Technology Partnerships and Access to Space

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Program Attributes

Technology - Focused Projects

Phase A
Phase B

Technology - Focused Project Formulation Process

- Ensures focus on technology needs of future science missions
- NOT science return from NMP flights

Breakthrough Technologies Requiring Flight Validation

Phase A

- Open competitive technology calls
- Strong rationale for flight validation

Revitalized Program Architecture

Multi - Theme Technology Benefits

- Broad user community

Partnership / Shared Launches

- Increases launch opportunity
- Reduces “low tech” elements’ costs
- HQ’s help (commercial, government)

System / Subsystem Approaches with Frequent Flights

- Maximizes cost effectiveness of validation approach
- Balanced portfolio
- Flexible / adaptive / resilient
Sub-System Technology Validation

- Yearly flight opportunities for several sub-systems as stand-alone units on flights-of-opportunity or on a space technology carrier

- NASA hosts carrier flight on regular basis

- Flights of opportunity (FOO)
  - Other NASA missions, Shuttle, DoD & commercial flights
NMP Subsystem Validation Partnerships

Technology development partnerships:

- Funds other than NMP funds that can be invested in the development of the candidate technology to contribute to the production the flight article to be validated
  - Technology Provider combines funding from sources other than NMP with NMP funds to produce the article for flight validation
  - Two or more technology providers team to leverage their funds to add to NMP funds to provide article for flight validation

Access to space partnerships:

- Funds other than NMP funds that can be directed to defraying costs of piggyback or secondary launch for technology subsystem
  - Technology provider secures agreement for commitment of excess launch capacity to NMP subsystem accommodation where NMP pays the integration cost
  - NMP provides access to space on NM carrier in exchange for accommodation on partner’s carrier
Testbeds for Sub-system Technology Validations

- Definition: Common support hardware & software to validate several subsystems or components
  - Facilitates harvesting subsystems & components developed in & outside space science
  - Outside space science = Industry, other NASA technology development programs, other government agencies
Example of Possible Partnership/Access-to-Space Opportunity

- XSS11 is an Air Force Research Laboratory mission for technology demonstration
  - target launch in ‘04

- Strawman mission concept includes a regular-technology main spacecraft and a high-technology microspacecraft

- Discussions conducted with AFRL on possible partnership
  - AFRL expressed primary interest in autonomous rendezvous technologies
  - NMP requested possibility of accommodating other technologies
  - AFRL indicated willingness to examine NMP technology needs for areas of mutual interest