



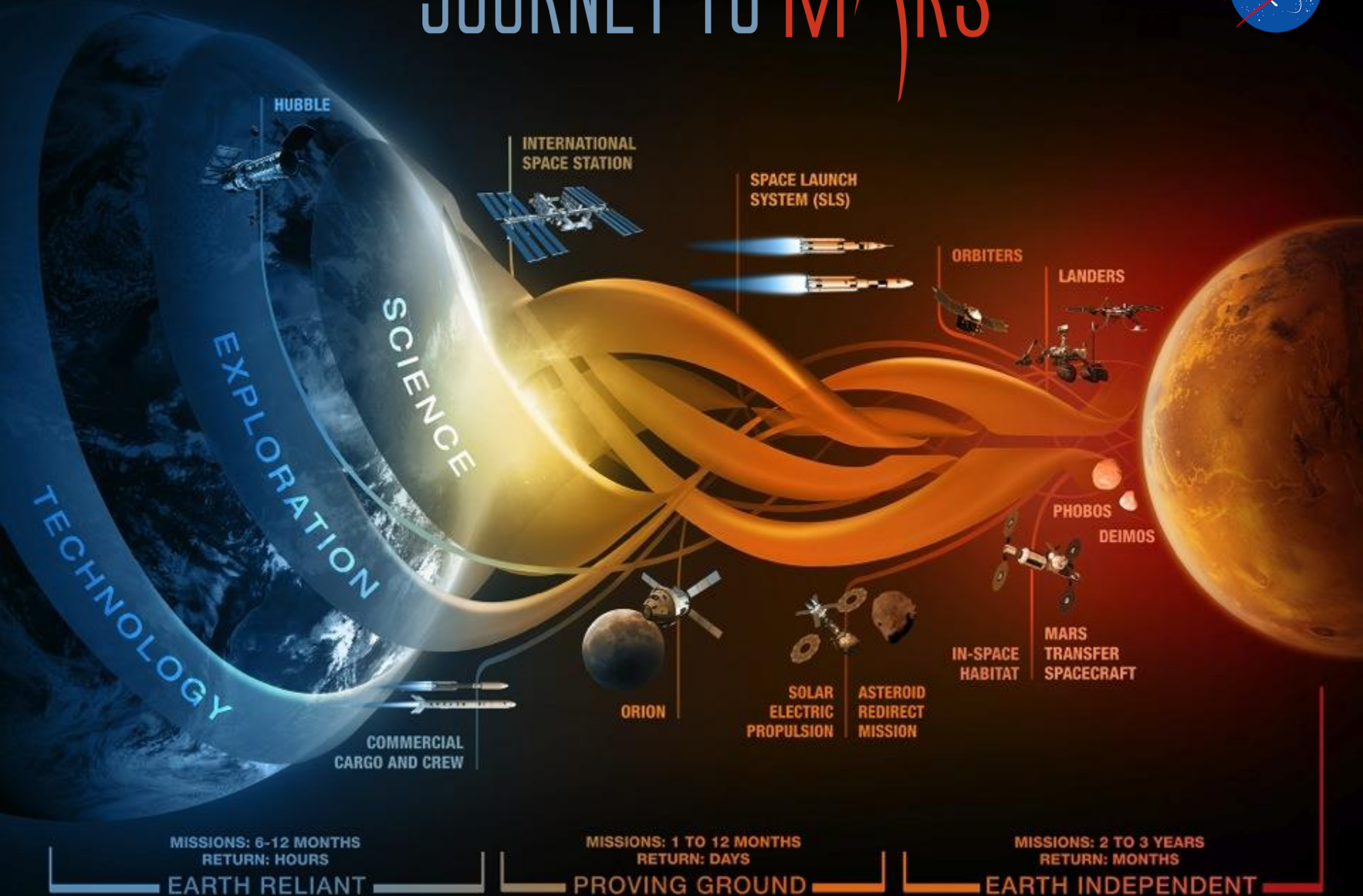
# Small Business Innovation Research Small Business Technology Transfer

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Technology Infusion Manager (JPL)

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# JOURNEY TO MARS





Starts Here on Earth



# SBIR Assists in Emergency Communication Systems

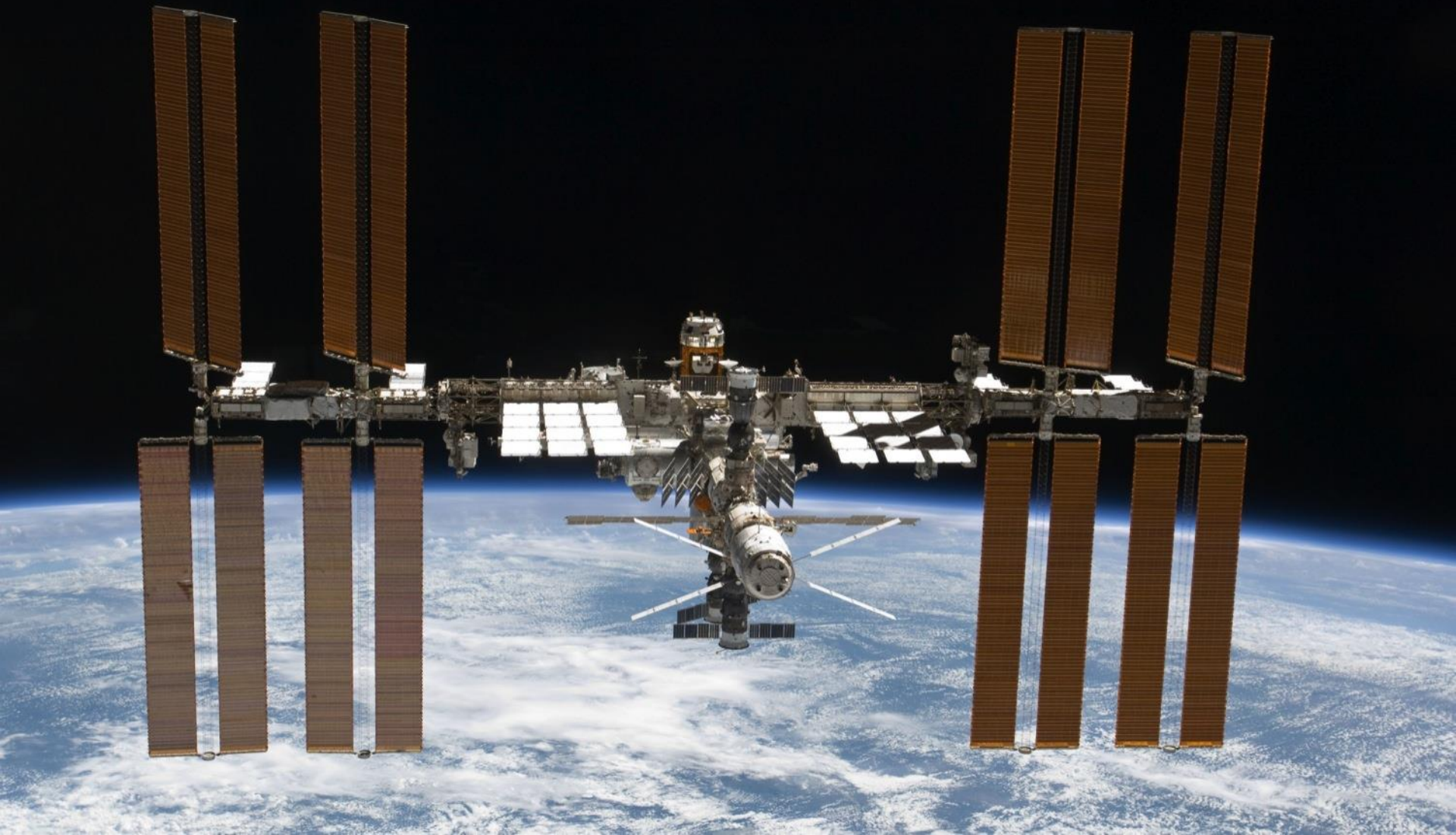
Popular with U.S. military and intelligence agencies, the systems have been used in missile ranges, severe weather, and emergency response situations.

*SRS TECHNOLOGIES*





# SBIR Manufactures in Space



# First Zero-Gravity 3D Printer



Made In Space's Zero-G Printer was launched to the ISS on September 21, 2014 making it the first company to manufacture in zero gravity. This will allow for lighter payloads in launch and real time manufacturing of necessities such as tools for repairs.

*MADE IN SPACE*



# Bone Densitometer



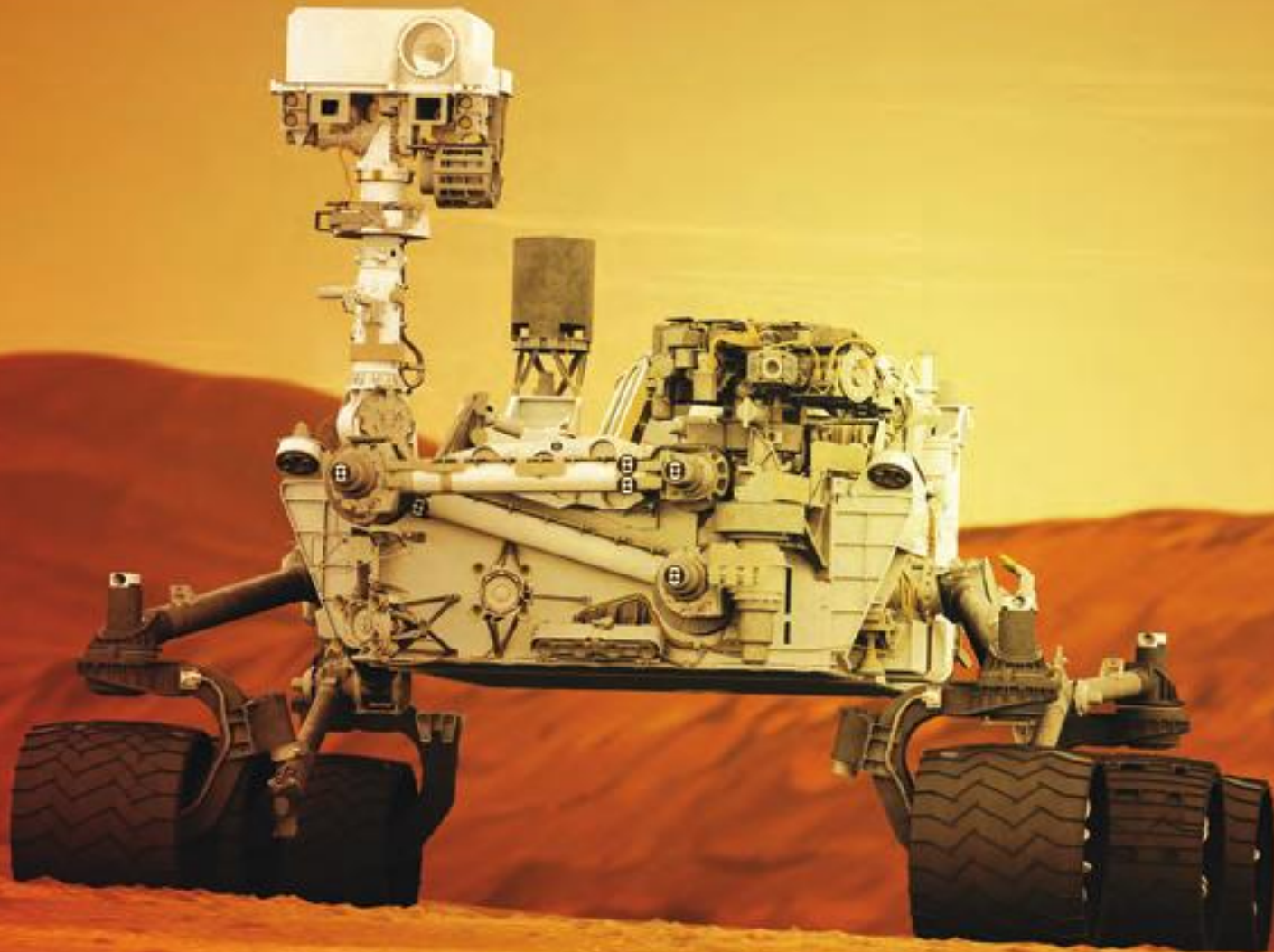
**The first x-ray machine flew up to the ISS in 2014. It has allowed NASA to study bone density in rats and can potentially be used to assess the extent of bone injuries.**

***Techshot, Inc.***





# SBIR Lands on Mars





# SBIR Technologies on Curiosity Rover



**Yardney  
Technical  
Products,  
Pawcatuck, CT**

Lithium ion  
batteries

**Creare, Hanover NH**

Space-qualified vacuum pump

**Starsys Research,  
Boulder, CO**

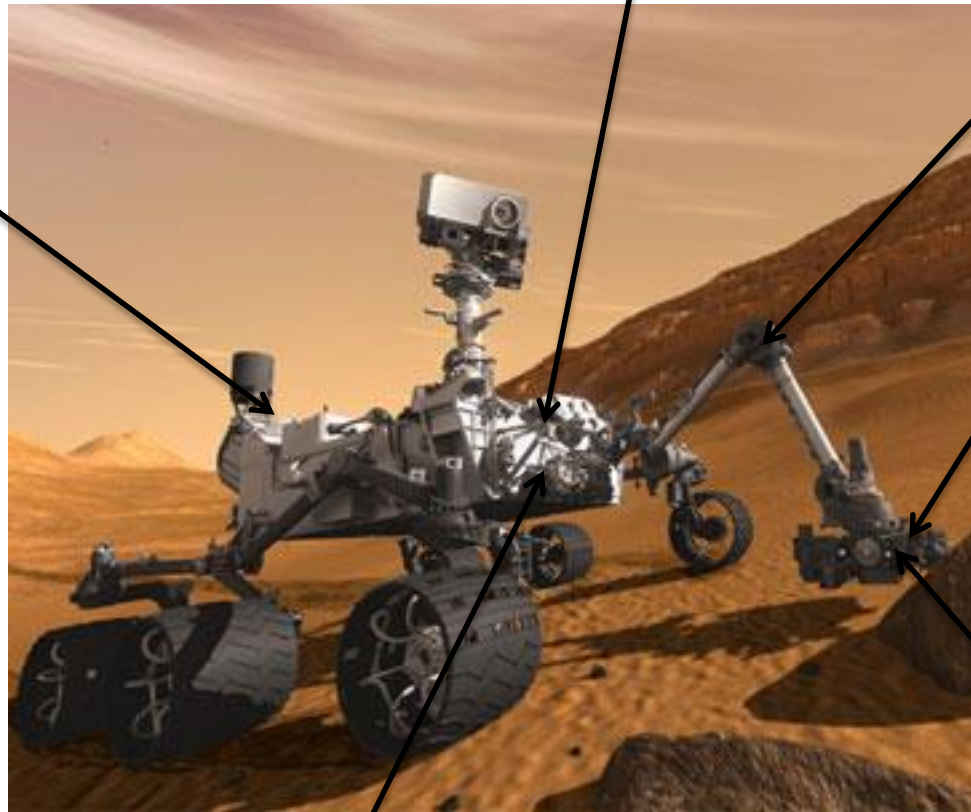
Gearboxes for robotic arm

**Honeybee  
Robotics, NY, NY**

Dust removal tool

**inXitu, Campbell, CA**

Chemistry  
and Mineralogy  
experiment (CheMin)  
instrument



**Grammatech, Ithica NY -**  
Software for rover operations

# Overview



- Every technology development investment dollar is critical to the ultimate success of NASA's mission
- Ultimate objective is to achieve infusion of critical technologies into NASA
- Mission Directorates establish high priority needs and existing gaps
- NASA Centers are home to NASA's development projects, research facilities, and Subject Matter Experts and therefore play a critical role



# Contact Information



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For more information, go to: [www.sbir.nasa.gov](http://www.sbir.nasa.gov)

The background of the entire image is a dramatic, low-angle shot of a Martian landscape. A bright sun is low on the horizon, creating a massive, glowing orange and yellow sky with wispy clouds. Several Mars rovers of different designs are positioned on a flat, reddish-brown surface. To the right, a small figure of a person stands near one of the rovers. The foreground is a dark, deep crevice or canyon wall, which serves as a base for the title text.

# THE EVOLUTION OF A MARTIAN





# **Back Up Slides**

# Participating Federal Agencies

## SBIR + STTR Programs



Department of  
Defense (DoD)



Department of  
Health and Human  
Services (HHS)



Department of  
Energy (DoE)



National Aeronautics  
and Space  
Administration (NASA)



National Science  
Foundation (NSF)

## SBIR Program only:



Department of  
Agriculture  
(USDA)



Department of  
Education (DoEd)



Department of  
Transportation (DoT)



Environmental  
Protection  
Agency (EPA)



Department of  
Homeland Security  
(DHS)



Department of  
Commerce  
(DoC)



# Eligibility Requirements



## Small Business Innovation Research (SBIR)

- 1 Organized for-profit U.S. business
- 2 At least 51% U.S. owned by individuals and independently operated
- 3 500 or fewer employees
- 4 PI's primary employment with small business during project
- 5 Intellectual Property Agreement

## Small Business Technology Transfer (STTR)

- 1 Formal Cooperative R&D Effort with a U.S. Research Institution
- 2 Minimum 40% by small business, 30% by U.S. Research Institution
- 3 Small business is Prime, PI can be from SBC or Research Institution
- 4 Other SBIR Requirements Apply

# Structure of the Programs



## Phase I: **Concept**

- Award Guideline: \$125K
- Duration: 6 months (SBIR)  
12 months (STTR)



## Phase II: **Full Research, R&D to Prototype**

- Award Guideline: \$750K
- Duration: 24 months
  - Phase II-E



## Phase III: **Commercialization/Infusion**

- Non-SBIR/STTR funds
  - Contract from NASA program, other agency, prime contractor

# Solicitation Development



## ESTABLISH SBIR TOPICS

NASA Mission Directorates review Topic descriptions from previous solicitations, alert Topic Managers to new solicitation, and request input for new solicitation.

## DEVELOP & SUBMIT SUBTOPIC NOMINATIONS

Mission Directorates work with Topic Managers to solicit revisions of previous Subtopics and submissions of new Subtopics, using Subtopic Nomination Forms.

## HOLD SBIR ADVISORY COMMITTEE MEETINGS

Each Mission Directorate convenes an Advisory Committee to review potential Subtopics. Topic Managers present Topics and Subtopics by order of initial rank, advocate submissions to Committee, and provide requested follow-up information.

## PERFORM MISSION DIRECTORATE INTEGRATION AND RANKING

Advisory Committees, along with Mission Directorates, consider all submissions, analyze group feedback, and determine final ranking based on Mission Directorate objectives, priorities, and program goals.

## COMPLETE SUBTOPIC CONTENT AND RELEASE SOLICITATION

Subtopic Managers enter Subtopics into Electronic Handbook (EHB). Reviewers perform quality checks on information. Mission Directorates and NASA SBIR Program Management Office perform final review and assessment. NASA issues solicitation for proposals via NASA SBIR/STTR website: <http://sbir.nasa.gov/>

FY16: Fourth  
Quarter

November 2016

With Mission  
Directorates and  
Centers- define  
Subtopics for  
annual  
Solicitations

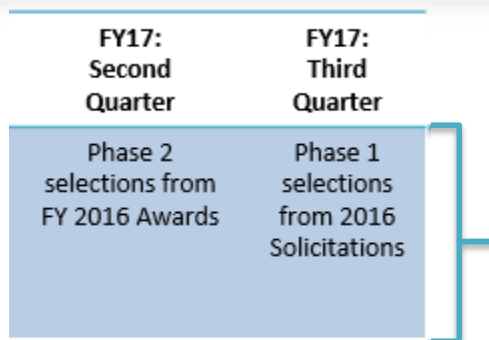
Release annual  
SBIR and STTR  
Solicitations

Examples of Topics from the 2016 Solicitations include:

- Integrated Flight Systems
- Space Transportation
- Autonomous and Robotic Systems
- Sensors, Detectors and Instruments
- Information Technologies



# Review & Selection Process



Proposals are evaluated on these factors:

1. Scientific/Technical Merit and Feasibility
2. Experience, Qualifications and Facilities
3. Effectiveness of the Proposed Work Plan
4. Commercial Potential and Feasibility
5. Price Reasonableness



# NASA SBIR/STTR Budget



## Annual Award Budget FY16:

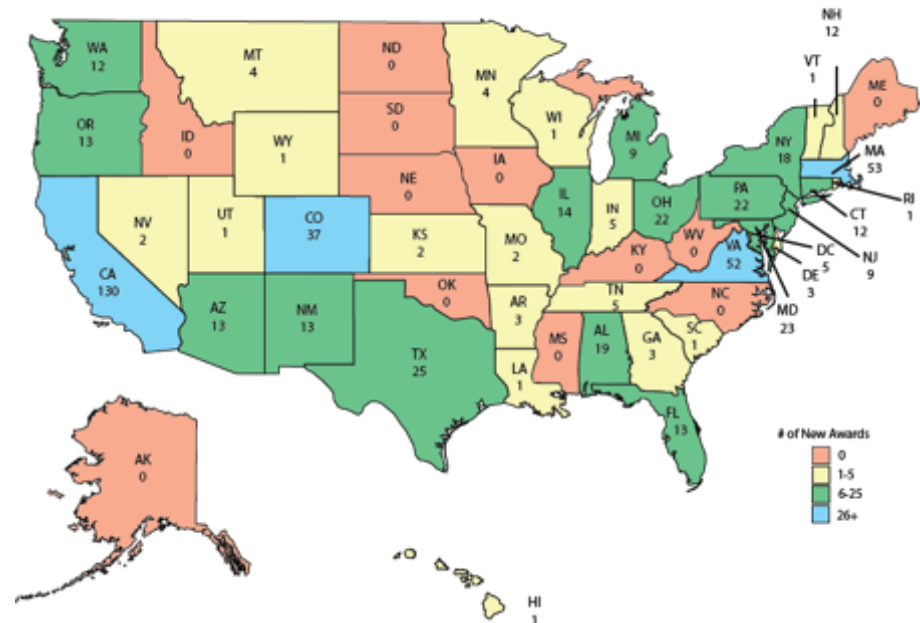
**SBIR & STTR:** ~\$185M

- SBIR is 3.0% of R&D in FY16 In FY17, NASA will increase the SBIR investment to 3.2%
- STTR is .45% of R&D in FY16

## Past Glance of FY 15 Awards:

- SBIR Awards: 325 Phase I and 119 Phase II; 7 Phase I Selects and 10 Phase II Selects
- STTR Awards: 50 Phase I and 21 Phase II
- Phase II-E Awards: 31 SBIR/STTR Phase II-Es were awarded, leveraging \$5.36 M funds from non-SBIR sources

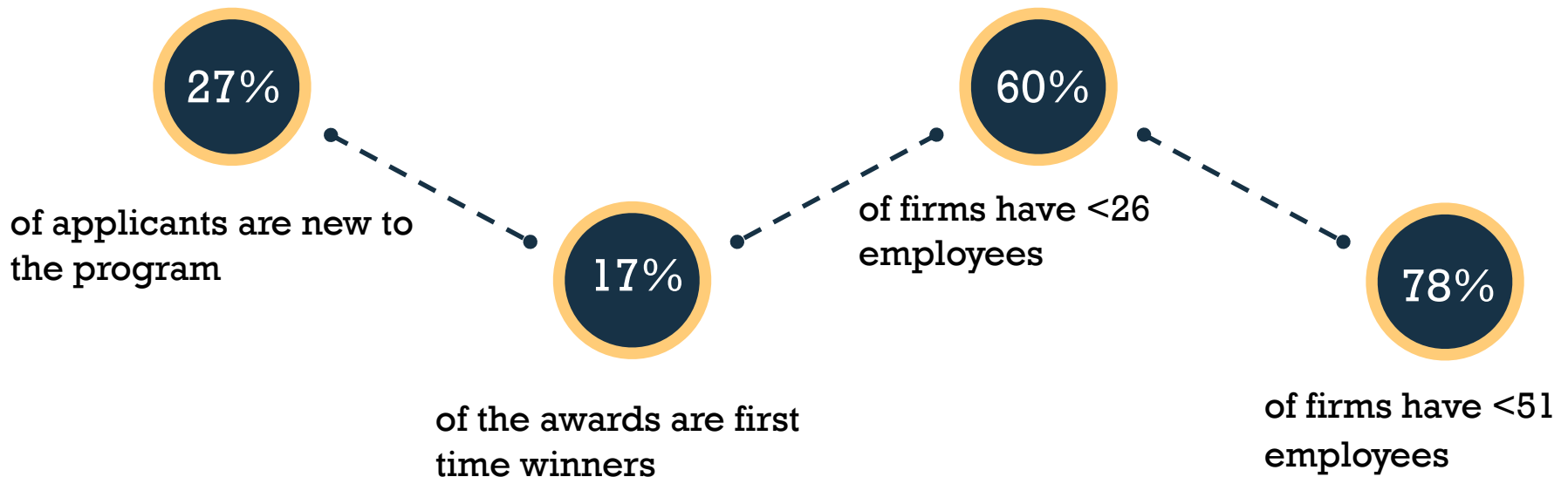
Fiscal Year 2015 SBIR/STTR Awards (Phase I, II, & II-E)



# Participating Firms



## FY 15 Phase I SBIR/STTR Awards





# SBIR/STTR Homepage



Access the PY 2016 Solicitations  
(Next release date  
\*November 2017)

Information for NEW firms available under  
“Proposers”

SBIR/STTR program analytics