

National Aeronautics and
Space Administration



NASA Office of the Chief Technologist

Vicki K. Crisp
Deputy Chief Technologist
(Acting)
Fall 2017

Office of the Chief Technologist

Key Roles



Advises the NASA Administrator on technology policy and strategy

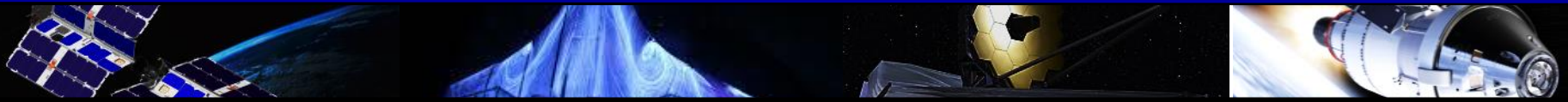
- Provides agency-level policy, direction, strategy and priorities for NASA's technology investment portfolio
- Serves on NASA Executive Council
- Coordinates with NASA mission directorates and chairs the NASA Technology Executive Council (NTEC)

Advocates for NASA's technology programs with key stakeholders

- Communicates NASA's policies and activities with Executive Branch Offices (OMB, OSTP, NSTC) and the Congress

Champions Innovation Culture and Communicates NASA technology and benefits to stakeholders and the public, including:

- Other agencies, commercial space, industry, academia and international partners
- Fosters agency innovation initiatives while developing NASA's Innovation Framework
- Coordinates cross-agency innovation collaboration
- Advocates innovation and collaboration outside NASA, including public-private and commercial partnerships



What Are Our Products and Services?



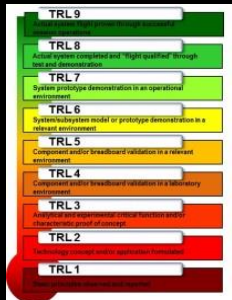
Products



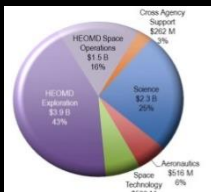
Strategy & Priorities



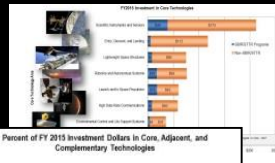
Roadmaps



Tailored TRA Guide

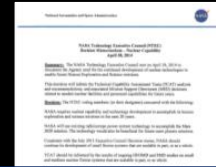


Special Studies
(Deep Dive and Portfolio Tracking, Analysis)



Annual Assessment
Informs Budget Process

Services



NASA Technology Executive Council (NTEC)



NASA Advisory Committee (NAC)



Cross-Govt. Working Groups



Technical Interchange Meetings



Finger on Pulse of Technology Work
Points of Contact For Mission Directorates, NASA Offices, Other Government Agencies



NASA Innovation



NASA Strategic Technology Investment Plan (STIP)



NASA Technology Areas

What We Could Do



2017 STIP

What We Should Do

- Reflects analysis performed on the 2015 NASA Technology Areas
- Provides guidance from an integrated, Agency-wide perspective
- Utilized the National Academies of Sciences National Research Council 2016 analysis
 - Identified technologies clearly supportive of NASA mission objectives
 - Identified technologies where it is unclear how to overcome technical hurdles, related technology already demonstrated, or NASA could incorporate outside developments

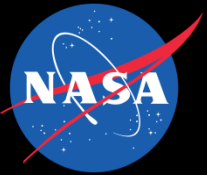
Goal of Integration Initiative



- Provide an enterprise-level view of the capabilities required to meet the Agency's aero, human exploration, and scientific goals and conduct its flight missions
- This process helps to provide:
 - Coherent Agency view to be presented to Congress and OMB
 - **Alignment of our investments** across mission directorates
 - **Stronger coupling between** the needs of technology **users** and the work of the technology **developers**
 - Identification of gaps, overlaps, and partnering opportunities
- Process relies on existing information and data reducing workload on mission directorates and technology leads

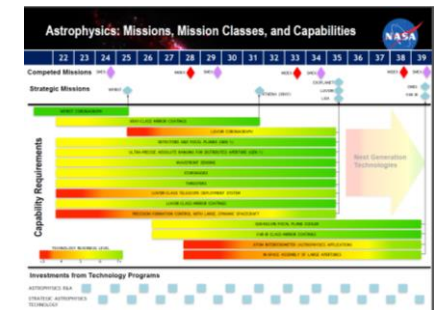
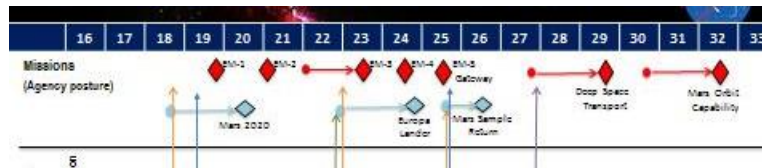


Strategic Capability Mapping Flow “Notional Strawman”



National policy, Agency-level strategic plans or other activities that drive missions.
Examples: National Space Council, Agency strategic plan, Decadal surveys, Journey to Mars

Agency Strategic
Capability Needs
Mission Requirements



“Capability/Outcomes”
Needs”

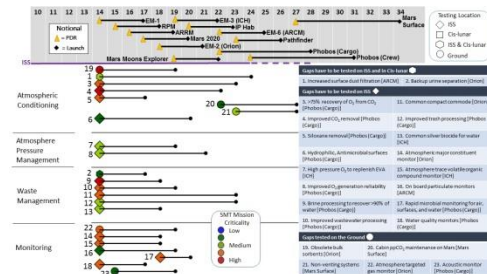
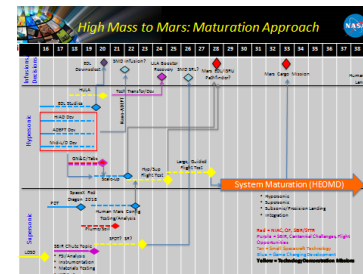
100 m landing footprint,
challenging terrains like
Europa

Nuclear
Thermal
Propulsion

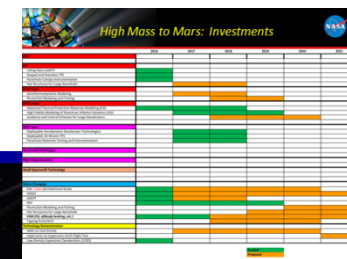
Fast Transit Deep Space
Transportation

High Power Surface
Lander Capability

Strategy for Capability
Development



Technology Investment
Plan



Recognizing our Culture of Innovation



- Emphasis on leveraging and integrating initiatives into an Agency-wide framework
- This framework will leverage internal NASA initiatives *while expanding collaboration with external sources of innovation*
 - OCT defines and executes rotational Pilot Projects
- NASA Innovation
 - WHAT : The **application** of a novel approach that provides improved outcomes or enables new outcomes to **create value** for people
 - WHY : Insure an intentional, focused and organized Agency effort to foster innovation in all programs, projects and the entire NASA workforce.



Establishing Innovation Framework Best Practices



- Reaching out to OGA, Industry, and Academia
 - Partnering with the National Academies Aeronautics and Space Engineering Board “Continuous Improvement of NASA’s Innovation Ecosystem”
- Possible Outcomes
 - Guiding Principles promoting awareness and collaboration within Agency innovation investments
 - Measurements informing leadership as to the health of innovation within the Agency
 - Strategies to sustain a culture of and environment for innovation
 - WISDOM – Wielding Innovative Solutions with Diverse Open Minds
 - Roles of diversity, inclusion and equity within a culture of innovation

WISDOM

Wielding Innovative Solutions with Diverse Open Minds



Questions ?

