B-SAT: Brain State Assessment Tool

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Pre-Proposal Briefing

September 16, 2024

Baylor College of Medicine

Massachusetts Institute of Technology

Caltech

TRANSLATIONAL RESEARCH INSTITUTE FOR SPACE HEALTH™

Agenda

Objective: provide details about the TRISH B-SAT RFP and answer proposer questions

- The TRISH Mission and what does TRISH fund?
- B-SAT RFP
- FAQs
- Q&A

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TRISH MISSION

Relentlessly seek and support high-impact scientific, technological, clinical, and psychological advances that will enable any human to explore space safely.

WE COMPLEMENT NASA'S EFFORTS

NASA
Steady Progress in reducing space health risks

TRISH
Risk taking for potential GIANT LEAPS

Baylor College of Medicine

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WHAT DOES TRISH FUND?

TRISH supports the development of health technologies and knowledge for:

- Commercial Spaceflight
- NASA's Artemis Program
- Missions to the Mars system

NOW
Commercial Spaceflight in Low Earth Orbit

2020S
Operating in the Lunar Vicinity

2030S
Leaving the Earth-Moon System and Reaching Mars Orbit

Advancing technologies, discovery and creating economic opportunities

TRISH Brain State Assessment Tool (B-SAT)

Release Date: September 4, 2024
Proposals Due: October 15, 2024 at 11:59 pm ET
Estimated Selection Announcement: January 2025
Anticipated Project Start Date: March 2025

The goal of this RFP is to **procure an assessment tool capable of evaluating an individual's current readiness-to-perform**. We anticipate this assessment tool will involve **non-disruptive** and **minimally-obtrusive** sensors to monitor the users' state. The assessment should consider multiple factors, including but not limited to attention, fatigue, workload, stress, and drowsiness. Additional metrics—including those that may assess cognitive status—would further enhance the tool's usefulness.





Required Characteristics (1/3)

The list of requirements below serves as a guideline for proposing teams, outlining the key aspects that the proposed readiness assessment tool must fulfill:

- The tool must provide feedback that is relevant to self-assessment and readiness-to-perform (*e.g.*, **attention/vigilance, mental alertness, focus, stress level, *etc.***).
- The tool shall utilize non-disruptive and minimally-obtrusive assessment methods.
- The tool shall be broadly suitable for use with a wide range of crew members (commercial spaceflight participants on a single flight, frequent flyers, and employees of government agencies or commercial spaceflight providers, as well as Antarctic winter-over crews and participants in other ground-based spaceflight analogs).
- The tool shall accommodate a diverse range of spaceflight participants, including multiple countries, cultures, and languages.

Required Characteristics (2/3)

- It must be possible for the tool to provide on-the-fly feedback to the crewmember and/or support personnel (*e.g.*, crew medical officer, mission control): during task performance, at the completion of a specific task, and/or periodically throughout a monitoring session.
- The tool shall be compatible with a diverse range of presentation platforms and hardware and software systems. This includes seamless integration with popular operating systems such as iOS, Android, and Windows.
- The tool shall be capable of operating in both offline and online modes.
- Feedback and assessment should be flexible, for example allowing comparisons to the individual's baseline testing data as well as comparisons to a relevant population average.

Required Characteristics (3/3)

- The tool shall provide a reasonable way to identify deviations in an individual's readiness to perform (as measured by the tool), relative to their own baseline, over extended durations and through repeated testing.
- To the extent possible, the tool shall minimize setup-time, mass, power, volume, consumables, and data requirements.
- The tool shall be deployable in a spaceflight or a spaceflight-relevant analog within six months of the start of the award.
- The tool shall incorporate "on-the-fly" calibration capabilities, enabling seamless adjustments without the need for a cumbersome pre-use calibration process. This will facilitate continuous monitoring, ease of use, and longitudinal assessments.

Preferred Characteristics

- The tool's measures should be stable across continuous or repeated monitoring sessions (users should not exhibit changing outcome measures merely caused by exposure to the system; *i.e.*, no learning or orientation effects). If such exposure-related effects exist, there should be adequate methods to account for them.
- It is anticipated that the tool will be broadly usable by relevant user groups such as spaceflight analog providers, commercial space providers, and NASA.
- Open-source approaches and open licensing models for academic researchers or space operational professionals in government or industry are encouraged.
- Ideally, the tool should be able to compare its results with – and/or have been validated against – measures from one or more clinical/research standardized cognitive or functional assessment tools.

Reasons for Non-Review

Failure to address the specific needs outlined in the RFP will render the proposed tool unsuitable for funding and may result in the proposal being declined without review. Some reasons for non-review include:

- Standalone tests that require the user to stop what they are doing.
- Tools that require excessive mass, power, volume, or setup time.
- Tools that cannot be deployed within six months or less of the start of the award.

Frequently Asked Questions

Q. When will the funding decisions, regarding proposals, be made?

A. Announcement of awards will be made in January 2025.

Q. Can non-U.S. companies apply to this opportunity?

A: This solicitation is open to all U.S.-based institutions and companies. Additional information regarding international participation can be found here: http://spacehealth.bcm.edu/res/p/applicationfaq/.

Q. What is covered under cost-sharing?

A: Cost-share must be from a non-federal funding source.

- Salaries & benefits.
- Value of additional % effort contributed by PI.
- Equipment purchases.
- Supplies.
- Travel.
- Tuition fees.
- Indirect costs.
- Value of volunteer services towards the project

Frequently Asked Questions

Q. Can I request an extension for submitting my application?

A. Extensions will not be given. It is strongly suggested that you begin your application preparation early and familiarize yourself with the solicitation and TRISH GRID.

Q. Is there a required format for biographical sketches?

A: A NIH or NSF biosketch format is acceptable, but there is no required format. A template has been provided alongside the solicitation for the proposer's convenience. Regardless of the format used, please take careful note of the 2-page limit for biographical sketches.

Q. I cannot find the answers to my questions in the solicitation documents, the guidebook, or the FAQ. Who can I ask for assistance?

A: Please ensure that you read both (1) the request for proposals document and (2) the FAQ in their entirety before contacting TRISH with questions. Additional technical information and contact https://trish.my.site.com/s/concierge.

RFP Key Details

Available funding	**TRISH will consider competitive and efficient cost during programmatic review.**
Maximum duration of awards	12 months
Release	September 4, 2024
Deadline	October 15, 2024 at 11:59 pm ET
Selection Announcement	January 2025
Submission medium	Electronic proposal submission through the TRISH GRID is required; no hardcopy is required.
Web site	https://spacehealth.bcm.edu/
TRISH point of contact	https://trish.my.site.com/s/concierge

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Q&A

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