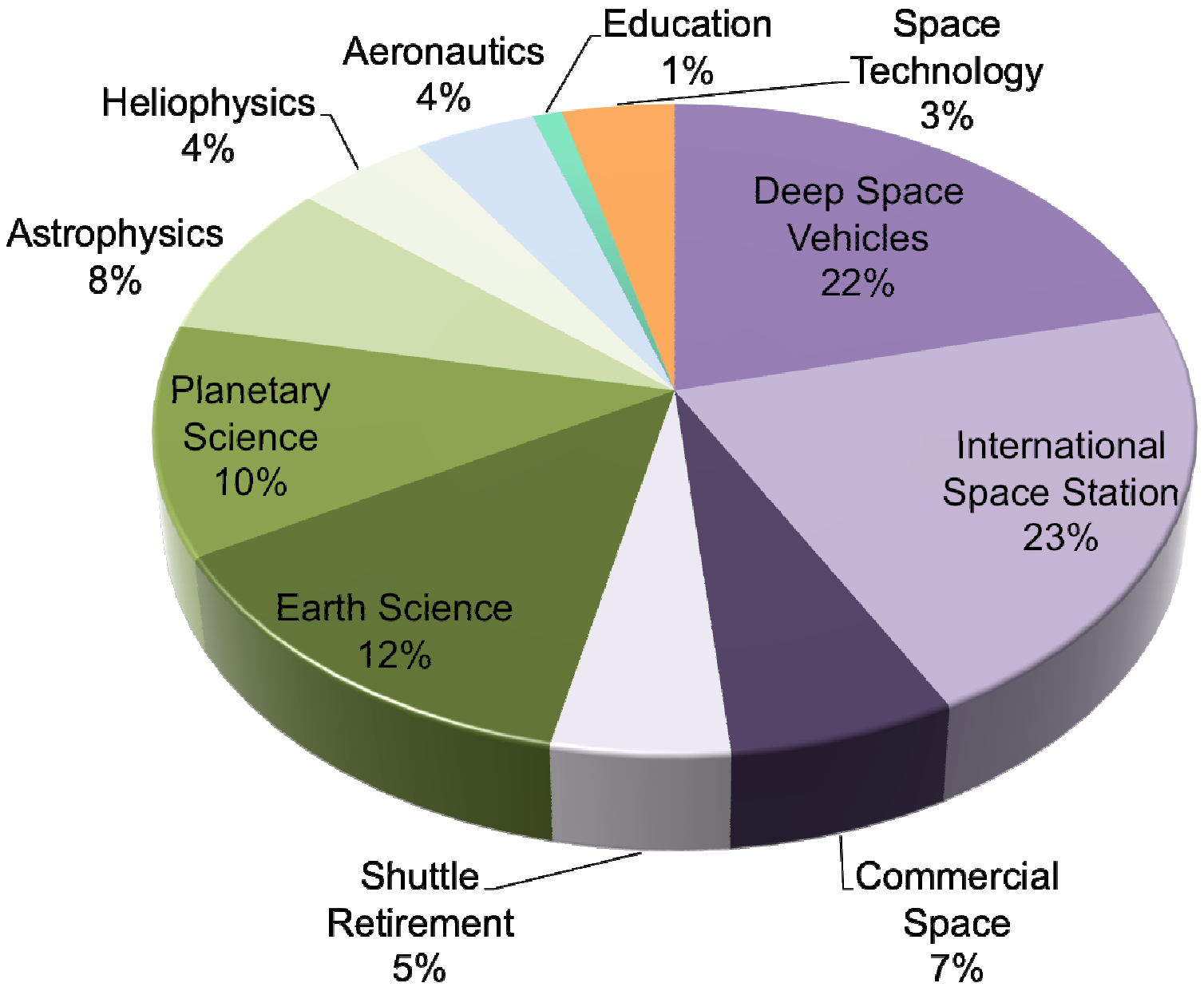
To reach for new heights and reveal the unknown so that what we do and learn will benefit all humankind

The NASA Authorization Act of 2010

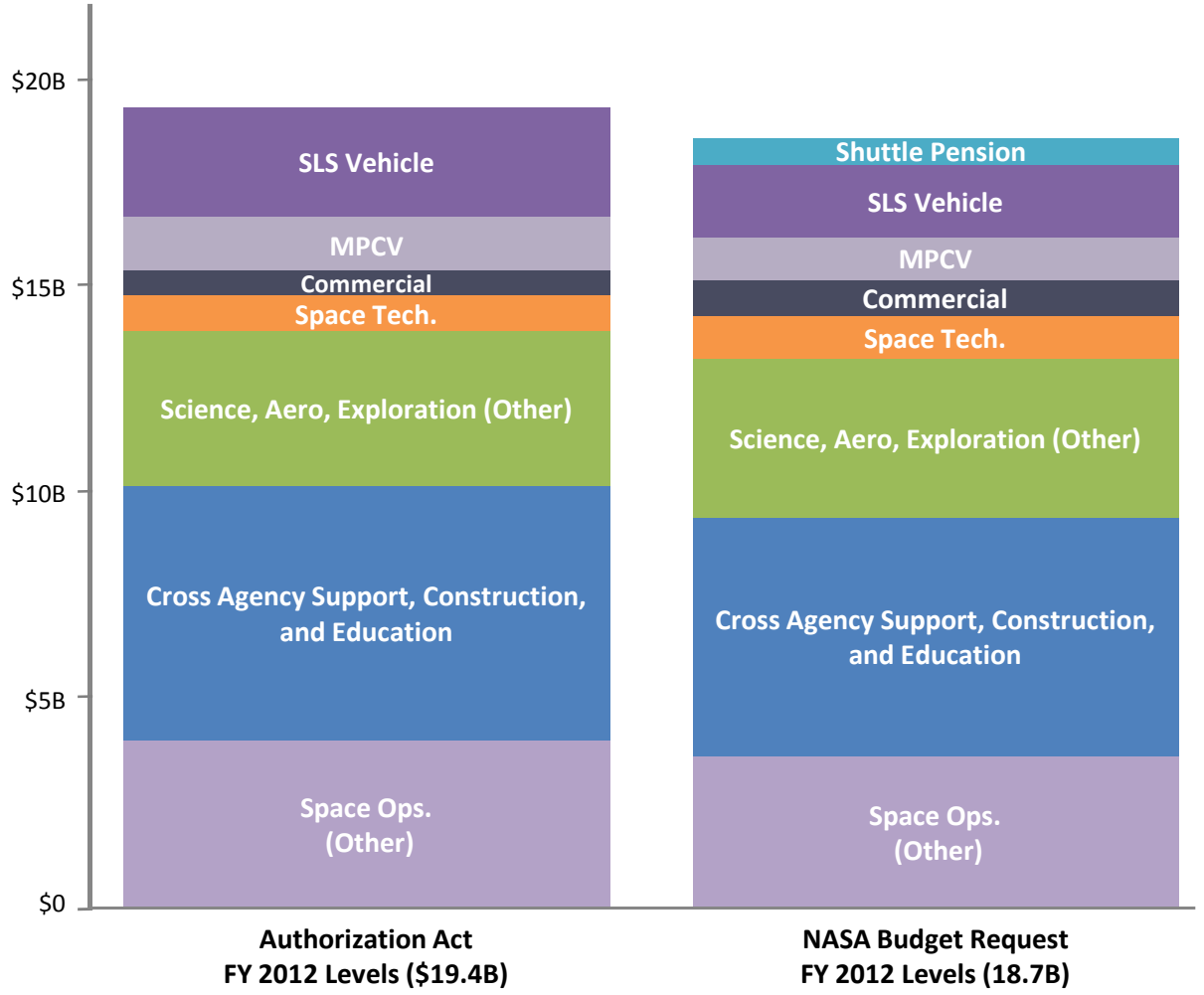
- The Congress approved and the President signed the National Aeronautics and Space Administration Authorization Act of 2010
  - Bipartisan support for human exploration beyond low-Earth orbit
- The law authorizes
  - Extension of the International Space Station until at least 2020
  - Launch-On-Need Shuttle (STS-135), NET June 2011
  - Strong support for a commercial space transportation industry
  - Development of a multi-purpose Crew Vehicle and heavy-lift Space Launch System capabilities
  - A “flexible path” approach to space exploration, opening up vast opportunities including near-Earth asteroids and Mars
  - New space technology investments to increase the capabilities beyond low-Earth orbit
  - Strong support for aeronautics
  - Strong support for space and Earth science



NASA Programmatic Budget



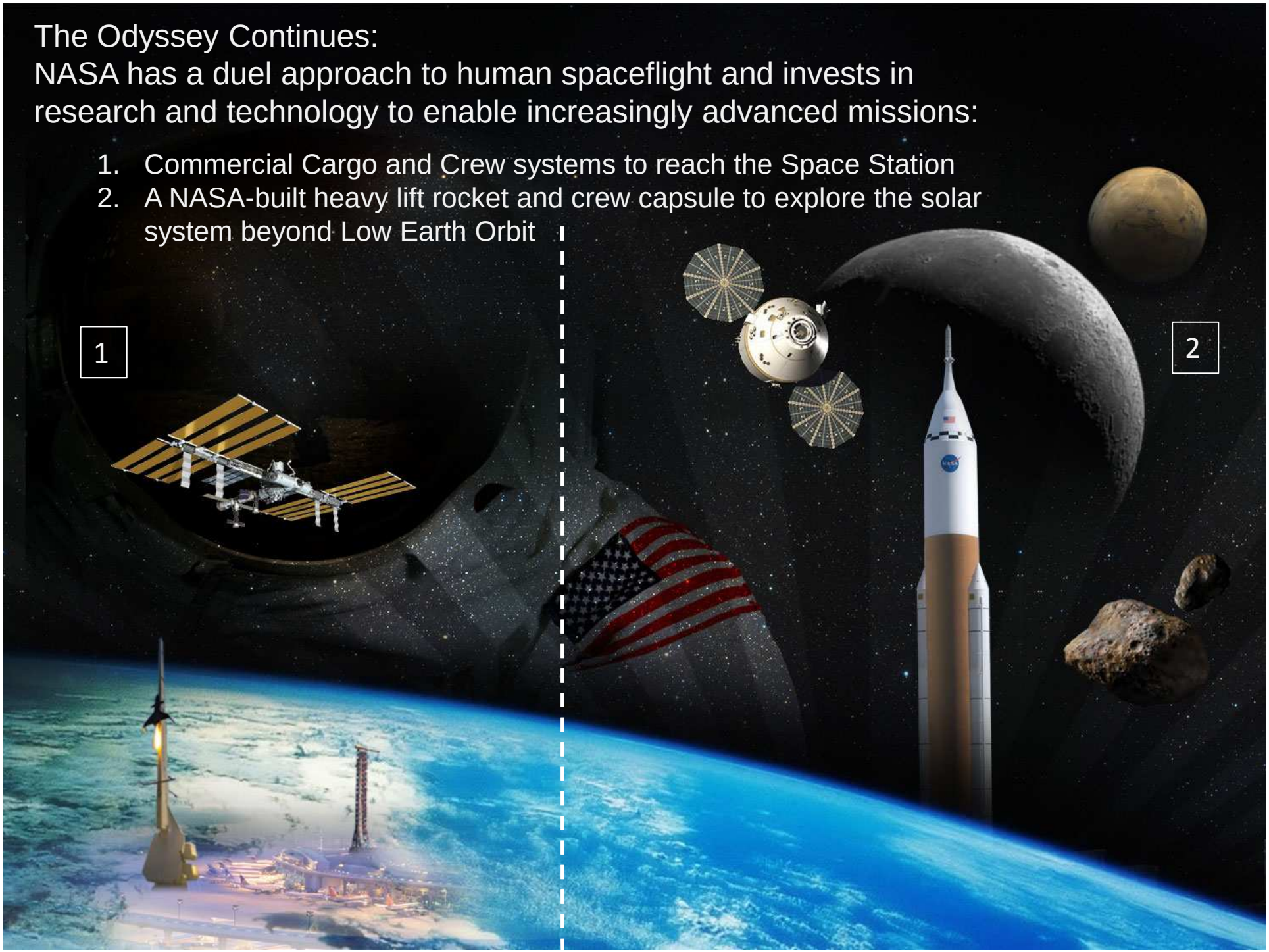
Budget Challenges



NASA's budget request for major programs is aligned with authorized levels, however has been affected by an overall topline reduction and an unexpected Shuttle workforce pension payment

The Odyssey Continues:
NASA has a duel approach to human spaceflight and invests in research and technology to enable increasingly advanced missions:

1. Commercial Cargo and Crew systems to reach the Space Station
2. A NASA-built heavy lift rocket and crew capsule to explore the solar system beyond Low Earth Orbit

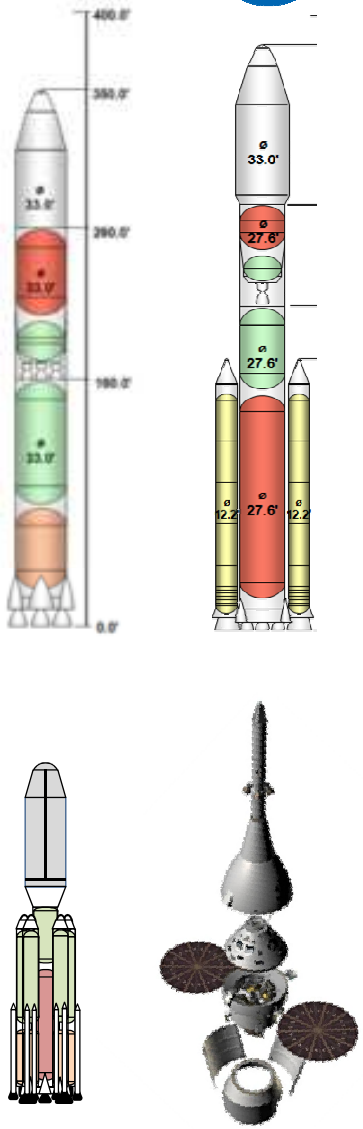


SLS/MPCV Progress

- Planning Teams for MPCV at Johnson Space Center and SLS at Marshall Space Flight Center have been in place and are active
  - SLS & MPCV Program Offices have been named

- SLS team is developing the Program requirements working towards System Requirements Review in FY 2012
  - Developing full vehicle concept that can be delivered within the available budget
  - Using internal study teams and external Broad Agency Announcements (BAAs) for input
  - Evaluating existing contract scope against SLS requirements

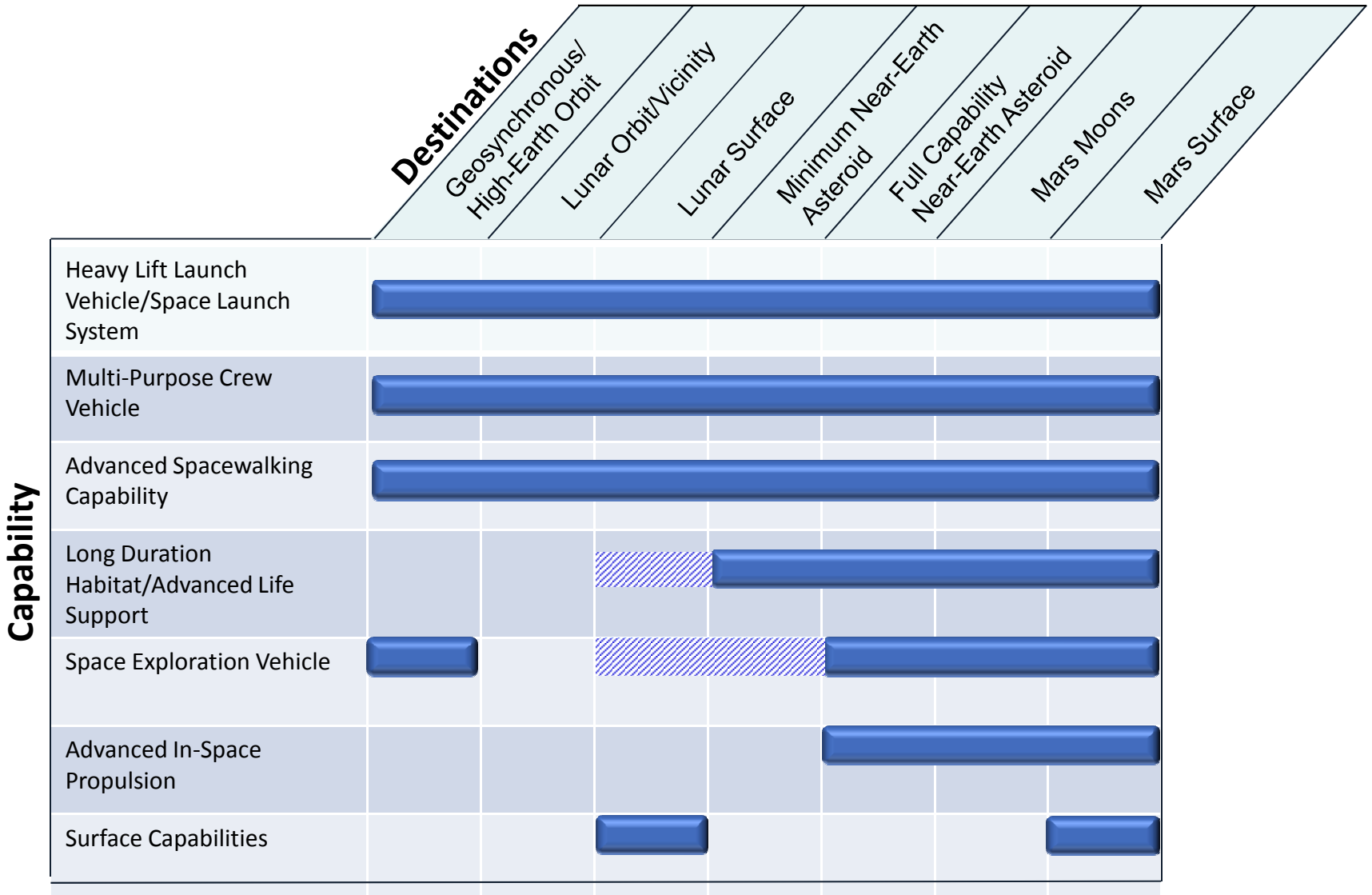
- MPCV team continues to implement the current Orion Project plan
  - Documenting MPCV requirements
  - Technical progress continues – Orion Ground Test Article recently shipped from Michoud to Lockheed Martin Denver for testing



SLS and MPCV are moving out aggressively and deliberatively

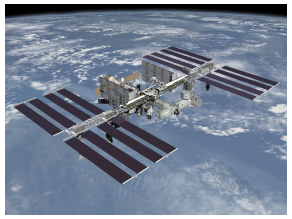
The Exploration Odyssey

NASA and our International Partners will open the solar system to human explorers via investments in capabilities that will enable more complex missions over time



Commercial Partner Capabilities

Congress and NASA are in agreement that development of Commercial Cargo and Crew capabilities is the primary means to service ISS.



- Ensures US astronauts can be transported to/from ISS on an American-made spacecraft

- Allows NASA to concentrate our limited resources on exploration beyond LEO, enabling NASA to go further faster in the exploration of the solar system

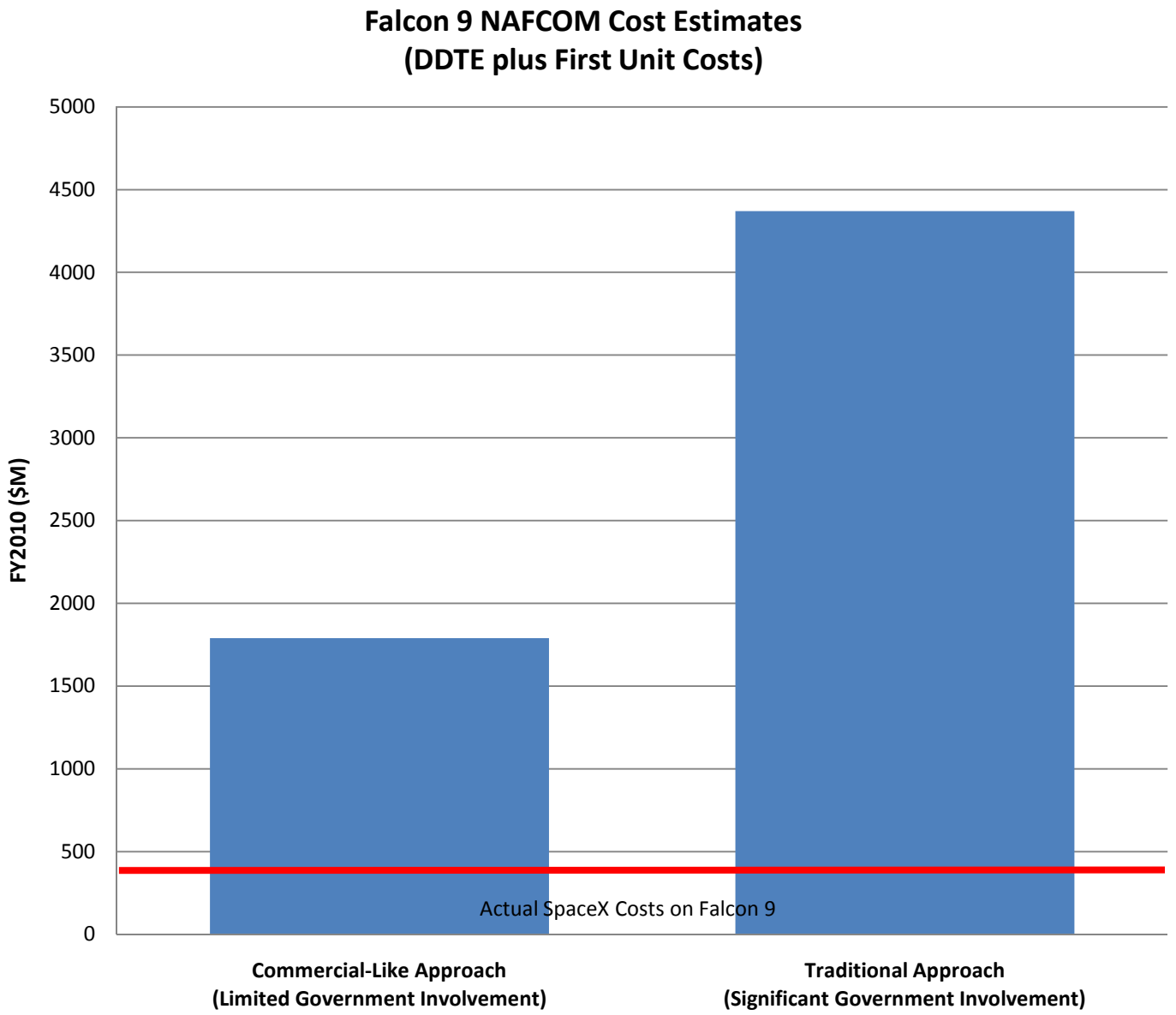
- Limits the reliance on Russia to access the ISS (prohibited after 2016 by the Iran, North Korea, Syria Nonproliferation Act (INKSNA))

- Benefits US private industry by strengthening the US industrial base, and enhancing our capabilities in a high technology industry

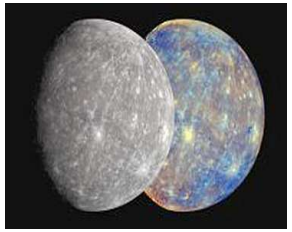
- Opens new US markets for customers other than US government personnel and reduces space launch costs (for NASA and other US government agencies). Allows US to win back share of commercial launch market

- This program uses a fixed-price strategy to incentivize industry partners to contain costs and achieve milestones faster

Comparison of NAFCOM Cost Estimates vs. Actuals for Falcon 9



Space and Earth Sciences



- Deepens understanding of the universe

  NASA's planetary and astrophysics programs have expanded knowledge of the cosmos and our solar system, and enhanced our understanding of Earth's place within the universe

- Allows prediction and mitigation of harmful solar activity

  NASA's heliophysics research deepens knowledge of the Sun's magnetic activity, which can have worldwide economic impacts by damaging electric power grids, communication satellites, and even commercial aircraft

- Expands knowledge of Earth's climate, weather and environment

  NASA's Earth observation activities have markedly improved our ability to forecast weather, respond to and plan for major disasters, and understand Earth's ecosystems, preserving billions of dollars in economic value annually

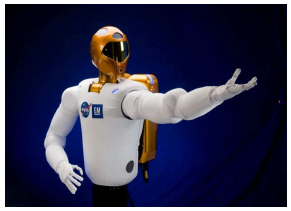
Space Technology

• Enabling Our Future in Space

By investing in high payoff technology that industry has little incentive to tackle today, Space Technology matures the capabilities required for NASA's future missions in science and exploration while lowering the cost and risk of other government agencies and emerging space activities.

• Building U.S. Economic Competitiveness

With a portfolio of innovative, high-risk, high-return research, NASA will stimulate the economy and build our Nation's global economic competitiveness through the creation of new products and services, new business and industries, and high-quality, sustainable jobs across the NASA Centers, small and large businesses and universities. For every $1M invested in Space Technology, NASA expects as many as 20 high tech jobs in the U.S.



• Technological Leadership is Key to Winning the Future

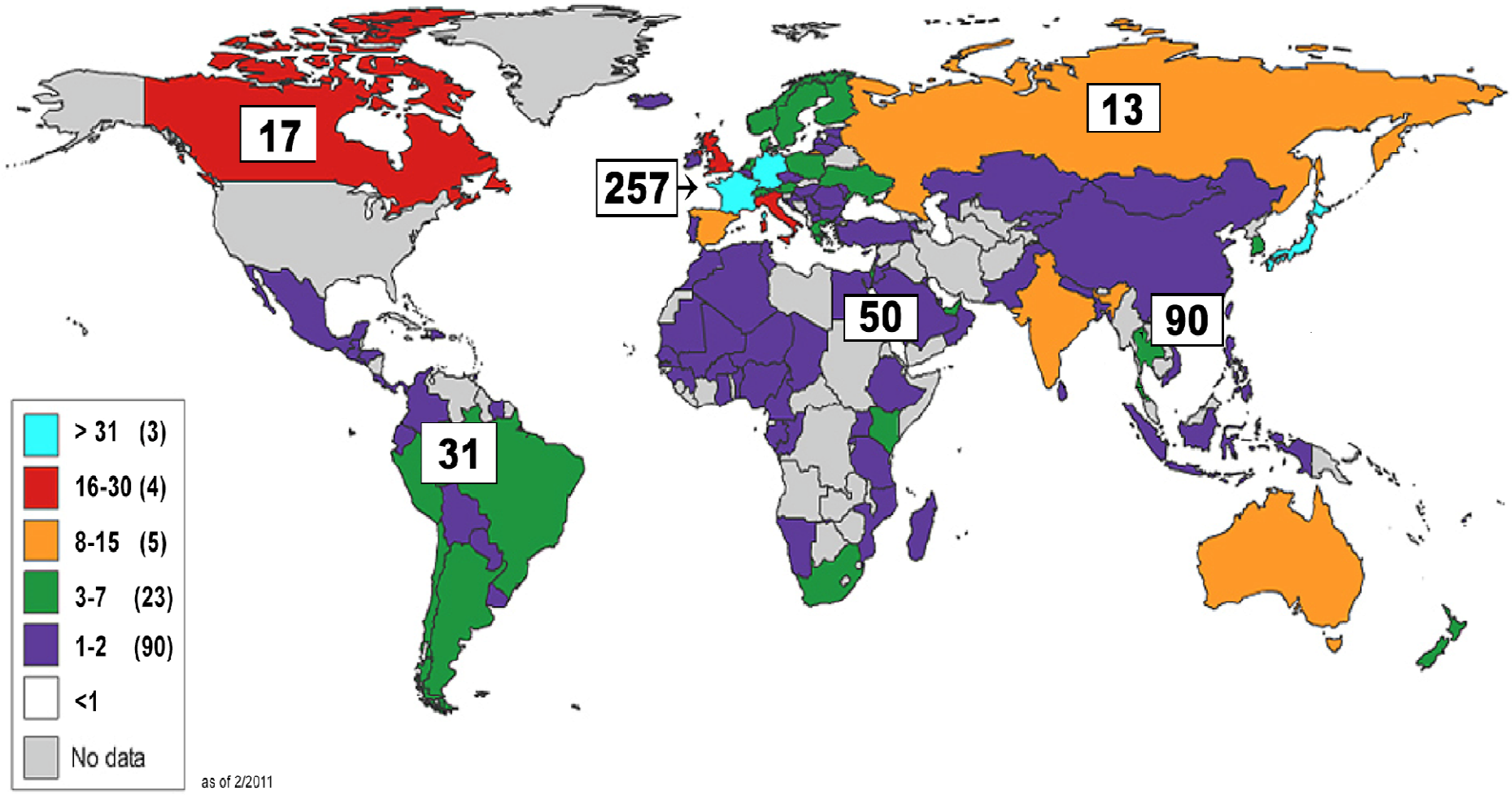
Space Technology is the central NASA contribution to the President's revitalized research, technology and innovation agenda for the Nation. Through investments in Space Technology, NASA can be a significant part of the solution to our nation's economic, national security and geopolitical challenges and win the future in the 21st Century.

• Making a Difference in Our Lives Everyday

Knowledge provided by weather and navigational spacecraft, efficiency improvements in both ground and air transportation, biomedical applications including blood-flow monitoring devices, pacemakers, and Lasik eye surgery, as well as the protective armor that keeps our military, firefighters and police safe all benefitted from our nation's investments in aerospace technology. By investing in Space Technology, NASA will continue to make a difference in the world around us.

Global Reach: Current International Cooperation

Total International
Agreements = 464



National Space Policy Priority: Enhance International Partnerships

- Maximization of resources
- Collaboration enhances exchanges of ideas and data to allow new breakthroughs in science and human exploration
- Build international coalitions to benefit all humankind