National Aeronautics and Space Administration

Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Program Overview

Marc Shoemaker, Stennis Space Center SBIR Center Liaison, April 30, 2025

NASA SBIR/STTR Program

sbir.nasa.gov

MISSION

Empowering all small business communities to imagine, build, and utilize revolutionary technologies to drive NASA and the national economy to reach new heights

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VISION

A world where any entrepreneur can benefit humanity

Agenda

AGENDA

- What is the SBIR/STTR Program?
- Who can join?
- What do we provide?
- How does it work?
- What exactly do you get?
- What do participants say?
- Who was selected for Phase I awards?
- What is SBIR Ignite?
- What are Catalysts?
- Where do you start?


WE ARE
PIONEERS,
AND SO
ARE YOU.

What is the SBIR/STTR Program?

- Highly competitive program that encourages domestic small businesses to engage in Federal Research/Research and Development (R/R&D) with the potential for commercialization
- **Small Business Technology Transfer (STTR)**
  - Established in the 1990s; created to facilitate cooperative R&D between small businesses and U.S. research institutions (RIs)
  - NASA is 1 of 6 participating agencies
- **Small Business Innovation Research (SBIR)**
  - Has been around since 1980s
  - NASA is 1 of 11 participating agencies

Approximately $3 billion invested per year by participating 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)
- Department of Agriculture (USDA)

SBIR Program Only

- Department of Education (ED)
- Department of Transportation (DOT)
- Environmental Protection Agency (EPA)
- Department of Homeland Security (DHS)
- Department of Commerce (DOC)

Who can join?

- The SBIR/STTR program's **focus is on R&D**, funding ideas that have the potential to solve some of NASA and the nation's most pressing challenges
- You **must be a Small Business Concern (SBC)** with 500 employees or less and legally established in the U.S. (visit sbir.gov for the full criteria)
- **For STTR**, the partnering research institution must be in the U.S. and be a nonprofit college or university, domestic nonprofit research organization, or a federally funded R&D Center (FFRDC)
- **If NASA is not the right fit**, there are 10 other government agencies that have SBIR/STTR programs that you may want to explore: sbir.gov/agencies-landing

Approximately 80% of the small businesses we fund have less than 50 employees

What do we provide small businesses?

Early-stage funding for research & development (R&D)

Up to $1 million during your first three years, plus up to $3 million or more through Post Phase II opportunities

We **take zero equity**, and you keep your intellectual property

The **experience** of working with NASA experts on your technology

The **opportunity** to join us on one of our many ambitious missions

A **network** of entrepreneurs and innovators

A door into potential work with **NASA programs and other government agencies**

A way to hone your **business skills** to complement your technical skills

A way to **de-risk your technology** as you work to mature it

A **reputation** that comes with working with an agency known for expanding the physical and mental boundaries of humanity

What do we provide research institutions?

For RIs:

- A path to turn **cutting-edge research** from the lab to **life-changing technology** in the market
- The **credibility** that comes from working alongside **NASA's researchers and experts**
- A **federal funding** mechanism to advance research in your area of interest

For Professors:

- Research data for potential **publication in the future**
- A way to **expose students to exciting projects** that could lead to employment
- An approach to **foster entrepreneurship and innovation** in students
- A **differentiator when marketing** your institution to potential students

For Students:

- The opportunity to work on **pioneering research projects**
- **Experience** that could lead to employment
- The inspiration to **start your own company**

How does it work?

Solicitation Release

January 2025

Proposal Submissions

January – March 2025

Proposal Reviews and Selection

March – June 2025

Phase I Selection Announcement

June 2025

Note: A Federal agency may enter into a Phase III agreement at any time with a Phase I or Phase II awardee.

Contract Negotiations/Awards

June – August 2025

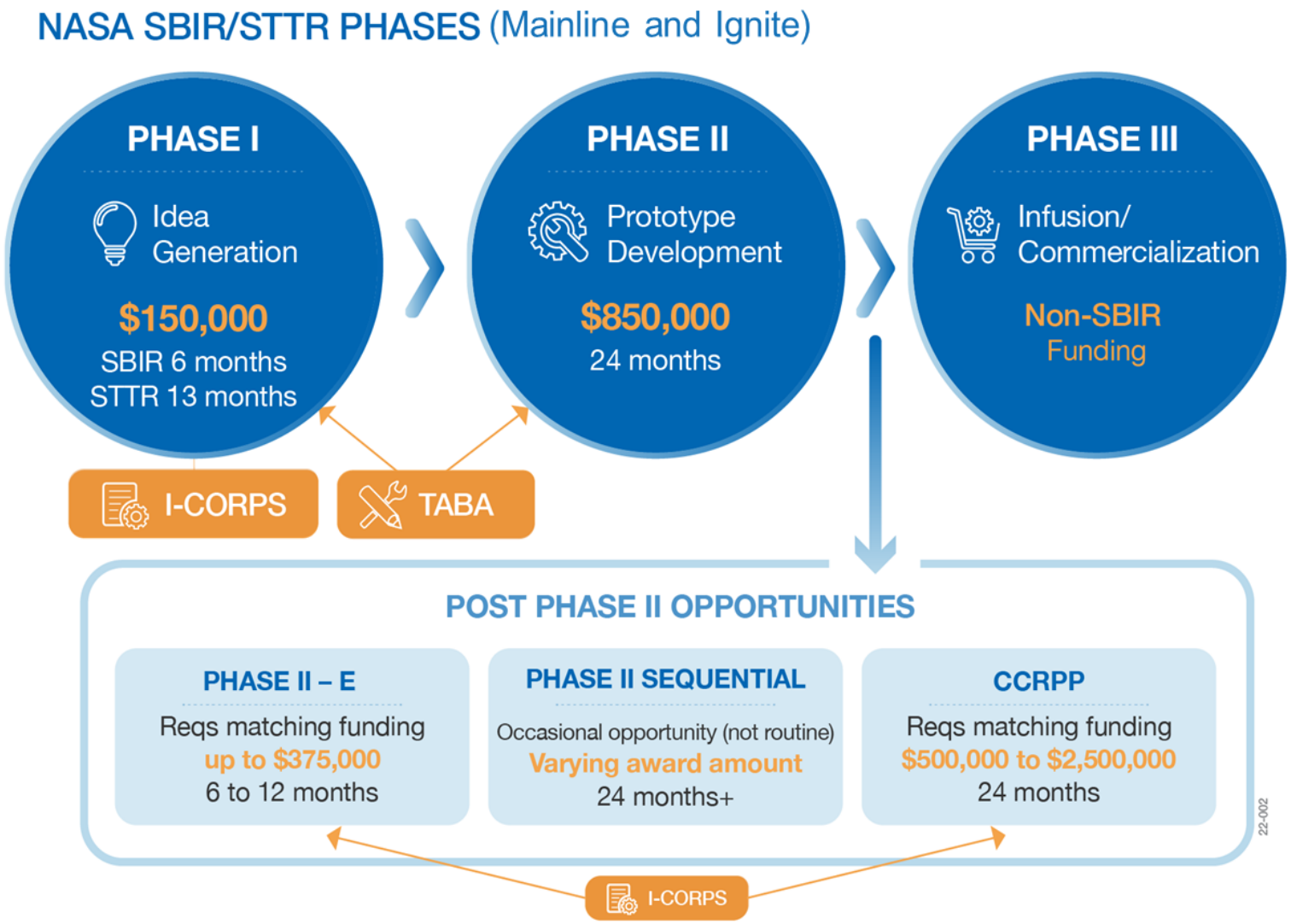
Phase II Proposal Submission

Due by Phase I Contract End Date

Note: Dates are subject to change. For the latest dates, please visit our website's "Schedule & Awards" page.

What exactly do you get?

Up to $1 million for Phase I and II and $3 million or more for Post Phase II opportunities!



What else do participants say?

"SBIR and STTR awards are really how we got the company going and became **the lifeblood of the company**."

"We now have **maturity** in the eyes of our industry partners…NASA gave us an initial push and **now the industry is taking over**."

"As a small R&D firm, you have to go after these **higher risk, cutting edge technologies that are only funded under SBIR**."

"Without the SBIR/STTR program this **would have been a much more difficult road for us** to travel."

"Our company has been able to **provide jobs in a rural area** in a non-space state, and we really tie that back to the SBIR program."

"The technology that was funded under this NASA SBIR **evolved into the product we sell today**."

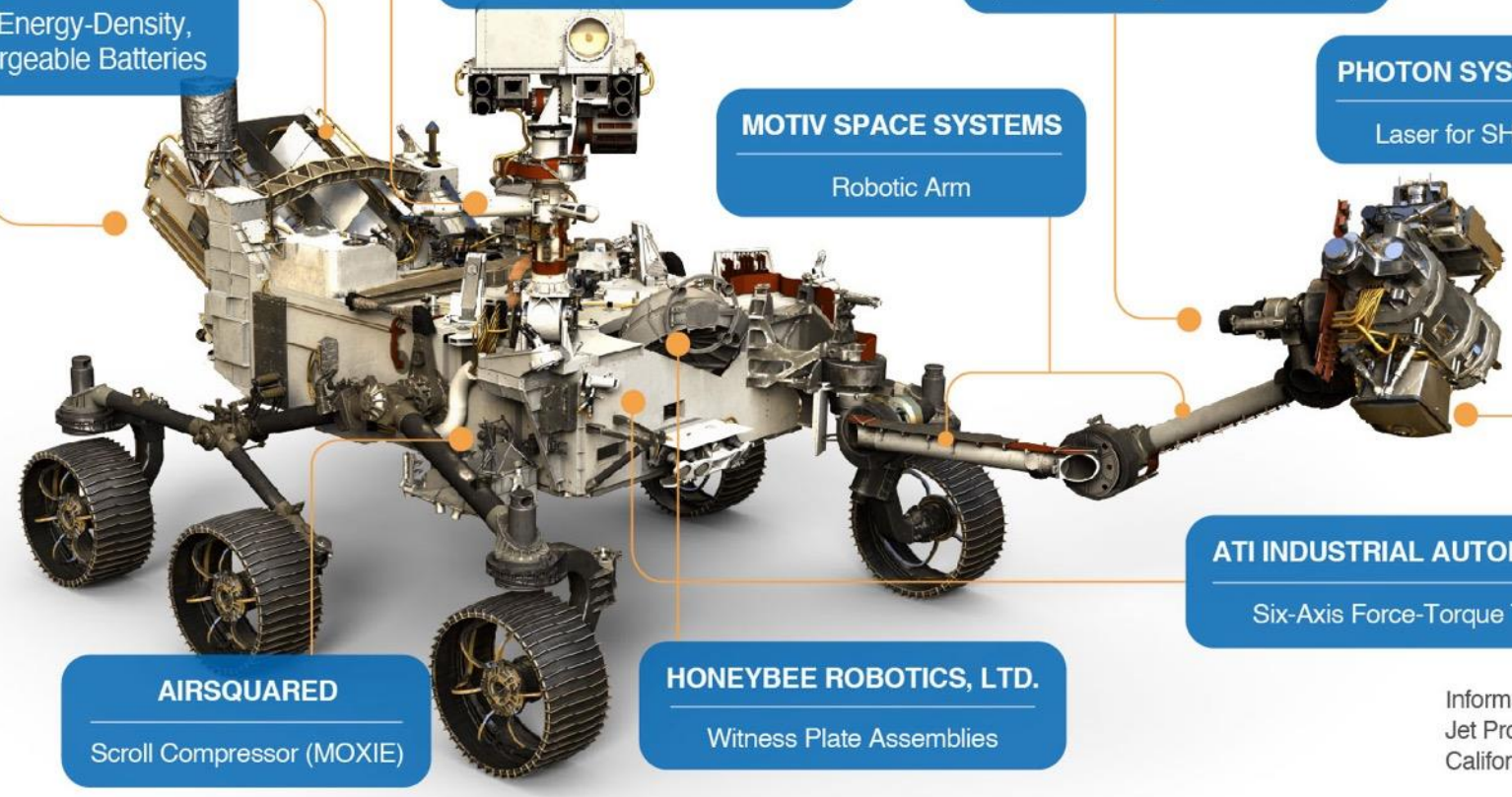
"We went from an R&D **prototype line to a pilot-scale production line in just six months** that allowed us to more readily manufacture the material and deliver the product to NASA."

"I was impressed with the **opportunity for the small businesses to compete** with the large aerospace companies. It really **gives small business an entry**."

"The NASA SBIR program has **enabled a very complicated technology to be developed** that, if it were left to private enterprise, never would have been built."

Infusion into NASA's missions

SBIR TECH ON-BOARD MARS 2020
PERSEVERANCE ROVER



YARDNEY (EAGLE PICHER)
High-Rate, High-Energy-Density, Lithium-ion Rechargeable Batteries

HONEYBEE ROBOTICS, LTD.
Dust Mitigation Tool

ENGI-MAT
Space suit materials (calibration target of SHERLOC)

PHOTON SYSTEMS, INC.
Laser for SHERLOC

MOTIV SPACE SYSTEMS
Robotic Arm

ATI INDUSTRIAL AUTOMATION, INC.
Six-Axis Force-Torque Transducer

AIRSQUARED
Scroll Compressor (MOXIE)

HONEYBEE ROBOTICS, LTD.
Witness Plate Assemblies

sbir.nasa.gov

Information provided by:
Jet Propulsion Laboratory
California Institute of Technology

SBIR

Higher Ground, LLC

TOPIC: Uncrewed Aerial Vehicles (UAV)

TECHNOLOGY: UAV tracking, even in network-deficient areas, and enabling UAVs to detect and avoid oncoming traffic

JOURNEY:

PHASE I	PHASE II	PHASE II-E	PHASE III
$123K	$750K	$1M NASA + DOD investment	$3.3M NASA + DOD investment

READ FULL STORY

SBIR

Astrobotic Technology, Inc.

TOPIC: Lunar Resources

TECHNOLOGY: CubeRover for lunar science and exploration

JOURNEY:

PHASE I	PHASE II	PHASE II-E	NASA TIPPING POINT
$125K	$750K	$375K	$2M

READ FULL STORY

SBIR

Techshot, LLC (now a Redwire company)

TOPIC: ISS Utilization and Microgravity Research

TECHNOLOGY: BioFabrication Facility to 3D print with living cells in zero gravity

JOURNEY:

PHASE I	PHASE II	CCRPP	
$150K Other agency SBIR funding	$1M Other agency SBIR funding	$3M NASA + ISS	ACQUIRED

READ FULL STORY

STTR

SKYRE, Inc.

Partner Research Institution: University of Connecticut

TOPIC: Energy Conservation and Sustainability

TECHNOLOGY: Hydrogen Recovery System for recycling and compressing hydrogen and helium for rocket engine tests

JOURNEY:

PHASE I	PHASE II	PHASE II-E	PHASE II-S	CCRPP
$125K	$700K	$400K NASA + DOD investment	$750K	$2M NASA + industry investment

READ FULL STORY

STTR

Nature's Fynd

Partner Research Institution: Montana State University

TOPIC: Advanced Bioreactor Development for Microbial Manufacturing in Space

TECHNOLOGY: Bioreactor to cultivate sustainable, edible protein source in microgravity conditions

JOURNEY:

PHASE I	PHASE II	PHASE III
$124K	$750K	$500M commercial investment

READ FULL STORY

**All dollar amounts are approximate*

Where can the program take you?
Find out at **sbir.nasa.gov**

Success Story:
Electrochemical Gas Recovery for Rocket Engine Tests

SKYRE's H2RENEW™ is available on the commercial market

SKYRE, Inc.

LOCATION: Hartford, Connecticut

- Through the NASA SBIR/STTR program, SKYRE advanced its **Hydrogen Recovery System** (HRS) for supplying compressed hydrogen and helium, which are required for **rocket engine testing**
- **$25 million** in revenue related to SBIR/STTR developments, including NASA and other government agencies
- STTR **Phase II-Extended** and **Phase II-Sequential** funds to develop HRS in partnership with University of Connecticut
- **More than $1.5 million total** in NASA SBIR/STTR CCRPP funding, including funds from NASA and angel investors
- With business training from the NASA SBIR/STTR I-Corps program, SKYRE has **commercialized** its technology into **two product lines**

READ MORE: Web | PDF

Success Story | SKYRE, Inc.

We began to leverage the SBIR/STTR process more… The different phases and opportunities force you to talk to commercial entities, to try and understand what their needs are.

– **Trent Molder**
SKYRE, Inc.
CEO

SKYRE's system supplies compressed hydrogen and helium for rocket engine testing

2025 SBIR/STTR Phase I Solicitations

Phase I Solicitations were accepted from January 7 – March 10, 2025

Awards to be announced in June timeframe

Find the Solicitations on SAM.gov: **SBIR Phase I Solicitation** | **STTR Phase I Solicitation**

Watch the **Subtopic Ask Me Anything sessions** (held the week of December 9, 2024):

Reach out the program's Help Desk at **agency-sbir@mail.nasa.gov** to ask your questions early

What is SBIR Ignite?

- NASA SBIR Ignite Pilot Solicitation offers an additional SBIR funding opportunity that:
  - Encourages participation from **product-driven companies** not looking at NASA as their primary customer
  - Places a heavy emphasis on **commercial viability** during review and scoring
  - **Streamlines the application process** by shortening the solicitation and the proposal requirements
  - **Features the same three phases and funding levels** as the main NASA SBIR/STTR solicitations
- 2025 NASA SBIR Ignite Phase I solicitation dates have not yet been released
- https://www.nasa.gov/sbir_sttr/sbir-ignite/

Awardee Highlights

- ✓ **12 companies selected for Phase I awards in 2022; all selected for Phase II awards in 2023**
- ✓ **10 companies selected for Phase I awards in 2023; all selected for Phase I awards in 2024**
- ✓ **10 companies selected for Phase I awards in 2024**

Catalysts: Mechanisms to Advance Technologies and Address Shortfalls

STMD uses a variety of tools and mechanisms to address capability shortfalls and nurture the knowledge and talent base for civil space while also supporting agency level functions

Contracts

Grants and Cooperative Agreements

Challenges

Flight Tests

Funded / Unfunded Space Act Agreements

Cross-cutting activities (NASA I-Corps) and other tools

NASA Innovative Advanced Concepts	Space Technology Research Grants	Prizes, Challenges, and Crowdsourcing	Tipping Point	Announcement of Collaboration Opportunity	Small Business Innovation Research / Small Business Technology Transfer	Flight Opportunities	Technology Transfer

Explore opportunities to work with us: https://techport.nasa.gov/help/fundingOpportunities

Catalysts: Mechanisms to Advance Technologies and Address Shortfalls

ESIP was created to give more support to STMD's and NASA's early stage technology development and technology commercialization programs. The programs that make up ESIP engage a community of innovators and provide investment and support throughout the innovation lifecycle.

	CROSS-CUTTING ACTIVITIES Early-Stage Investment and Commerce (ESIC) | I-Corps				
Program Acronym	**NIAC**	**STRG**	**PCC**	**SBIR/STTR**	**T2**
Program Name	**NASA Innovative Advanced Concepts**	**Space Tech Research Grants**	**Prizes, Challenges, and Crowdsourcing**	**Small Business Innovation Research / Small Business Technology Transfer**	**Technology Transfer**
Program Description	Nurtures **visionary ideas** that could transform future NASA missions by engaging America's innovators and entrepreneurs as partners in the journey.	Challenges the spectrum of **academic researchers** to making science, space travel, and exploration more effective, affordable, and sustainable.	Makes opportunities available for **public participation** in NASA research and technology solutions to support.	Engages **small businesses, research institutions, and entrepreneurs** in technology R&D that meet NASA needs and could be commercialized.	Ensures that innovations developed for exploration and discovery are maximizing the benefit to the Nation and enabling **spinoffs**.
TRL	Low	Low	Low	Low/Mid	Low/Mid
Size	**30+** grants annually	**300+** grants with dozens of universities	**>80** projects across NASA	**>500 contracts** with hundreds of small businesses	**>1,500** Active Patents & **>700** Licenses
Primary Audience	Government, Industry, Academia	Academia	General Public, Academia, Industry	Small Business, Research Institutions	Industry

Where do you start?

- Sign up to receive our **emails**: nasa.gov/sbir_sttr/program-contact/
- Monitor for SBIR/STTR and other NASA STMD **solicitations**:
  - nasa.gov/stmd-solicitations-and-opportunities/
  - Official SBIR/STTR solicitation postings are on sam.gov
- Find **local assistance** in your state through the SBA's website sbir.gov/local-assistance
- Explore another path for working with NASA through **Office of Small Business Programs** (OSBP); ideal for small businesses without an R&D focus nasa.gov/osbp

Questions?

Visit our website:
www.sbir.nasa.gov

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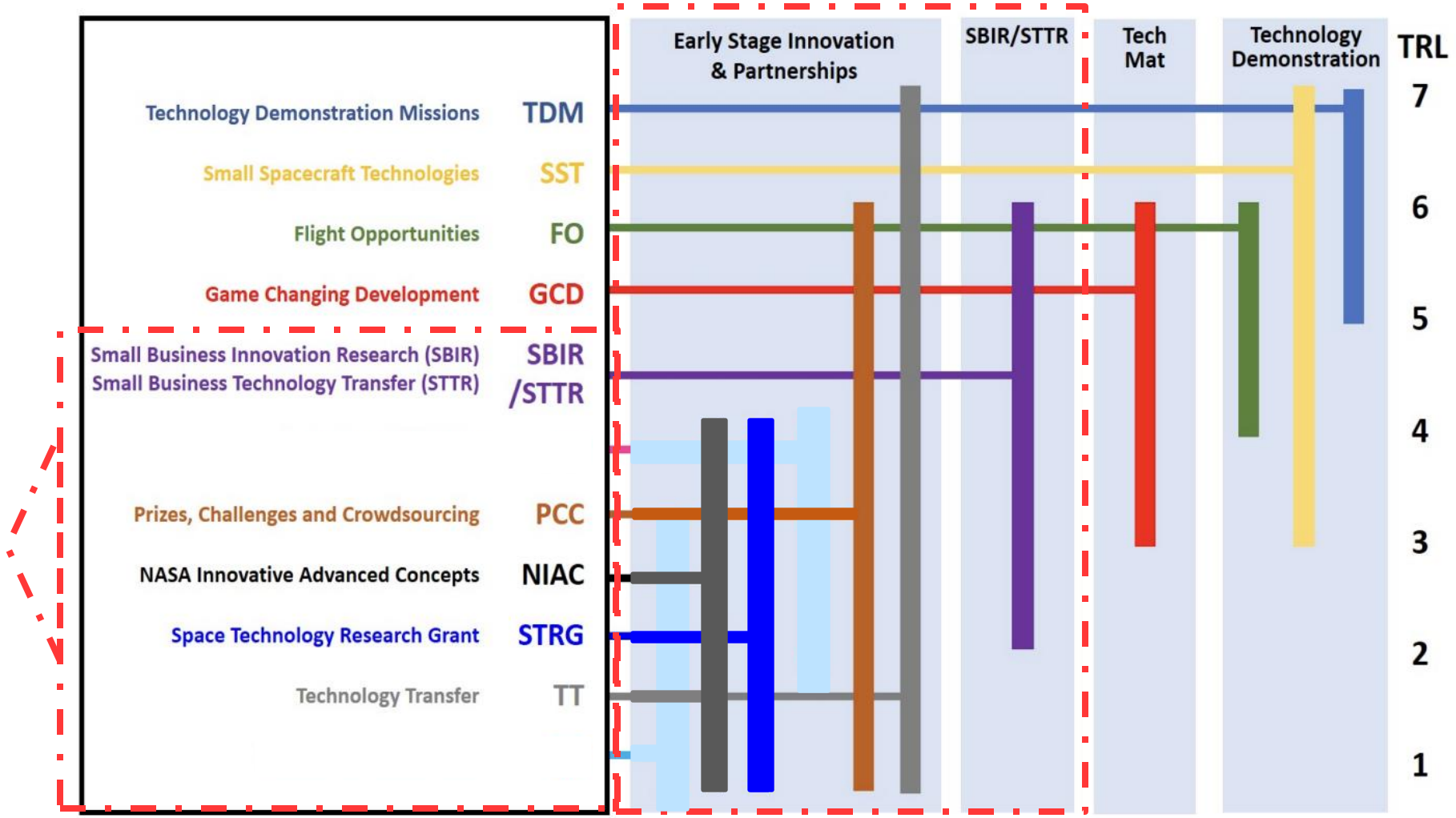
Appendix

Catalysts: Mechanisms support low to high TRL investments



Catalysts: Portfolio of Solicitations/ Activities

	Solicitation/ Activity Title	Award Type	Topic Specificity*	Frequency of Award	Prerequisite or Eligible Applicants	Size ($ max) *(based on lifecycle $)*	Volume of Annual Awards
NIAC	NASA Innovative Advanced Concepts (NIAC) Phase I	Grant	Open	Annual	Government, Industry, Academia	Small (< $500K)	Few (<20)
	NASA Innovative Advanced Concepts (NIAC) Phase II	Grant	Specific	Annual	NIAC Phase I Awardees	Medium ($500K - $1M)	Few (<20)
	NASA Innovative Advanced Concepts (NIAC) Phase III	Contract	Specific	Annual	NIAC Phase II Awardees	Large (> $1M)	Few (<20)
STRG	NASA Space Technology Graduate Research Opportunities (NSTGRO)	Grant	Open	Annual	Graduate Students, US Universities	Small (< $500K)	Many (>50)
	Early Career Faculty (ECF)	Grant	Specific	Annual	Early Career Faculty at US Universities	Medium ($500K - $1M)	Few (<20)
	Early Stage Innovations (ESI)	Grant	Specific	Annual	US Universities	Medium ($500K - $1M)	Few (<20)
	Lunar Surface Technology Research (LuSTR) Opportunities	Grant	Specific	Annual	US Universities	Large (> $1M)	Few (<20)
	Space Technology Research Institutes (STRI)**	Grant	Specific	Every Other Year	US Universities	Large (> $1M)	Few (<20)

* "**Specific**" has a specified topic. "**Hybrid**" can be open within a broad topic or related to the original topic. "**Open**" has no specified topic

***Every-Other Year Cycle*

Catalysts: Portfolio of Solicitations/ Activities

	Solicitation/ Activity Title	Award Type	Topic Specificity*	Frequency of Award	Prerequisite or Eligible Applicatnts	Size ($ Range) *(based on lifecycle $)*	Volume of Annual Awards
I-Corps	NASA Innovation Corps (I-Corps) Pilot	Grant	Open	On-going	Academia / Higher-Ed / Non-Profit Research Institutions	Small (< $500K)	Few (<20)
SBIR/STTR***	SBIR/STTR Phase I	Contract	Specific	Annual	Small Businesses	Small (< $500K)	Many (>50)
	SBIR Phase II	Contract	Specific	Annual	SBIR Phase I Awardees	Medium ($500K - $1M)	Many (>50)
	STTR Phase II	Contract	Specific	Annual	STTR Phase I Awardees	Medium ($500K - $1M)	Medium (20 - 50)
	SBIR Ignite Phase I	Contract	Specific	Annual	Small Businesses	Small (< $500K)	Few (<20)
	SBIR Ignite Phase II	Contract	Specific	Annual	SBIR Ignite Phase I Awardees	Medium ($500K - $1M)	Few (<20)
	SBIR/STTR Sequentials	Contract	Specific	Annual	SBIR/STTR Phase II Awardees	Large (> $1M)	Few (<20)
	CCRPP	Grant	Specific	On-going	SBIR/STTR Phase II Awardees	Medium – Large ($500K - $2.5M)	Few (<20)

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****Universities are required partners for STTRs*

Catalysts: Portfolio of Solicitations/ Activities

	Solicitation/ Activity Title	Award Type	Topic Specificity*	Frequency of Award	Prerequisite for application or Eligible Applicants	Size ($ max) *(based on lifecycle $)*	Volume of Annual Awards
SBIR/STTR***	SBIR/STTR Phase II – E	Contract	Specfic	On-going	SBIR/STTR Phase II Awardees	Small (< $500K)	Medium (20 - 50)
	SBIR I-Corps	Contract	N/A	Annual	SBIR Awardees	Small (< $500K)	Medium (20 - 50)
	SBIR/STTR Phase III	N/A	Hybrid	On-going	Phase I/Phase II Awardees	N/A	N/A
PCC	Crowdsourcing Contenders	Award	Open	Annual	NASA Employees Propose Projects, Public participates in resulting challenges	Small (< $500K)	Few (<20)
	NTL Projects	Prizes, Challenges, Crowdsourcing	Hybrid	Ad-Hoc	NASA Employees Propose Projects, Public participates in resulting challenges	Varies	Many (>50)
	Centennial Challenge Projects	Prize	Specific	Ad-Hoc	NASA Employees develop competitions, Public participates in resulting challenges	Large (> $1M)	Few (<20)
T2	Software Release	Software Release	Open	Ad-Hoc	External and Internal Audiences	N/A	N/A
	Patent Licensing	Patent License	Open	Ad-Hoc	Industry	N/A	N/A

* "**Specific**" has a specified topic. "**Hybrid**" can be open within a broad topic or related to the original topic. "**Open**" has no specified topic

****Universities are required partners for STTRs*

From Low-Earth Orbit to Benefits on Earth

How small businesses use the International Space Station to improve life on our planet

From health care to environmental monitoring and emergency response, here are a few SBIR/STTR-derived technologies tested on the space station:

A lidar (light detecting and ranging) system for monitoring the effects of climate change by studying cloud and aerosol properties in Earth's atmosphere

Fibertek, Inc. (VA) | fibertek.com
Michigan Aerospace Corp. (MI) | michiganaerospace.com

A system to manufacture multilayered artificial retinas to treat retinal degenerative diseases; the conditions of space improve the quality of the manufacturing process

LambdaVision (CT) | lambdavision.com
Woman-led small business

A fine water mist fire extinguisher that is a non-toxic substitute for CO2 fire extinguishers, making it a safer alternative for spacecraft, aviation, and general commercial use

ADA Technologies, Inc. (CO) | adatech.com

An ultraviolet sensor for improved detection of ocean-based oil spills and fires in remote areas; the technology's integrity can be validated in the harsh conditions of space

Ozark Integrated Circuits, Inc. (AR) | ozarkic.com

A 3D bioprinter that uses the microgravity conditions of space to print human tissue, which could be used for skin grafts and transplants

Techshot, Inc. (IN) | techshot.space

The NASA SBIR/STTR program provides more than just early-stage funding – we open doors to a community that awaits you.

Learn more at **sbir.nasa.gov**

What is the difference between SBIR and STTR?

- The STTR program exists to unlock the power and innovative thinking of the country's **research institutions**
- The primary difference is that for STTR, the small business **must formally partner** with a research institution (RI)
- Topics in **SBIR** support NASA's **mission directorates**, whereas the **STTR** topics are derived from the specific needs of NASA's **ten centers**
- The **period of performance** for a Phase I is longer for STTR due to the nature of the academic calendar for universities
- SBIR: Principal Investigator (PI) must be more than 50% employed by the small business
- STTR: Principal Investigator (PI) can be employed by either the small business or the research institution

Why work with research institutions?

- Groundbreaking ideas waiting to **transition from the lab to the market**
- Access to **state-of-the-art facilities** and lab equipment
- A **higher chance of winning** due to less competition (compared to SBIR)
- **The expertise** of students and professors immersed in research daily
- Additional researchers as subcontractors (up to 60% in Phase I vs. only 33% in SBIR)
- **Innovation** that comes from collaborating with diverse mindsets and skillsets
- A **network within academia** and a sense of community
- A **pool of talented students** for potential hire