



# **Tailoring SBIR Technology Infusion to its Environment**

**Carol R. Lewis**

**Jet Propulsion Laboratory**

**Mirror Technology SBIR/STTR Workshop**

**October 1-4, 2013**

**Redondo Beach, CA**



# Overview

- Impact of SBIR Reauthorization through 2017
- SBA's SBIR and STTR Policy Directives
- Reauthorization's New Tools for Infusion and Commercialization
- NASA's Space Technology Mission Directorate and SBIR
- Major technology direction drivers: NRC TA Roadmaps and SSTIP
- New infusion features in 2012 Solicitation
- What is likely to be new in 2013 Solicitation (that we can disclose)
- Websites for Additional Information
- NASA and JPL SBIR Points of Contact



# SBIR Reauthorization Through 2017

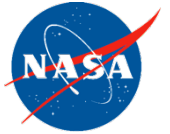
- Recall: on 12/31/2011, the Federal SBIR Program was reauthorized long-term (through 9/30/2017) as part of the National Defense Authorization Act for FY 2012, H.R.1540; Public Law No. 112-81.
- Full text: at Library of Congress website, <http://thomas.loc.gov/home/thomas.php>
  - Search Bill Summary and Status: Select “Bill Number”, input H.R. 1540.
  - Click on “Text of Legislation”.
  - Select the most recent version [H.R.1540.ENR] to download a PDF.
  - In the PDF, navigate to Division E – SBIR and STTR Reauthorization.
    - **Subtitle B – Outreach and Commercialization Initiatives**



# SBA's Updated SBIR/STTR Policy Directives

- Published in the Federal Register on 8/6/2012.
- **Also available at:**
  - <http://www.sbir.gov/about/sbir-policy-directive> (SBIR)
  - <http://www.sbir.gov/about/sttr-policy-directive> (STTR)
- Federal Agencies participating in SBIR/STTR must follow the guidance provided by the Policy Directives.
- The Policy Directives reference the Small Business Act.
  - Current version, Rev. 13, of the Small Business Act (Public Law 85-536, as amended) is posted at  
<http://www.sba.gov/content/small-business-act>
  - Rev. 13 includes Public Law 112-239, enacted 1/3/2013.
  - Previous Rev. 12 included Public Law 110-246, approved 6/18/2008.

**A number of Reauthorization program changes are potential new tools for commercialization and infusion.**



# Reauthorization – Technical Assistance for Awardees (Sect. 5121)

- SBIR Agencies may provide Phase I and Phase II SBIR/STTR award recipients with **optional technical assistance services**, e. g. access to a network of scientists and engineers in a wide range of technologies, or access to technical and business literature via online databases.
- **Each Agency may competitively select a vendor for up to a 3-year term**, to help small businesses meet these goals:
  - Making better technical decisions
  - Solving technical problems
  - Minimizing technical risks
  - Developing and commercializing new commercial products and processes
- Reauthorization increases award sizes from \$4K to \$5K in each Phase.
  - In Phase I: in addition to the SBIR award.
  - In Phase II: purchased by small business from its SBIR award.
- Baseline: Small Business Act, Section 9(q).

**Implementation choice and options are up to each Agency**



# Reauthorization - Commercialization Readiness Programs

- **SBIR Civilian Agencies (Sect. 5123) – includes NASA.**
  - Pilot program – New. Up to 3 yr duration (per Sect. 5164).
  - **Agency head may allocate up to 10% of SBIR/STTR budget for awards for technology development, testing, evaluation and commercialization assistance for Phase II technologies; or to support progress of SBIR/STTR R&D and commercialization to Phase III.**
  - For highly promising technologies to substantially enhance Agency's mission.
  - Individual awards can be up to 3X the amount of Agency's Phase II individual awards.
- **SBIR DoD Agencies (Sect. 5122)**
  - Per the Small Business Act, Sect. 9(y): The Secretary of Defense and the Secretary of each military department is authorized to create and administer a “Commercialization Pilot Program” to accelerate the transition of technologies, products, and services developed under the SBIR Program to Phase III, including the acquisition process.
  - Reauthorization converts this program from Pilot to Readiness.

**Implementation choice and details are up to each Agency**



# Reauthorization – Commercialization Success Criteria (Sect. 5165)

- **Head of each SBIR Agency shall establish a system to measure success, including a minimum performance standard.**
- Companies not meeting the minimum standard would be excluded from SBIR/STTR participation for 1 year.
- For small businesses in progressing from Phase I to Phase II: ref. Small Business Act section (9)(qq).
- For small businesses in progressing from Phase I to Phase III: ref. Small Business Act section (9)(cc).

**In progress**



# SBA Size and Eligibility Regulations

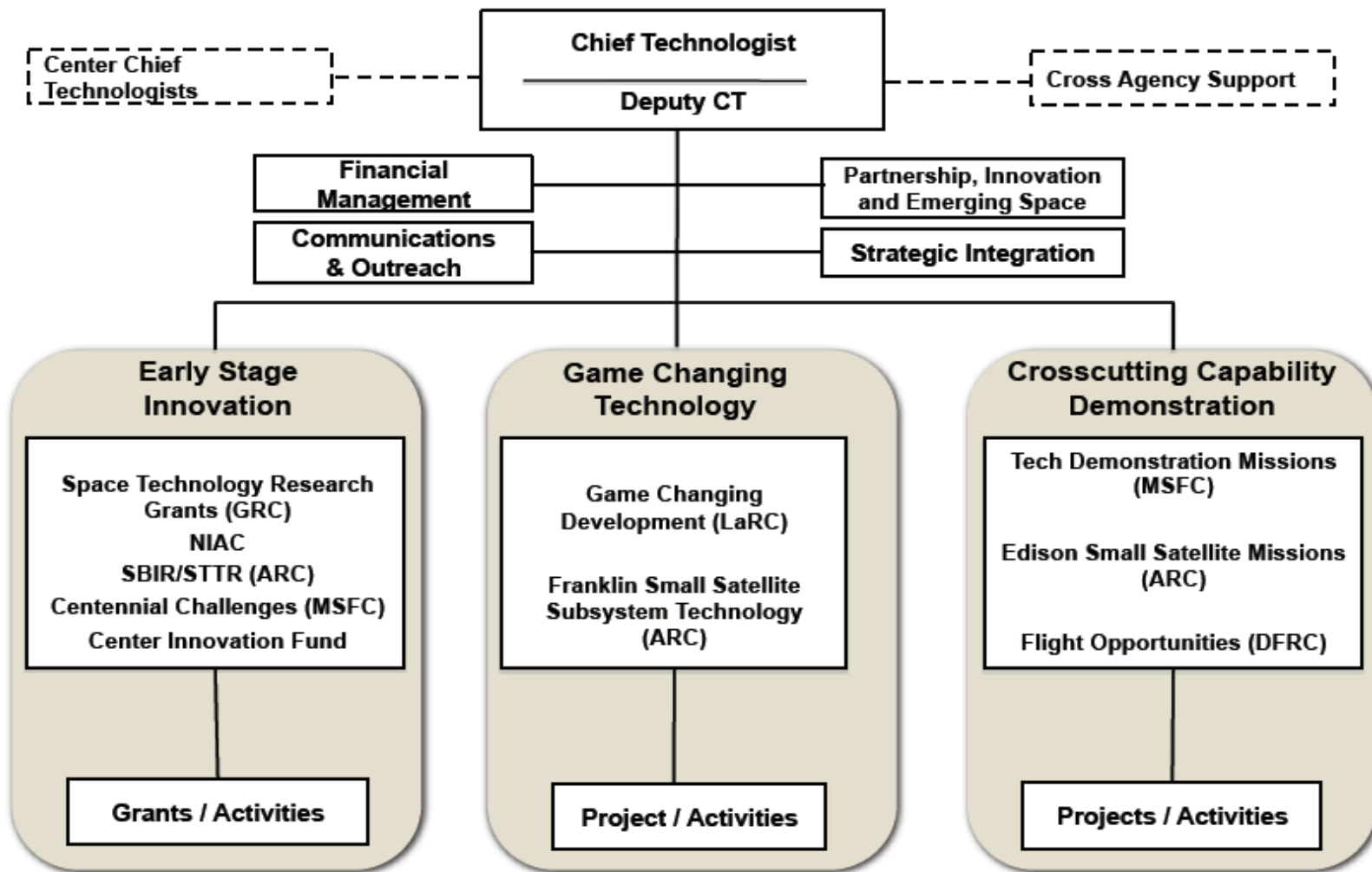
- These broad SBA regulations define what constitutes a small business, and eligibility requirements for the SBIR and STTR programs.
  - SBA addressed Reauthorization provisions relating to venture capital participation, domestic ownership, and affiliation, by modifying these regulations as they relate to SBIR and STTR.
  - Goal was to finalize these one year from Reauthorization.

**Updated provisions posted in the Federal Register,  
Vol. 77, No. 248, Thursday, December 27, 2012**

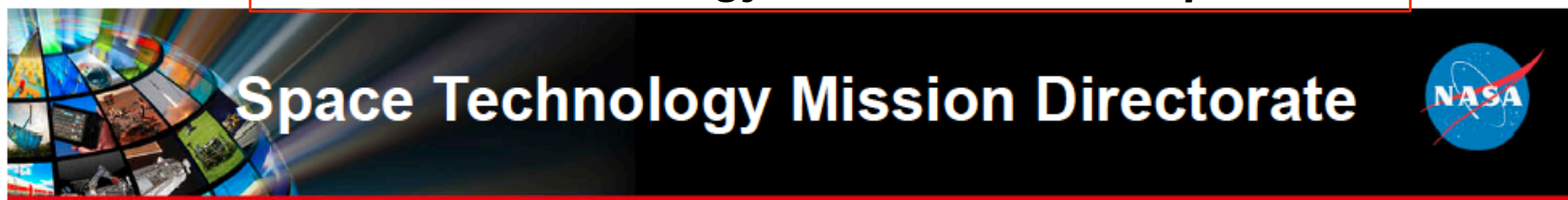


# Previous NASA Technology framework, as of March 2011

## Office of the Chief Technologist Organization



## ***New NASA Technology framework, as of April 2013***



With successful formulation and implementation of Space Technology program, NASA officially separates Office of the Chief Technologist (OCT) into two organizations: OCT and Space Technology Mission Directorate (STMD).

### **Space Technology Mission Directorate**

- Has direct management and budget authority of the Space Technology programs, which are performed by all 10 NASA Centers;
- Focuses on project execution and technology infusion into the Agency's exploration and science mission needs;
- Takes a customer driven approach, proving capabilities needed for future NASA missions and the national aerospace community; and
- Develops the Nation's innovation economy.

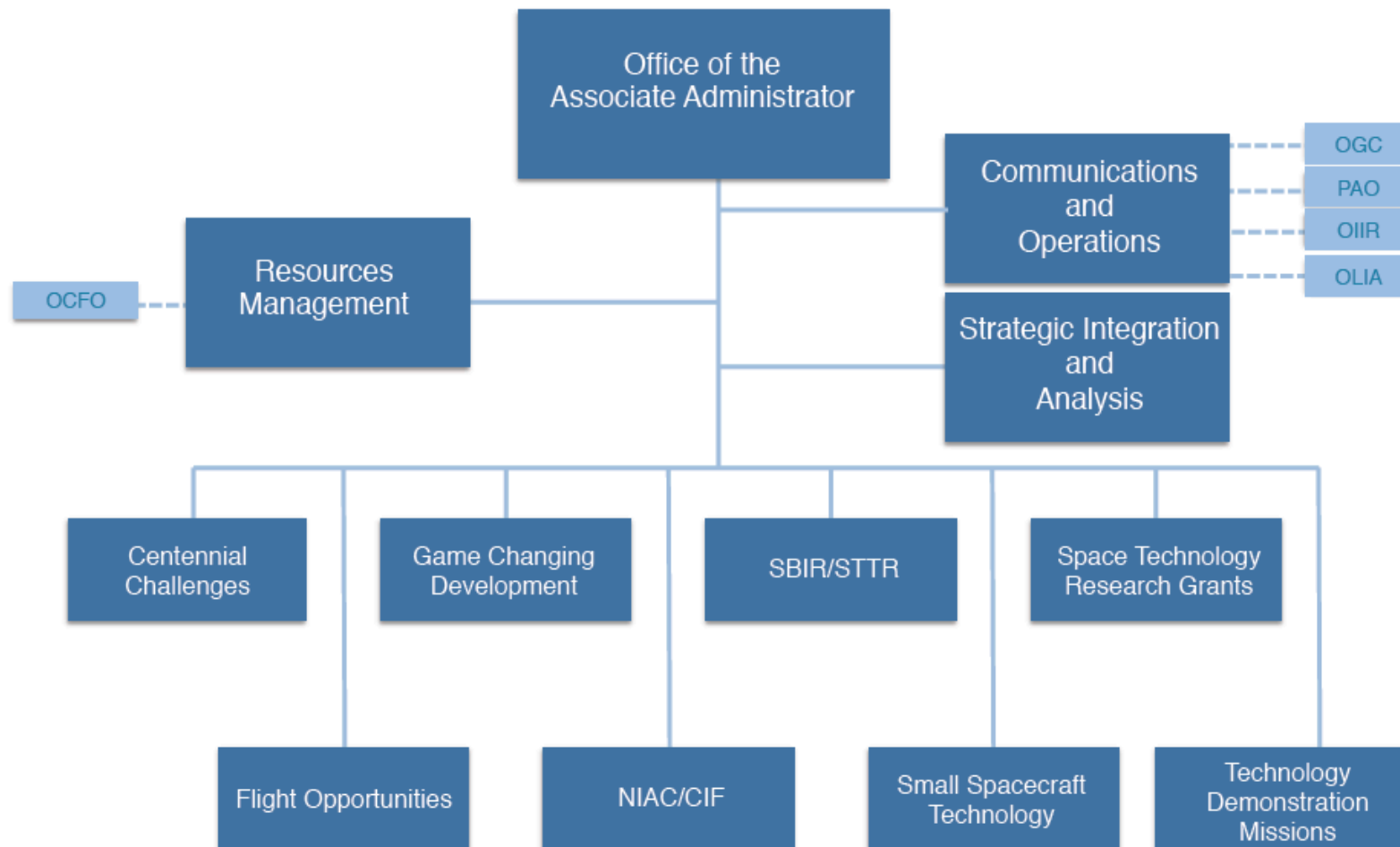
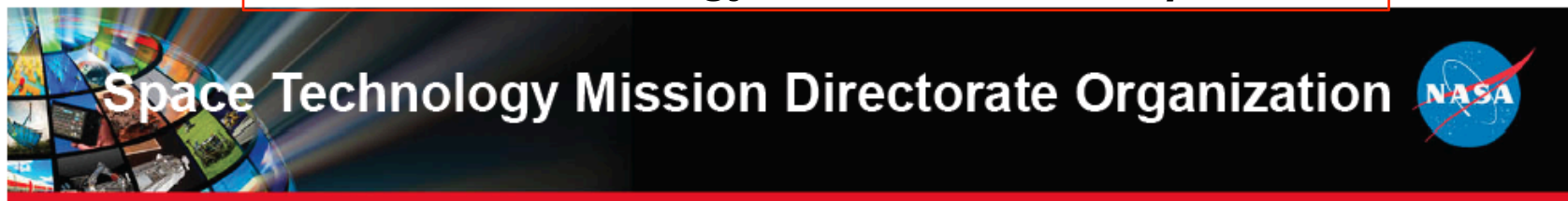
### **Office of the Chief Technologist**

- Continues to serve as the Administrator's principal advisor and advocate on matters concerning Agency-wide technology policy and programs;
- Continues to lead NASA's technology transfer and commercialization efforts;
- Integrates, tracks, and coordinates all of NASA's technology investments; and
- Documents and communicates the societal impacts of the Agency's technology efforts.

**Realignment will not affect the mission, content or budget authority of the Space Technology Programs.**

13

## New NASA Technology framework, as of April 2013



14

From NASA STMD public home page [http://www.nasa.gov/directorates/spacetech/about\\_us/resources/index.html](http://www.nasa.gov/directorates/spacetech/about_us/resources/index.html): "FY 14 Space Technology Mission Directorate Briefing: NASA Advisory Council", Dr. Michael Gazarik, posted as "743683main\_Mgazarik\_STMD\_April 2013.pdf"

# NASA OCT Space Technology Roadmaps



- Prepared by NASA teams under OCT guidance - Integrated set of 14 roadmaps.
- National Research Council (NRC) final recommendation report -
  - NRC Publication (2012): NASA Space Technology Roadmaps and Priorities: Restoring NASA's Technological Edge and Paving the Way for a New Era in Space

Technical Area	Space Technology Roadmaps
TA01	Launch Propulsion Systems
TA02	In-Space Propulsion Systems
TA03	Space Power and Energy Storage
TA04	Robotics, Tele-Robotics and Autonomous Systems
TA05	Communication and Navigation Systems
TA06	Human Health, Life Support and Habitation Systems
TA07	Human Exploration Destination Systems
TA08	Science Instruments, Observatories and Sensor Systems
TA09	Entry, Descent and Landing
TA10	Nanotechnology
TA11	Modeling, Simulation, Information Technology and Processing
TA12	Materials, Structures, Mechanical Systems and Manufacturing
TA13	Ground and Launch Systems Processing
TA14	Thermal Management Systems
<b>Space Technology Roadmaps for the Fourteen Technology Areas /Technology Area Strategic Roadmaps and Breakdown Structure</b>	



## NASA Strategic Space Technology Investment Plan (SSTIP)

- Created by NASA after development of the draft TA Roadmaps.
- Prioritizes space technologies essential to the NASA mission and achievement of national goals.
- Focused approach to guide NASA's space technology investment over next 4 years, within context of 20-year horizon.
  - 70% Core Investments - must begin development ASAP.
  - 20% Adjacent Investments - important but not indispensable.
  - 10% Complementary Investments - limited immediate relevance.
- Publicly available at  
[http://www.nasa.gov/directorates/spacetech/about\\_us/resources/index.html](http://www.nasa.gov/directorates/spacetech/about_us/resources/index.html) as document  
"726166main\_SSTIP\_02\_06\_13\_FINAL\_hires=TAGGED.pdf"



# STMD Funding Opportunities (aka Technology Infusion Opportunities)

- STMD Solicitations, past and present, are posted on their home page

<http://www.nasa.gov/directorates/spacetech/home/index.html>



## New Infusion Features - 2012 NASA SBIR Solicitation

- ESMD + SOMD = HEOMD.
  - Corresponding changes to mission drivers and technology priorities.
- Phase II-eXpanded (II-X) in addition to Phase II-Enhancement (II-E).
- Select Subtopics.
- NASA SBIR Technology Available (TAV) with NASA IP.
- SBA Facility waivers no longer required for Federal laboratories (Still required for other Federal facilities).





## NASA SBIR Phase II-E

- Phase II Enhancement (II-E) Option encourages transitioning SBIR Phase II contracts into post Phase II awards.
  - **Can provide company with additional Phase II SBIR/STTR funds.**
    - **Up to \$150K (for '10 Phase II and earlier).**
    - **Up to \$250K (for '11 Phase II).**
    - **Up to \$125K (for '12 Phase II). But note new Phase II-X Option (next page)**
- **Company must provide 1:1 matching funds from a non SBIR/STTR source** to advance their technology for further research, infusion, or commercialization.
  - Outside investor may be another company, venture capital firm, individual "angel" investor, non-SBIR/non-STTR government program, or any combination. Minimum cost share is \$25K; there is no upper limit.
- NASA has provided eligible companies with official guidance, including what types of relationships between a small company and outside investors qualify as an investment. Additional guidance is in the 2012 NASA SBIR Proposal Solicitation, section 1.4 (Three-Phase Program) and in companies' Phase II contracts.





## NASA SBIR Phase II-X

- Phase II eXpanded (II-X) option is new, starting with '12 Phase II's.
- To establish **strong and direct partnerships between NASA's SBIR/STTR Program and other NASA projects** developing new technologies.
  - Company must confirm a non-SBIR/STTR **NASA** program or project as a partner to advance their technology for further research or infusion.  
**Minimum is \$75K** of program or project funds; there is no upper limit.
  - **Phase II-X will then match, on 2:1 basis, up to \$250K of NASA program or project funding, with up to \$500K of SBIR/STTR award funds.**
- **Bottom line: II-X can provide significantly more funds than II-E, as long as co-funding partner is NASA program or project.**
- Additional guidance is in the NASA SBIR Proposal Solicitation, section 1.4 (Three-Phase Program), and will eventually be in companies' Phase II contracts.



## Qualifying for Phase II-E or II-X

- During Phase II, small business must submit **either a Phase II-E or II-X application (not both!)** via the Contract Administration and Closeout Electronic Handbook (EHB). Submittal window is specified in advance by NASA HQ.
- Starting with the '12 Phase II's (per the 2012 Solicitation):
  - Company will need to provide notice of intent to propose by end of 13<sup>th</sup> month of their Phase II. This is new.
  - Submittal window will be during 4<sup>th</sup> month before end of company's Phase II. Later in Phase II than in previous years; allows additional time to generate prototypes and increase probability of securing co-funding.
- **'10 Phase II companies were eligible in 2013. Submittal window for most was August 2013.**
- **'11 Phase II companies will be eligible in 2014.**



## SBIR Select Subtopics - Relevance to Infusion

- 2012: Pilot Solicitation for 7 select SBIR subtopics of particular interest to NASA. Publicly available at <http://sbir.nasa.gov/SBIR/sbirselect2012/solicitation/index.html>
- Relative to Regular subtopics: prospective exit TRLs and quality of deliverables are significantly higher. **Technologies should be well positioned for follow-on opportunities and/or infusion at end of Phase II.**
- Phases II-E and II-X also applied to 2012 Select Subtopics.
- Expect new-start technical subtopics for 2013 Solicitation.

2012 Solicitation	Regular SBIR	Select SBIR
Phase I maximum contract value	\$125K	\$200K
Phase I period of performance	6 months	6 months
Phase II maximum contract value	\$750K	\$1500K
Phase II period of performance	24 months	24 months

2012 Phase I awards posted at

<http://sbir.nasa.gov/SBIR/sbirselectawards2012/phaseI/awards/index.html>



## NASA SBIR Technology Available (TAV)

- All 2012 subtopics had option of using TAV with NASA IP.
- Allowed leverage of relevant NASA-developed technologies.
- NASA technologies identified either in a subtopic or via IP search tool <http://technology.nasa.gov> are either:
  - Protected by NASA-owned patents, or
  - Non-patented NASA-owned or controlled software, or
  - Otherwise available for public use.
- If a proposer elected to use a NASA patent, a non-exclusive, royalty-free research license will be required to use the NASA IP during the SBIR/STTR performance period.
- More details in 2012 Solicitation, Section I.6.



## What's Likely to be New in 2013 Solicitation

- Timing – Release planned for mid-November 2013.
  - Compare to 2012 Solicitation release on Sept. 17, 2012.
  - Look for it on the NASA SBIR home page  
<http://sbir.nasa.gov/SBIR/SBIR.html>
- STMD will be represented along with SMD, HEOMD, ARMD.
- Other new initiatives! More to come in November.



# For Additional Information on Reauthorization, Policy Directives and Impacts

- Reauthorization Bill (H.R. 1540) – Available via  
<http://thomas.loc.gov/home/thomas.php>
- SBIR and STTR Policy Directives  
<http://www.sbir.gov/about/sbir-policy-directive> (SBIR)  
<http://www.sbir.gov/about/sttr-policy-directive> (STTR)
- SBA Home Page  
<http://www.sba.gov>
- Official SBA News Blog  
<http://www.sba.gov/community/blogs/official-sba-news-and-views/open-for-business>
- Federal SBIR Official Website – All Agencies  
<http://www.sbir.gov/>
- NASA SBIR Home Page  
<http://sbir.nasa.gov/SBIR/SBIR.html>
- Small Business Act  
<http://www.sba.gov/content/small-business-act>
- SBIR Gateway  
<http://www.zyn.com/sbir/>



## Establishing NASA SBIR Points of Contact

- We may communicate with companies about NASA/JPL needs, technical relevance, applications, technical subtopic details and clarifications, etc.
  - The one exception is the Blackout Period (from Solicitation Release through Phase I Awards Announcement).
- You are encouraged to contact us!
  - **If you do not already have NASA technical point(s) of contact, you can contact the SBIR Technology Infusion Manager (TIM) or the Field Center Program Manager at the desired Center(s).**
    - <http://sbir.nasa.gov/SBIR/pgminfo.htm>
    - We can provide you with relevant leads and points of contact.



# JPL SBIR Points of Contact

- Indrani Graczyk – Commercial Program/ SBIR Program Manager
  - [Indrani.Graczyk@jpl.nasa.gov](mailto:Indrani.Graczyk@jpl.nasa.gov)
- Byron Jackson – Administration
  - [Byron.L.Jackson@jpl.nasa.gov](mailto:Byron.L.Jackson@jpl.nasa.gov)
- Carol Lewis – Technology Infusion Manager
  - [Carol.R.Lewis@jpl.nasa.gov](mailto:Carol.R.Lewis@jpl.nasa.gov)
- Janelle Nguyen – Administration Support
  - [Janelle.Nguyen@jpl.nasa.gov](mailto:Janelle.Nguyen@jpl.nasa.gov)
- Rich Terrile – Operations Manager
  - [Richard.J.Terrile@jpl.nasa.gov](mailto:Richard.J.Terrile@jpl.nasa.gov)
- Deb Wolfenbarger – External Communications
  - [Debora.L.Wolfenbarger@jpl.nasa.gov](mailto:Debora.L.Wolfenbarger@jpl.nasa.gov)

Copyright 2013 California Institute of Technology.  
Government sponsorship acknowledged.