The Unique Role of SBIR/STTR in the NASA Mission

National Academies Symposium on NASA's SBIR Community
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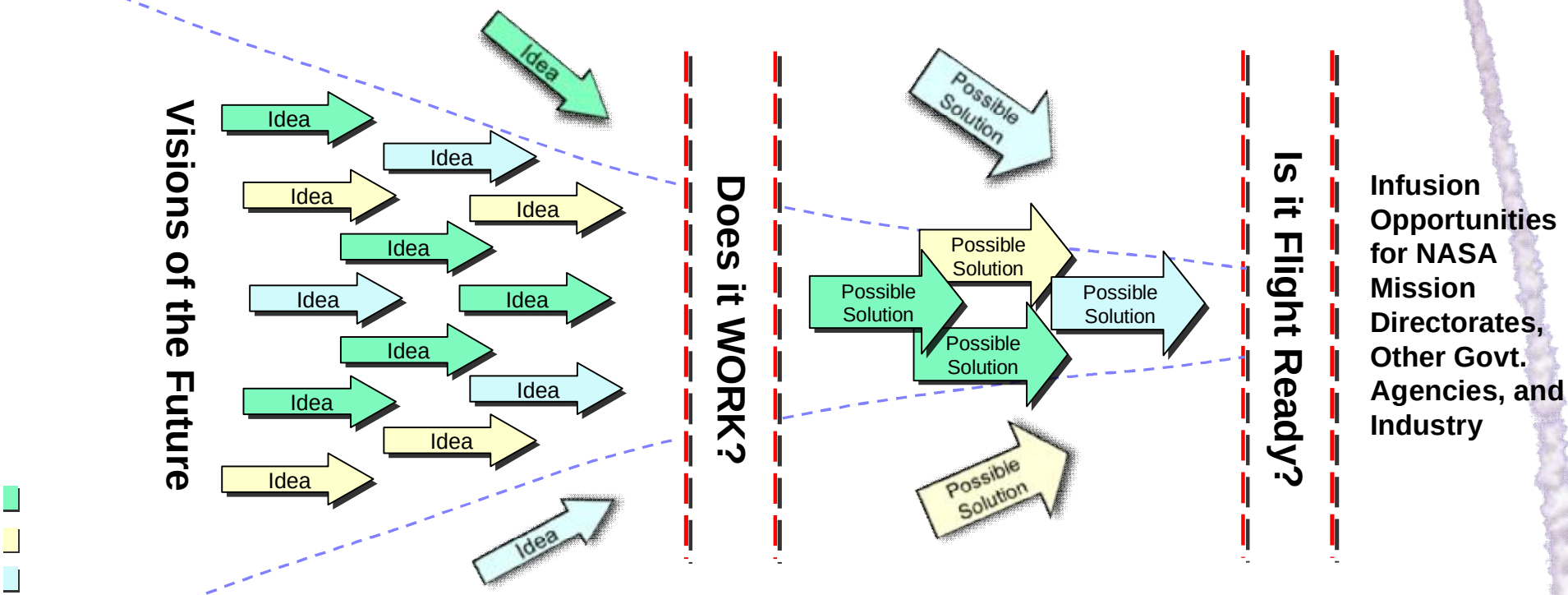
Agenda

- NASA's Approach to Technology Development
- The SBIR/STTR Program at NASA
- Process (and Challenges) for Infusion of SBIR/STTR Technologies at NASA
- Wrap-up: Objectives and Guidelines for Today's Meeting

NASA Technology Development Approach



Creative ideas regarding future NASA systems or solutions to national needs.

Prove feasibility of novel, early-stage ideas with potential to revolutionize a future NASA mission and/or fulfill national need.

Mature crosscutting capabilities that advance multiple future space missions to flight readiness status

Guidance for NASA's Investments in Technology

Space Technology Grand Challenges

Expand Human Presence in Space


Economical Space Access


Space Health and Medicine


Telepresence in Space


Space Colonization

Manage In-Space Resources


Affordable Abundant Power

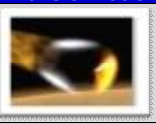

Space Way Station


Space Debris Hazard Mitigation


Near-Earth Object Detection and Mitigation

Enable Transformational Space Exploration and Scientific Discovery


Efficient In-Space Transportation


High-Mass Planetary Surface Access


All Access Mobility


Surviving Extreme Space Environments


New Tools of Discovery

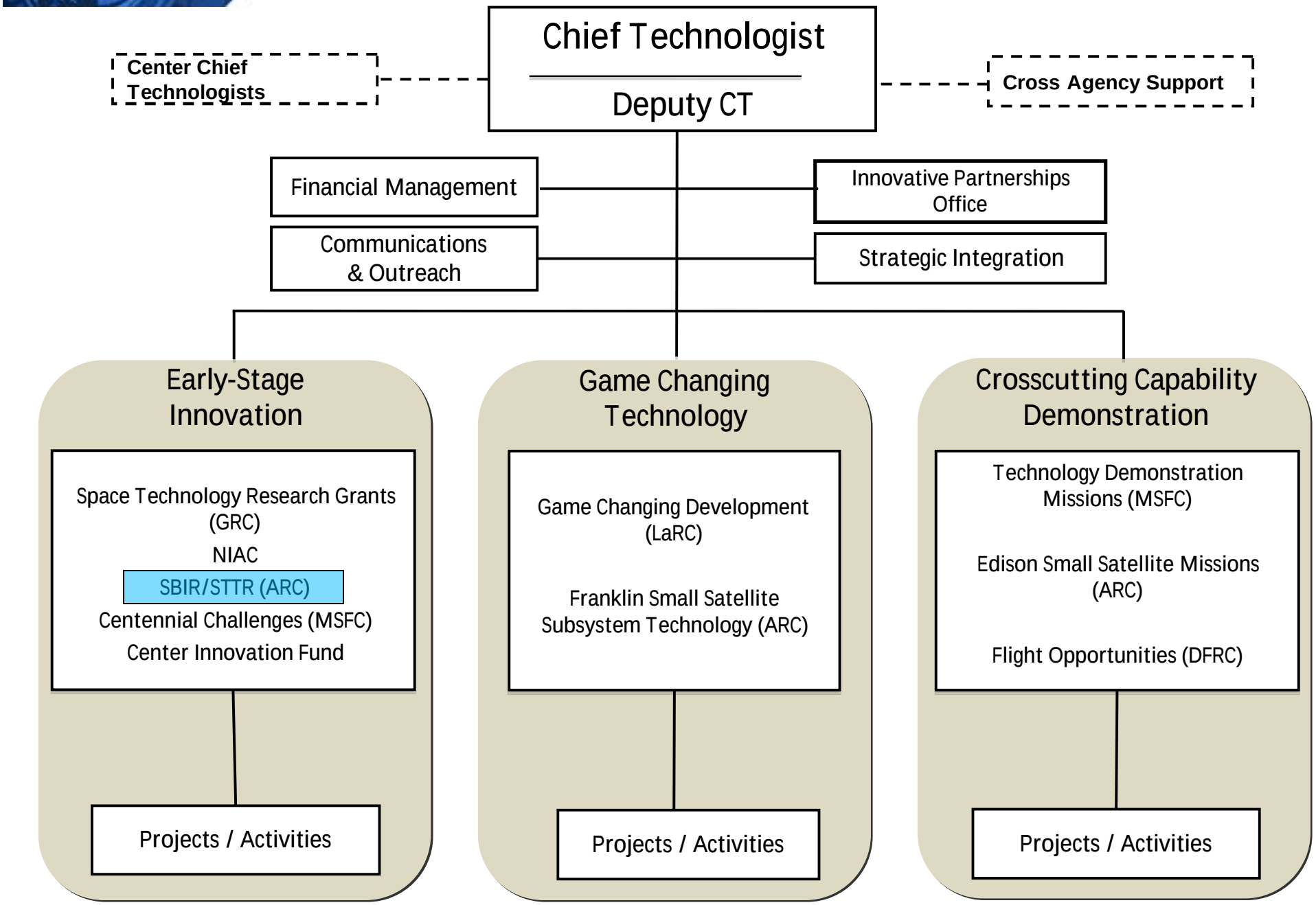
NASA Technology Investments

STR • TABS
TECHNOLOGY AREA BREAKDOWN STRUCTURE

- TA01 • LAUNCH PROPULSION SYSTEMS
- TA02 • IN-SPACE PROPULSION TECHNOLOGIES
- TA03 • SPACE POWER & ENERGY STORAGE
- TA04 • ROBOTICS, TELE-ROBOTICS & AUTONOMOUS SYSTEMS
- TA05 • COMMUNICATION & NAVIGATION
- TA06 • HUMAN HEALTH, LIFE SUPPORT & HABITATION SYSTEMS
- TA07 • HUMAN EXPLORATION DESTINATION SYSTEMS
- TA08 • SCIENCE INSTRUMENTS, OBSERVATORIES & SENSOR SYSTEMS
- TA09 • ENTRY, DESCENT & LANDING SYSTEMS
- TA10 • NANOTECHNOLOGY
- TA11 • MODELING, SIMULATION, INFORMATION TECHNOLOGY & PROCESSING
- TA12 • MATERIALS, STRUCTURES, MECHANICAL SYSTEMS & MANUFACTURING
- TA13 • GROUND & LAUNCH SYSTEMS PROCESSING
- TA14 • THERMAL MANAGEMENT SYSTEMS

NASA Mission Directorates

Office of the Chief Technologist Organization

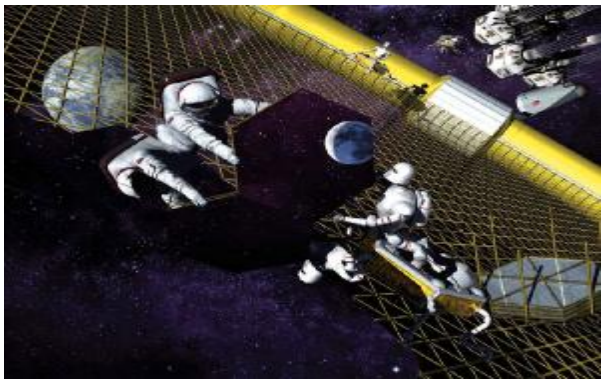


The SBIR/STTR Program at NASA

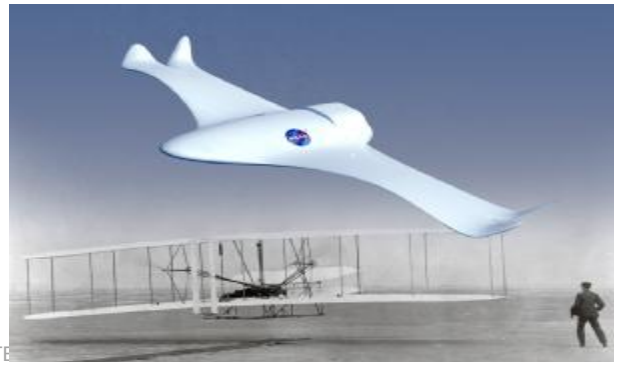
SBIR/STTR is an integral part of the NASA Technology Program

- Now integrated into the Office of the Chief Technologist (OCT), the SBIR/STTR Program continues to foster the development of innovative ideas by small companies across the Nation.
- The OCT and the Center Chief Technologists are working to increase the synergy between the SBIR/STTR projects and the Mission Directorates through the agency technology portfolio and through SBIR/STTR topic development, selection, and reporting processes.

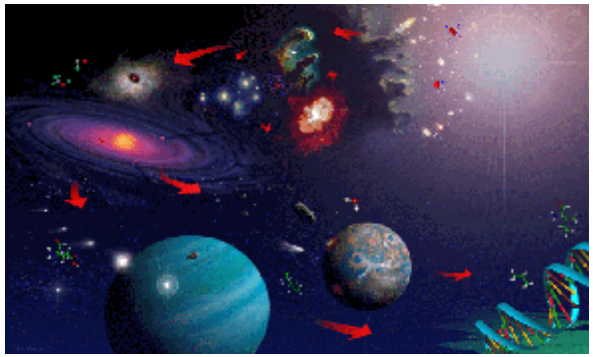
Human Exploration and Space Operations



Aeronautics

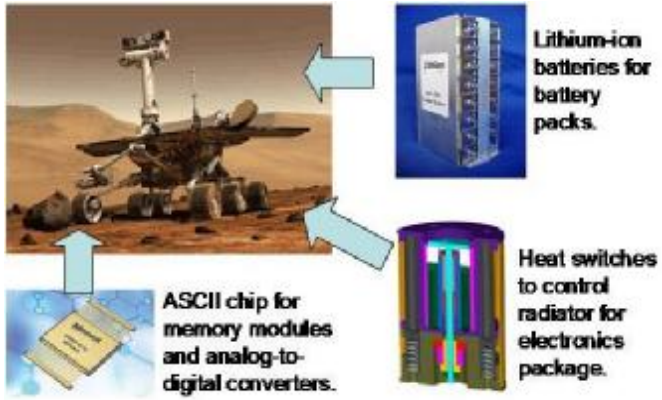


Earth and Space Science

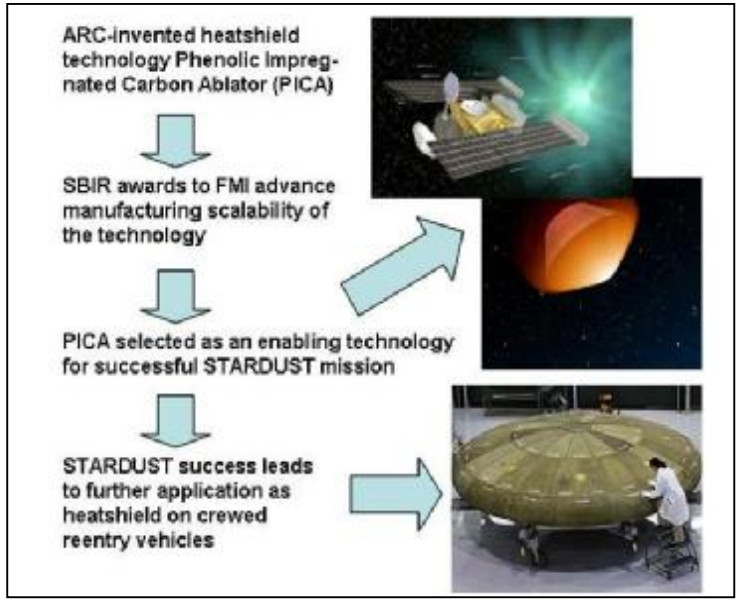


SBIR/STTR Directly Contributes to NASA Space Flight Missions

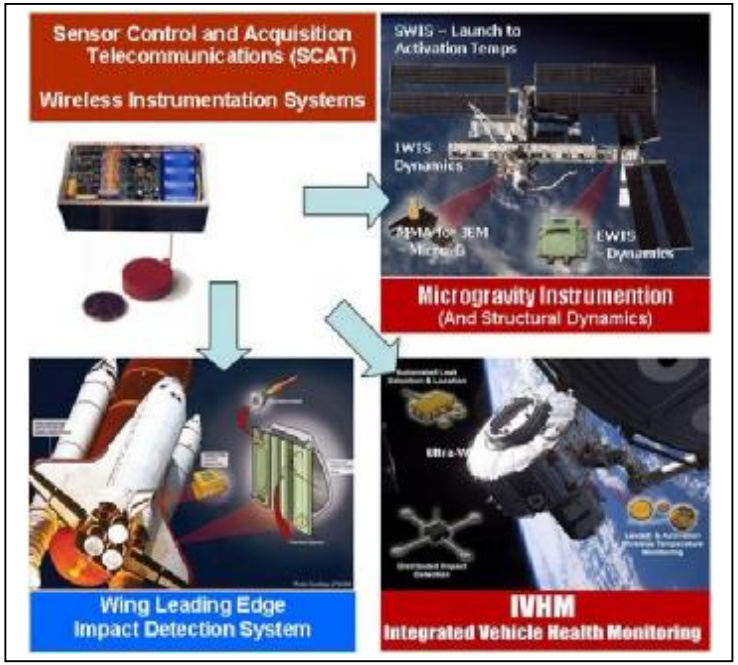
Mars Exploration Rovers



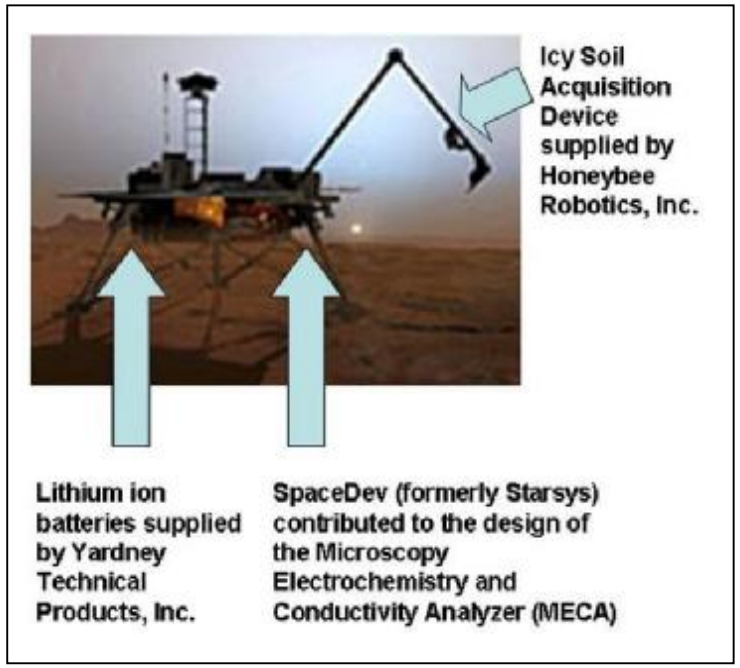
Stardust and Orion/Dragon



Space Shuttle and ISS

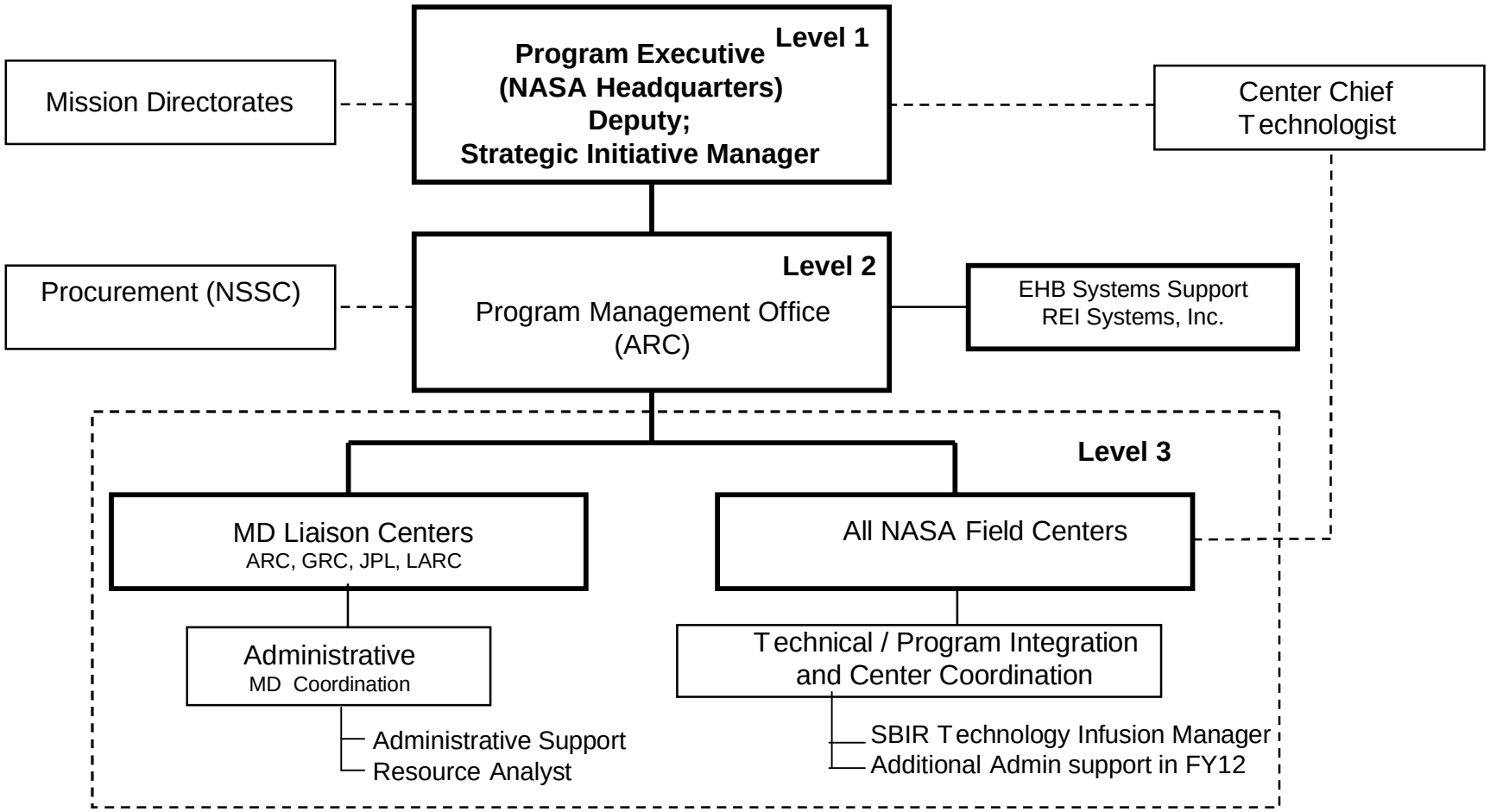


Mars Phoenix Lander



FY2011/12 SBIR/STTR Program Organization

- Agency Road Map Technology Areas (TA)'s integration Supported by Center Chief Technologist
- Mission Directorate (MD) integration supported by assigned MD Representatives
- SBIR/STTR Program Liaison Centers
- All Field Centers administrative and Technology Infusion Manager support personnel



SBIR/STTR: Projected Number of Awards

Approximate Number of Projected Awards

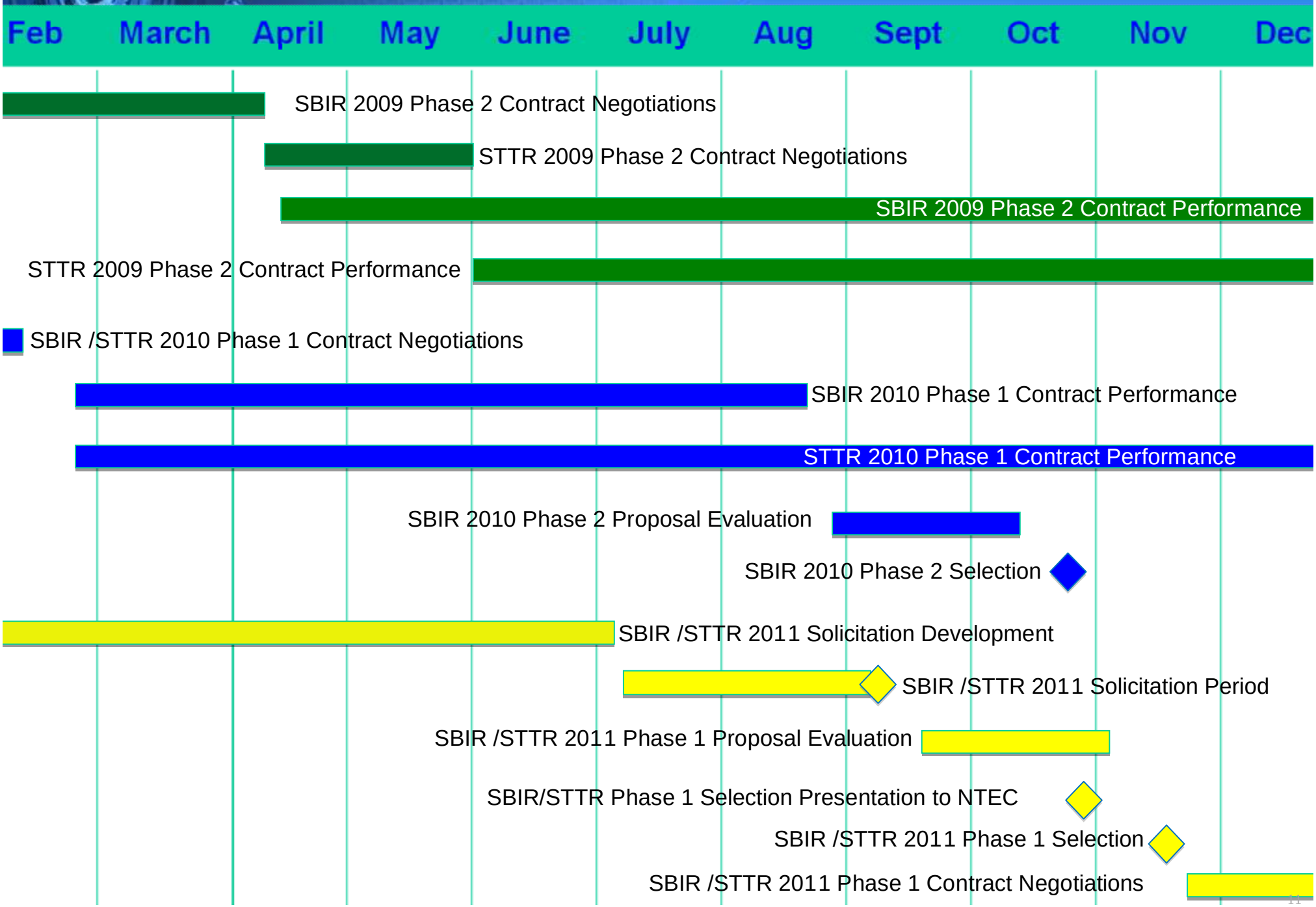
SBIR	FY11	FY12	FY13	FY14	FY15
Millions of $	124	154.7	154.7	154.7	154.7
Phase 1 Awards	450	429	429	429	429
Phase 2 Awards	216	172	172	172	172
Phase 2E Awards	24	36	35	35	35

STTR	FY11	FY12	FY13	FY14	FY15
Millions of $	14.1	18.1	18.1	18.1	18.1
Phase 1 Awards	45	44	44	44	44
Phase 2 Awards	27	11	11	11	11
Phase 2E Awards	5	7	7	7	7

Assumes

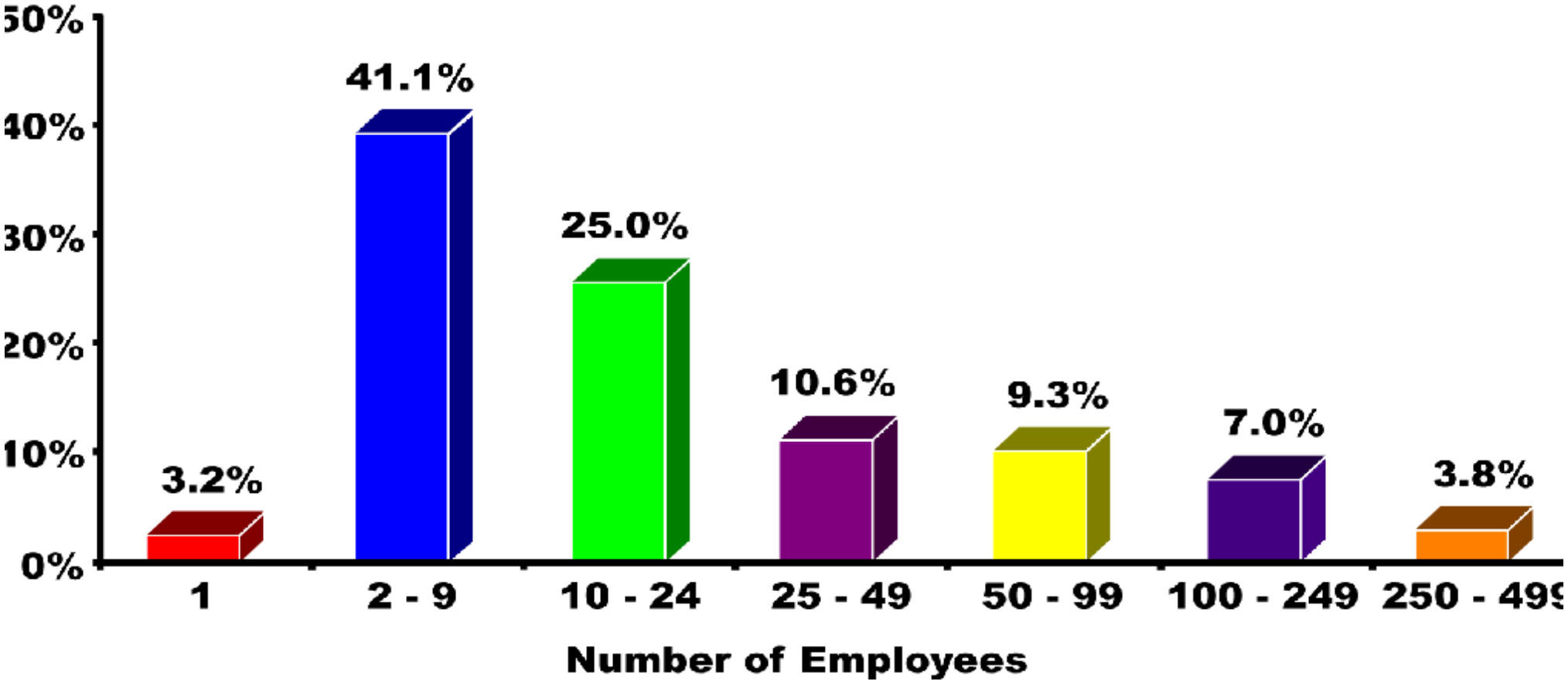
Phase 1: FY 11 $100K; FY12+ $125K
Phase 2: FY 11 $600K; FY12+ $750K
Phase 2: FY 11 $150K; FY12+ $250K

SBIR/STTR Program Master Schedule

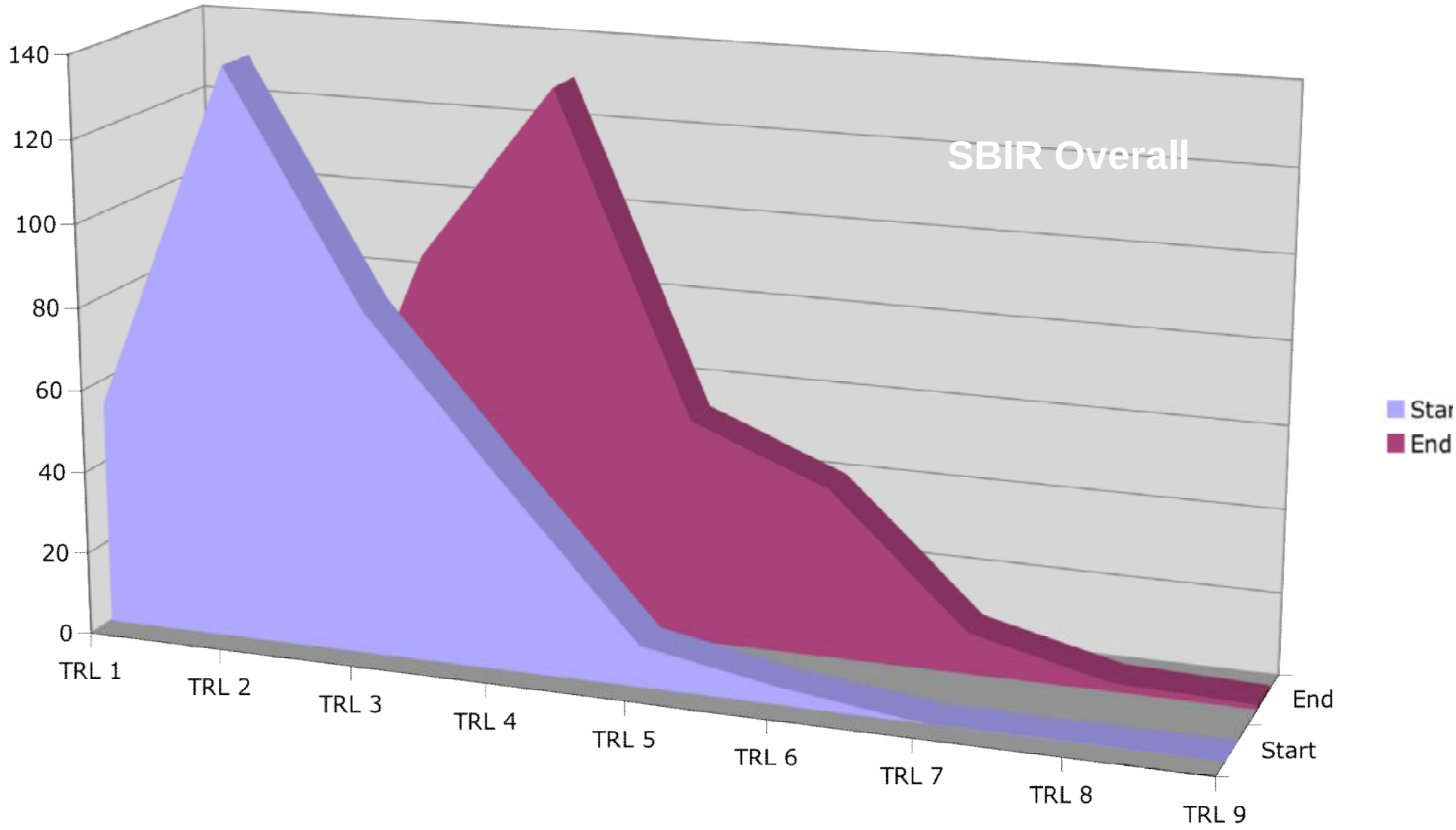


Who Participates in SBIR?

- Firms are typically small and new to the program
- About 1/3 are first-time Phase I awardees
- Small hi-tech firms from across the country

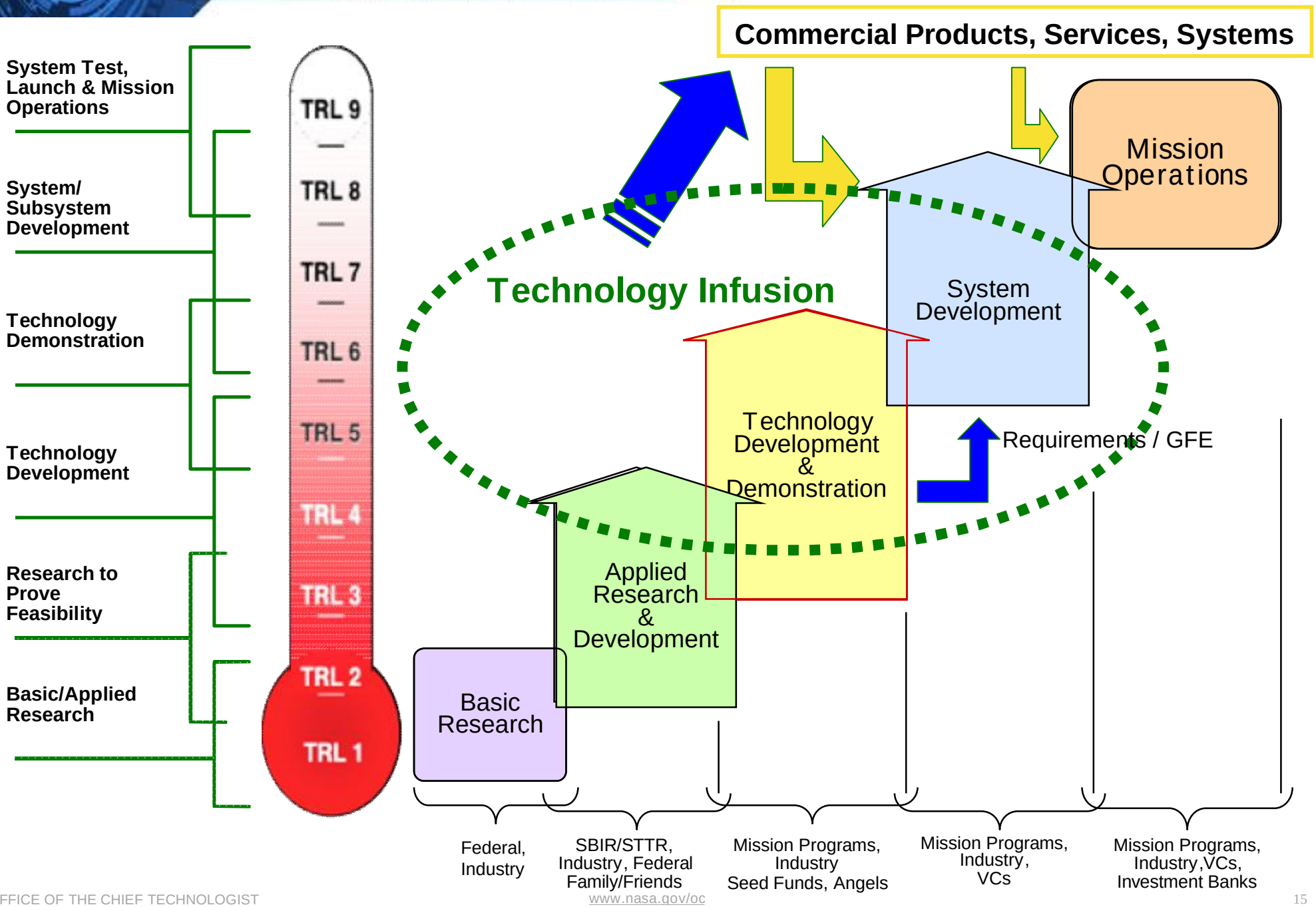


Technology Maturation through SBIR/STTR



Process (and Challenges) for Infusion of NASA SBIR/STTR Technologies

Technology Infusion Path



How does NASA define infusion success?

At NASA, SBIR infusion success is measured in several ways:

- Technology directly picked up by a flight project, mission or instrument – This is the ultimate prize, but not the only one.

- Technology targeted for further specific development, under an advanced technology program which a flight project, mission or instrument supports.

- Technology significantly benefits direction of overall portfolio.

- Small business either (a) sells their technology to a larger company, or (b) is bought out by a larger company, which in turn incorporates the technology into one of their product lines and/or uses it on a flight program.

Technology infusion challenges that are unique to NASA – or are they?

- Small market size for highly specialized technologies
  - Often developed for a particular application, with unique interfaces
  - Makes for narrow pathways to the Federal and commercial markets
  - Even within NASA, there are challenges in creating production flows for repetitive development or manufacturing

- NASA not immune to a challenge that faces all SBIR participants — helping firms connect internally to NASA programs and other federal acquisition opportunities
  - NASA has taken steps to improve these opportunities through Technology Infusion Managers (TIMs) at all NASA centers
  - TIMs act as internal advocates, matchmakers, and advisors to strengthen follow-on opportunities

Objectives and guidelines for today's meeting

- Give a voice to **all** participants in the NASA SBIR/STTR Program
  - Performers (small businesses and research institutions)
  - NASA (program administrators and mission customers)
  - Other agencies
  - Congress
  - National Academies
- Help us make the NASA SBIR/STTR Program the best it can be
  - Think about the gaps between a "Utopian" vision and where we are now
  - Your unique perspective is valuable
  - Please be candid and hard-hitting with your remarks
- Set the stage for important next steps
  - Improvements to NASA SBIR/STTR
  - Model for other agencies

Thank you!

Enjoy the symposium!