OPPORTUNITY ANNOUNCEMENT:

SOURCES SOUGHT FOR COOPERATIVE RESEARCH & DEVELOPMENT PARTNERSHIPS

HYPERSONIC INFRARED TARGET SENSING – TRANSITION OPPORTUNITY (HITS-TO)

Description of Intent: This Sources Sought notice is intended to create technology transition pathways from United States (U.S.) Department of War (DoW) (legally operating as the Department of Defense) laboratories to potential U.S. partners in industry, national labs, University Affiliated Research Center (UARCs), and Federally Funded Research and Development Centers (FFRDCs) working on material and technology solutions related to hypersonic infrared target sensing. HITS-TO will mature transformational innovations and jointly create the leap-ahead technologies required to place an infrared seeker on a hypersonic weapon as rapidly as possible. No funding is available through this notice.

TECHNICAL BACKGROUND

The emergence of maneuvering hypersonic threats requires aggressive development of hypersonic interceptor technology to counter them. These maneuvering threats must be targeted early and with great accuracy, so adding a passive infrared (IR) seeker to a hypersonic interceptor could dramatically increase its stand-off range for terminal guidance and probability of intercept. Conversely, IR seekers may also guide hypersonic weapons to achieve greater targeting accuracy on offensive missions.

Placing IR seekers on hypersonic weapons requires overcoming numerous technical challenges, including (a) distortions caused by extreme atmospheric turbulence and platform vibrations, (b) breakage, thermal shock, and thermal emission when the window is unshrouded, (c) boresight error and wavefront distortions caused by non-uniform thermo-mechanical stresses on the exposed window, (d) passive IR target discrimination and tracking, (e) sensors with large field of regard for searching and narrow instantaneous field of view for tracking during high-g maneuvers, (f) faithful multi-scale, multi-physics simulations of trajectory-dependent IR hypersonic engagements, (g) state-of-the-art testing of IR components at extreme temperatures, and (h) laboratory open- and closed-loop hypersonic IR hardware-in-the-loop testing.

The “Hypersonic Infrared Target Sensing” (HITS) effort is building in-house, within the DoW laboratory community, the transformational sensing capabilities and solutions needed to meet this threat and overcome the challenges of placing IR seekers on hypersonic weapons. Specifically, HITS is developing leap-ahead innovations for (1) accurately locating a target through the hypersonic environment, (2) confidently locating a target through the hot window, (3) precisely locating, discriminating, and tracking a distant target without the use of a gimbal, (4) comprehensive simulation of the IR hypersonic environment with high-fidelity multi-scale, multi-physics models of typical engagements, and (5) thoroughly validating these hypersonic IR seeker components and concepts with high fidelity laboratory hardware-in-the-loop testing. Successes in these five Task Areas (TAs) will inform the ultimate objective: integration of these innovations toward a working IR seeker prototype for a hypersonic weapon demonstration in a relevant environment.

HITS is making progress on all these TAs, overcoming challenges toward TRL/MRL 3-4 demonstrations, but maturing and manufacturing these innovations to TRL/MRL 5-6 is beyond the purview of these DoW laboratories. Therefore, through this Sources Sought notice, HITS is creating transition opportunities (TOs) to share these innovations with partners who can affordably scale and field these advanced technical solutions.

TECHNICAL OBJECTIVES

So that leap-ahead capabilities to defeat the pacing threat of maneuvering hypersonic weapons may be provided rapidly, within an operationally relevant timeline, HITS-TO seeks to create U.S. industrial, national lab, UARC, and FFRDC partnerships with the corresponding DoW laboratories. The goal of these partnerships will be to transition, mature, and test any of the HITS TA technologies listed above toward manufacturable optical components, subsystems, and systems required to place IR seekers on hypersonic weapons. Specifically, HITS-TO will collaboratively transition its innovations in optics and optical design, materials, imaging, tracking, modeling, and testing with U.S. partners that possess exceptional capabilities in any of the five HITS TAs listed above. The shared goal will be to develop and deliver target sensing solutions to the DoW for intercepting maneuvering hypersonic threats and increasing detection range by locating, identifying, and accurately tracking fast-moving, distant IR targets at different stages of flight through extreme turbulence and a hot window during high-g maneuvers. If innovations developed in support of these TAs may also be used to develop and deliver target sensing solutions for offensive hypersonic weapons, that would be of interest as well.

TECHNICAL SCOPE

The HITS innovations are currently being developed within the DoW laboratory community. HITS-TO will link DoW researchers and capabilities with appropriate U.S. industrial, national lab, UARC, and FFRDC expertise toward the common objective of technology maturation and manufacturability to accelerate the transition of these leap-ahead innovations.

Submissions from potential partners must describe their existing capabilities and expertise relevant to at least one HITS TA described above. Submissions must also describe their ability to perform needed engineering development and maturation over the duration of the proposed collaboration (not to exceed five years). Submissions must then specify their ability to finance their part of the collaboration, which may include internal resources, external sponsorship, and/or jointly developed proposals. Only respondents with the ability to perform U.S. controlled unclassified information (CUI) or classified work will be considered.

A successful collaboration will allow U.S. partners to work closely with the DoW innovators and laboratories proficient in the TAs listed above. The goal of the partnership will be to produce hardware and/or software suitable for demonstration of a specific innovation at TRL 6 or higher and/or identify manufacturing processes/equipment that need additional investment to achieve the DoW's goals.

RESPONSE AND SUBMISSION REQUIREMENTS

Potential partnerships will be initiated through this Sources Sought notice. Interested U.S. parties may request partnership consideration by submitting a Technical Capability Summary Statement (TCSS) summarizing relevant capabilities and experience in the maturing and manufacturing of optical/infrared optical components, subsystems, and/or systems for DoW-relevant sensor or seeker platforms. Any proprietary information provided by the partner must be clearly labeled as such.

Because there is no funding associated with this Sources Sought notice, preference will be given to those exceptional U.S. entrepreneurial entities willing to facilitate these partnerships with their own resources and existing or planned capabilities, just as the DoW is doing for its part of the collaboration. TCSS submissions will be assessed based on the partner's (1) existing capabilities/expertise in a relevant technical area, (2) ability to perform engineering development and maturation over the duration of the proposed collaboration, and (3) ability to finance its part of the collaboration. Respondents must provide documentation confirming their ability to perform CUI or classified work.

Submitted Technical Capability Summary Statements will be screened by DoW HITS leadership, and the most qualified U.S. respondents will be selected for more in-depth discussions about HITS innovations and transition opportunities. To initiate the conversation, the potential partner will be asked to sign a non-disclosure agreement (NDA), and the partner may likewise request a NDA be signed by DoW researchers to ensure protection of its intellectual property and data rights. After this, the DoW and partner will more openly share details of their relevant work and plans, then, if appropriate, initiate discussions about the objective of the collaboration and specify terms for it.

Once the parties agree to a proposed collaborative partnership, a "Cooperative Research and Development Agreement" (CRADA) may be awarded to facilitate the sharing of intellectual property, publications, patents, and facilities while also clarifying respective data rights. The 15 U.S. Code § 3710a - Cooperative research and development agreements defines CRADA as any agreement between one or more Federal laboratories and one or more non-Federal parties under which the Government, through its laboratories, provides personnel, services, facilities, equipment, intellectual property, or other resources with or without reimbursement (but not funds to non-Federal parties) and the non-Federal parties provide funds, personnel, services, facilities, equipment, intellectual property, or other resources toward the conduct of specified research or development efforts which are consistent with the missions of the laboratory; except that such term does not include a procurement contract or cooperative agreement as those terms are used in sections 6303, 6304, and 6305 of title 31. The CRADA will identify all resources and capabilities that will be committed to the partnership by each party and will specify what the DoW will do, what the partner will do, and what they will do jointly to achieve their shared objectives, typically within five years. In some cases, partnerships could lead to future funded contractual agreements through the initiative of either party.

INSTRUCTIONS

ADMINISTRATIVE INFORMATION

U.S. respondents must include the following information in a cover sheet or summary table (that does not count against the page limit):

Field	Required Information
Company Name	Full legal name of the entity.
Address	Primary business address and location of research facilities.
Unique Entity ID (UEI)	Valid UEI from SAM.gov.
CAGE Code	Commercial and Government Entity code.
Company Administrative Point of Contact (APOC)	Name, title, phone number, and email address.
Company Technical Point of Contact (TPOC)	Name, title, phone number, and email address.
Company Socio-Economic Status	Identify as Large Business, Small Business, 8(a), WOSB, SDVOSB, HubZone, etc.
TO Objective	TO objective # for this submission.

Technical Capability Summary Statement

Respondents shall provide a TCSS narrative (not to exceed 6 pages) addressing (1) their existing technical expertise and capabilities within a specific TO Objective (listed below), (2) their ability to perform relevant engineering development and maturation over the duration of the proposed collaboration, and (3) their ability to finance their part of the collaboration, specifically related to only one of the following HITS-TO Objectives:

I. Innovative Imaging & Tracking Systems (TA 1 or 3): Developing advanced or transformational optics for sensor or seeker concepts capable of locating, discriminating, and accurately tracking targets with low boresight error through hypersonic turbulence, platform vibrations, and distorted windows with non-planar wavefronts, ideally with large field of regard for searching and narrow instantaneous field of view for precise tracking.

II. Optical Materials (TA2): Maturing and manufacturing IR-transparent materials and/or coatings capable of surviving the extreme conditions of hypersonic flight while providing high transmission and minimizing background/noise.

III. Test & Evaluation (TA5): Developing open- or closed-loop hardware-in-the-loop test facilities, both hardware and software, capable of simulating stressing IR environments, ideally for hypersonic flight.

IV. Modeling & Simulation (TA4): Developing high-fidelity, multi-physics models, especially for hypersonic engagements and/or IR environments.

Respondents may submit as many TCSS proposals as they choose, but each may address only one of the TO Objectives listed above.

Past Performance and Current Capabilities

Respondents must first specify which TO Objective the submission addresses, then include a Technical Capability Summary Statement, as described above. As evidence of these capabilities, respondents are encouraged to provide a summary of up to three (3) projects completed within the last five (5) years that demonstrate relevant past performance and current capabilities. These summaries, including the table below as well as a summary of technical challenge(s) overcome, a list of PIs, the period of performance, the level of funding, and the deliverable, must be included as an appendix and will not count against the six page limit for the core TCSS document.

Project Title	**Customer (Agency/Commercial)**	**Brief Description of Scope**	**TRL Achieved**
[Example Project]	[e.g., AFRL / DARPA]	[e.g., IR Window Thermal stress testing]	[e.g., TRL 5 to TRL 7]

Transition Success: Proven track record of transitioning laboratory innovations to TRL-6 or higher.

Security & Personnel Requirements

The HITS-TO effort involves Controlled Unclassified Information (CUI) and potentially classified discussions about components that may additionally face ITAR or EAR restrictions. Respondents must:

1. Verify the ability to handle and store CUI in accordance with NIST SP 800-171 by providing a current DD2345.

2. State the current Facility Clearance (FCL) level (e.g., CUI, Secret, Top Secret). To satisfy this requirement, vendors shall provide their company name and CAGE code for the purpose of the Government verifying the vendor's clearance within the National Industrial Security System (NISS). For vendors with active security clearances not accessible in NISS or with CUI-only capabilities, alternative documentation shall be provided as applicable.
3. Identify initial administrative and technical point(s) of contact and confirm that key personnel (Principal Investigators) hold the necessary Personnel Clearances (PCL) to engage in deep-dive technical discussions if selected. To satisfy this requirement, companies may include a formal self-certification statement in their response, affirming that the company meets all requirements to be eligible for CUI or a SECRET (or higher) facility clearance and can provide CUI-, SECRET-, or TS-eligible individual(s) during performance.

Submission Logistics

- Format: Submissions must be in Adobe PDF format.
- File Naming: Use the convention HITS-TO#_SS_[Company Name]. [#] indicates which of the four HITS-TO Objectives the TCSS addresses.
- Submission Deadline: 30 September 2026, no later than 1600 ET.
- Transmission: Electronic submission via email to the POC listed below, using DoD SAFE for CUI submissions at https://safe.apps.mil/.
- Mailbox information: HITS_RFI@army.mil.