



Homeland
Security

DHS S&T Silicon Valley Innovation Program (SVIP)

EMERGING NEEDS: COVID-19 RESPONSE & FUTURE MITIGATION

Other Transaction Solicitation Call
70RSAT20R00000044

<https://www.dhs.gov/science-and-technology/svip>
DHS-Silicon-Valley@hq.dhs.gov

1. Introduction

This Other Transaction Solicitation (OTS) Call 70RSAT20R00000044 is being issued against the Department of Homeland Security (DHS), Science & Technology (S&T), Silicon Valley Innovation Program (SVIP), 5-Year Innovation OTS (HSHQDC-16-R-B0005). All terms and conditions of the DHS S&T SVIP 5-Year Innovation OTS (HSHQDC-16-R-B0005) are incorporated into this Call unless otherwise noted herein.

DHS is committed to using cutting-edge technologies and scientific talent in its quest to make America safer. SVIP, on behalf of DHS Operational Components, invests in startup companies with viable technologies suitable for rapid prototyping projects from across the nation and around the world to adapt, develop and harness cutting-edge capabilities that are commercially sustainable while simultaneously meeting the needs of DHS Operational Components and Programs.

1.1. DHS Operational Need

The COVID-19 pandemic has had an impact on many facets of DHS operations as well as the health and safety of agents, officers and the public. While this SVIP Emerging Needs Topic Call is intended to address several near-term use cases in response to the current pandemic, it is envisioned these solutions will have broader application to enhancing DHS operations as well as prepare DHS for any future mitigation.

DHS Operational Components and Programs have common needs across their mission sets for potential use of these technologies that also support the growth and availability of a competitive marketplace of diverse technology implementations for government and industry to draw upon to deliver cost effective and innovative solutions.

This SVIP Emerging Needs Topic Call seeks technical capabilities that could serve the mission needs of one or more DHS Operational Components and Programs including:

- *DHS Chief Security Officer (CSO)*
- *DHS Policy (PLCY)*
- *National Biosurveillance Integration Center (NBIC)*
- *Transportation Security Administration (TSA)*
- *U.S. Citizenship and Immigration Services (USCIS)*
- *U.S. Secret Service (USSS)*

The DHS S&T Directorate has established a relationship with the Health & Human Services / Assistant Secretary for Preparedness and Response / Biomedical Advanced R&D Authority (HHS/ASPR/BARDA). Proposals offering technologies with potential application to FDA governed medical diagnostics or therapeutics will be referred to the BARDA Tech Watch program for additional consideration.

1.2. Illustrative Use Cases

As DHS, state and local agencies, private industry and the public respond to the impacts of the COVID-19 pandemic and eventually resume operations safely within the context of a COVID-19 environment, there exists the need for solutions for a variety of purposes across DHS as well as our state and local and other Federal partners.

The following illustrative scenarios / use cases are intended to describe where the technologies being sought by DHS in this topic call could potentially be applied. **DHS is not necessarily seeking the technologies for these specific use cases but instead are providing them to give some context for interested parties.**

At the same time, given that responses to this OTS Call may be relevant to these and other use cases, it is expected that an applicant will use one or more of these DHS specific scenarios to frame their application.

1.2.1. Use Case 1: Test & Validation Service for Security & Privacy of Contact Tracing Apps

Contact tracing is the process of identifying, assessing, and managing people who have been exposed to a disease to prevent onward transmission. The existing manual process of contact tracing is considered an effective mechanism to break chains of transmission and control outbreaks. During the current COVID-19 pandemic, there exists efforts by the private industry and the tech sector to apply smartphone-based technologies to automate the contact tracing process.

In looking over many of the proposed technical approaches within the U.S., and implemented by non-U.S. jurisdictions, DHS has concerns that this technical approach to contact tracing has significant privacy and civil liberty implications. As such, to raise awareness and by doing so mitigate these potential harms posed by these applications to U.S. persons, DHS is seeking to enable a robust application testing ecosystem that that can be put into place that will rigorously test and evaluate these contact tracing applications to ensure that they are constrained to the designated and authorized purpose, and do not leak, share or in some other manner utilize the data that they have access to either directly or indirectly to compromise the privacy, security or civil liberties of the individuals who have entrusted their sensitive and personal information to them.

It is envisioned that this will result in a set of third-party test and validation service offerings following a two tier “freemium” model:

1. The base tier would be offered free to the public and provides the core testing capability that evaluates the application using a clear and consistent set of privacy and security criteria that will be developed by a set of expert and publicly trusted entities as part of an open, inclusive process convened by DHS. It is fully expected that the results of this testing will be freely, openly and broadly disseminated by multiple entities in the public interest.
2. It is expected that there may be a desire or intent by the test and validation service providers to offer paid value-added services on top of the free base tier. Provided that these paid service offerings do not compromise or constrain the robust and free base tier testing directly or through the introduction of perverse incentives, DHS remains open to evaluating these add on service offerings on a case by case basis with the clear expectation that they must not in any way compromise the security, privacy or civil liberties of the individual using the application.

1.2.2. Use Case 2: Video Analytics for Self-Screening at TSA Checkpoints

DHS S&T’s Screening at Speed Program (SaS) and TSA’s Innovation Task Force (ITF) are exploring the use of self-screening portals at TSA airport security checkpoints. In a similar fashion to self-checkout at grocery stores, self-tagging checked baggage, or ATM machines, many patrons prefer an experience that they can complete without assistance and at their own pace. Development of personal self-service screening stations would allow for a reimagining of

traditional checkpoint layouts and could result in increased overall passenger screening throughput capability. SaS and TSA are exploring ideas to bring self-service concepts to the passenger screening process. This effort had already begun prior to the pandemic but becomes even more relevant as social distancing and other protective measures are put into place in order to minimize the exposure and contact between TSA Officers (TSOs) and passengers.

In order to further enable this capability, video analytics during airport screening procedures are desired to ensure social distancing measures are maintained, measure the length of contact between TSOs and passengers, validate that passengers are properly progressing through the screening process, and to detect anomalous behaviors when going through a self-screening portal.

It is expected that any technology that is utilized for this capability will not need any type of recognition or identification capabilities beyond that of the recognizing the human form of the passenger. In particular the use of technologies that have the ability to uniquely distinguish one person from another such as facial or other biometric matching technologies are specifically out of scope for this use case. In addition, the Government will not be providing algorithm training data related to this use case.

Materials related to the Passenger Self-Screening Concept can be found here:
<https://beta.sam.gov/opp/e1bd0c3316264ab1a2b2307f7636c3ab/view>

1.2.3. Use Case 3: Methods to Rapidly Disinfect Surfaces at TSA Checkpoints and other DHS Facilities

In order to resume TSA airport security checkpoint operations while keeping the wait time pace as comparable to pre-pandemic operating conditions as possible, methods for rapidly disinfecting checkpoint surfaces are needed. This may include bins, tables, or complete systems such as passenger self-screening “pods” as discussed in Use Case 2. Ideally, such disinfecting mechanisms could be activated automatically and unattended. This need is also applicable to other DHS security checkpoints and facilities, including but not limited to, offices, conference rooms, and hotel suites. DHS requests technology solutions to disinfect physical spaces in two scenarios - before occupancy of the room and during occupancy of the room. The use of validated and certified products, technologies, and methods (EPA, CDC, FDA, etc.) are preferred for each scenario.

Any proposed products, technologies and methods should include information on technology and product validation with scientifically demonstrated effectiveness against coronaviruses, cost, consumables, maintenance, noise, weight, potential secondary hazards, operator/occupant safety issues, CONOPS, quality assurance methods, conflicts with current CDC, EPA, FDA standards or best practices. For disinfection of spaces during occupancy, ease of installation and removal of any proposed technologies or systems should also be addressed.

Additionally, alternatives to alcohol-based hand rubs are being explored to reduce SARS-CoV-2 transmission from contaminated hands. It is expected that alternative solutions may reduce transmission through inactivating the virus, preventing virus from settling on or adhering to skin, or by acting as a barrier to virus entry into the mouth, nose, or eyes. Solutions shall be non-invasive, topical, meet applicable product safety requirements and regulations, and have no adverse effects to the skin or human health. An ideal solution should inactivate the virus within 30

seconds of contact and provide continuous or long-term (e.g. six hours) protection against the SARS-CoV-2 virus.

1.2.4. Use Case 4: Collection and Integration of Authoritative Quantitative Open-Source Information

In order to effectively monitor the outbreak caused by COVID-19 and future outbreaks, DHS's National Biosurveillance Integration Center (NBIC) has a need for tools to help monitor, collect, integrate, and deconflict quantitative open-source information from authoritative sources (e.g., state and local health departments) and other reporting. Information is found on a large number of websites in inconsistent locations (e.g. links may change periodically) in a variety of formats (html tables, pdfs, images, free text).

It is envisioned that one or more tools can be created to support and automate the largely manual process to identify, extract, integrate, and deconflict data that may be reported (e.g., at the level of local and state health departments) and comparing reports with data obtained from other sources (e.g., news reports).

1.2.5. Use Case 5: Stand-Off Methods for Point of Entry Detection at DHS Facilities

In order to more cautiously resume operations at DHS facilities and offices, non-invasive, non-disruptive and privacy-preserving methods are needed to provide robust point of entry screening as employees and visitors enter a building or campus.

From the Deputy Undersecretary of Management Memorandum, dated June 3, 2020 Novel Coronavirus Workforce Guidance – DHS Headquarters Strategy to Implement the *Opening Up America Again Guidelines*, the following was included in the COVID-19 Return-to-the-Workplace Checklist: *Implement enhanced entry screening procedures (e.g., screening questions, temp checks) as necessary.*

However, while the use of thermal detection technology is being widely adopted, it is not a perfect solution. As noted by the FDA, thermal imaging systems are not effective as a sole means of diagnosing COVID-19. A fever or higher body temperature is only one possible symptom of a COVID-19 infection.¹

It is envisioned that one or more tools can be created to support an initial COVID-19 screening measurement *for triage use*, that differ from standard market-available COTS “fever” detectors. Offerors are encouraged to propose alternative non-invasive, non-disruptive and privacy-preserving methods for entry screening.

Because the diagnostic tool may be considered “medical devices”, the offeror should closely review applicable FDA documents such as “*Enforcement Policy for Telethermographic Systems During the Coronavirus Disease 2019 (COVID-19) Public Health Emergency*” for guidance prior to submission.

2. Topic Description

¹ <https://www.fda.gov/medical-devices/general-hospital-devices-and-supplies/thermal-imaging-systems-infrared-thermographic-systems-thermal-imaging-cameras>

DHS is interested in solutions that address the challenges of the illustrative use cases described above, while incorporating security, privacy and interoperability, enterprise lifecycle management, and a high degree of usability across service delivery modalities.

2.1. Security, Privacy and Interoperability Guidance

The potential for the development of “walled gardens” or closed technology platforms that do not support common standards for security, privacy, and data exchange would limit the growth and availability of a competitive marketplace of diverse and interoperable solutions for government and industry to draw upon to deliver cost effective and innovative services.

As such, this Call will require any proposed solution to incorporate existing and emerging standards-based protocols, data exchange formats and security policy frameworks to ensure broad acceptance and limit proprietary approaches.

The International Organization for Standardization (ISO) uses specific verbal forms to convey clarity on what is a requirement and what is a recommendation or other type of statement. This Topic Call adopts and uses the following ISO document conventions:

- Requirements - SHALL, SHALL NOT
- Recommendations - SHOULD, SHOULD NOT
- Permission - MAY, MAY NOT
- Possibility and Capability - CAN, CANNOT

3. Project Deliverables and Phases

DHS S&T anticipates making Phase 1 awards of \$50,000 to \$200,000 in funding for each award, covering a period of performance of 3 to 6 months. Successful projects will be eligible for subsequent phases of funding with similar levels of funding and duration.

The SVIP is structured in 4 Phases, with an opportunity to award a Phase 5 for further testing/piloting in additional operational environments and potentially addressing additional use cases. Accordingly, a project receiving 4 phases of funding may receive a total of \$200,000 to \$800,000 over a total period of performance of up to 24 months.

Phases 1-4 cannot exceed \$200,000 per Phase for a total of \$800K.

It is envisioned that by the end of Phase 4, successful projects will have reached a sufficient stage of development for a potential test deployment, or commercial availability to stakeholders, including potential follow on production ordering by DHS.

The Government, solely at its discretion, may determine that further operational testing is required, and in such cases may award a Phase 5. If a Phase 5 is awarded, it will be scaled to meet the operational requirement in both length of time and cost. Therefore, a Phase 5 is not restricted to the limits set forth in Phases 1-4.

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Phase detail is listed in the following chart.

Phase	Funding Level	Deliverables	Due Date
1	\$50,000 to \$200,000 payable on OTA award	Proof of concept demonstration to address DHS challenge	3–6 months after award
2	\$50,000 to \$200,000 payable on OTA award	Prototype development to fully incorporate DHS’s requirements to demonstrate viability	3–6 months after successful completion of Phase 1
3	\$50,000 to \$200,000 payable on OTA award	Prototype demonstration and functional and red team testing	3–6 months after successful completion of Phase 2
4	\$50,000 to \$200,000 payable on OTA award	Operational test and evaluation in multiple user scenarios	Begin after successful completion of Phase 3
5	TBD at the Government’s discretion	Additional operational testing which may include additional use cases in additional operational environments	Begin after successful completion of Phase 4

Referring to the table above, the required milestones and deliverables for each phase should incorporate the objectives defined as follows:

- **Phase 1:** Delivery of a Minimum Viable Product that demonstrates proof-of-concept and supporting documentation inclusive of verifiable test evidence, technical drawings, software demonstrations or other proof that the technical approach to address a DHS requirement or challenge as identified in this Call is sound. At the end of this Phase, successful applicants will have:
 - Either created a proof of concept of a new technology suitable for demonstration or;
 - Produced reviewable modifications to pre-existing technologies suitable for demonstration
 - Validate the proposed architecture and design to incorporate the appropriate security, privacy and interoperability specifications
 - Articulated a go-to-market commercialization strategy
- **Phase 2:** An end to end working prototype with full capabilities. Objectives of this phase are to use the results of Phase 1 to build out all features and functions in the prototype to demonstrate viability. At the end of Phase 2, the prototype must:
 - Implement the architecture and design to support needed capabilities

- Ensure that APIs are fully documented and are available for public review
- Demonstrate the implementation of interoperability specifications within the solution
- Demonstrate end-to-end operational viability
- Be ready for independent review and evaluation
- Validate the commercialization strategy with potential customers and partners
- **Phase 3:** Production ready prototype that will be deployed into a realistic test and evaluation environment to experiment against realistic conditions and to undergo an independent test and evaluation process to ensure operational suitability. These tests will be fully coordinated with the DHS component and operational stakeholders and it is anticipated that all independent testing feedback will be incorporated into the technology solution by the end of this Phase. Objectives of this phase are to:
 - Demonstrate a fully functional end to end capability
 - Support the functional, security, privacy and interoperability testing and validation of the capability by an independent Red Team
 - Incorporate the feedback and results of the independent test into the prototype
- **Phase 4:** At this phase, technologies would be fully completed designs and reputedly provide all proposed features and functionality. Any tests and demonstrations in this Phase will be fully coordinated with the DHS component and operational stakeholders and may result in a limited number of prototypes or licenses of the technology in order to conduct the testing in multiple user scenarios and conditions. Objectives of this phase are to:
 - Deploy the capability for operational testing and demonstration
 - Incorporate and adjust the capability based on the operational testing
- **Phase 5:** Phase 5 awards are made only to meet a Government need and additional testing requirements. The additional testing may be done in different environments using additional use cases. This Phase may result in a limited number of prototypes or licenses of the technology in order to test the prototype in multiple user scenarios and conditions. In order to meet an identified Government need, this phase may be funded beyond the total \$800K Phase 1-4 limits.

In order to make sure the project is on target and meeting relevant milestones and deliverables, the awardee will provide Monthly Project Status Reports, due at the end of the reporting month. In addition, a telephone conference call will be conducted each month to discuss project status and any issue/concerns/problems, questions that the awardee may have.

4. General Information and Instructions

4.1 Response Dates

Event	Time Due	Date or Date Due
Virtual Industry Day Register to attend at: https://sri-csl.regfox.com/svip-covid19-industryday	9:30 AM – 1:00 PM PT / 12:30 PM – 4:00 PM ET*	August 18, 2020
Applications Due: Applications will be accepted on a continuous, rolling basis until the application deadline. The deadline for submitting an application is listed on the right. Applications must be received	12:00 PM PT*	September 30, 2020

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prior to the deadline to be evaluated in the review cycle.		
Notification of Application Pre-Oral Presentation Evaluation Results	N/A	Approximately 3-4 weeks following the application deadline
Oral Pitches	N/A	Approximately 4-5 weeks following the application deadline (if requested)
Closing Date/Final Deadline	12:00 PM PT*	September 30, 2020

* Eastern Time (ET), Pacific Time (PT)

Applications and Application resubmissions received after the closing date/time will not be considered for review.

DHS may decide to close the Call early. If this occurs, DHS will publish notification 30 days prior to closing the call.

4.2 General Instructions

4.2.1 Written applications as described in 5.3 must be received by the deadlines in the following e-mail box: DHS-Silicon-Valley@hq.dhs.gov. Applicants will receive a reply to the application email acknowledging receipt. Any invitations for oral pitches will be coordinated with the applicant and may be conducted by videoconference or in-person.

4.2.2 DHS S&T reserves the right to select for award and to fund all, some, parts, or none of the applications received in response to this OTS solicitation.

4.2.3 The Evaluation Criteria in DHS S&T SVIP 5-Year Innovation OTS (HSHQDC-16-R-B0005) Section 7 “EVALUATION OF APPLICATIONS” applies.

4.3 Application Requirements

4.3.1. To be considered for award, Applicants **MUST** do the following:

- **Submit a written SVIP CALL NAME application in Adobe PDF format using the application template provided with this call.**
 - **An architectural Intellectual Property diagram must be included in the application document.**
 - **The total number of pages including the application and diagram must not exceed 10 pages.**
 - Applications must describe the work proposed for Phase 1, answering the questions as outlined in the **SVIP CALL NAME Application Form**.
 - Applications should also provide an overview/strategy for the overall effort for Phases 1 through 4.
 - Only content contained in the application will be considered during the review process. No other documents, videos or links to information will be considered. Applicants should be alert for any amendments and changes to this Call.

- Create a user account and register their company in www.sam.gov
 - This does not need to be done at the application phase but must be done if the applicant is chosen to pitch and provides a successful pitch.
 - **The successful applicant must have a registered www.SAM.gov account in order to be awarded and funded.**
- Applications must be compliant with the aforementioned response dates and other compliance requirements in accordance with the DHS S&T SVIP 5-Year Innovation OTS (HSHQDC-16-R-B0005).
 - **Submissions not in compliance will be rejected.**

DHS will conduct reviews following each submission deadline and anticipates that reviews will be completed within approximately 3 – 4 weeks following each submission deadline.

The Government may request Applications for other phases and will do so directly with the Company.

4.3.2. The OTS evaluation criteria published in the DHS S&T SVIP 5 Year Innovation OTS (HSHQDC-16-R-B0005) will be utilized for the application evaluation process, and specific to this call, applications will be reviewed for:

- Ability to help DHS operational missions or critical infrastructure facilities;
- Applicability to the DHS use case(s) described;
- Financial soundness of the company, and the business model based on the technology to be supported;
- The scalability and cost-effectiveness of the proposed technology or solution;
- Existing relationships with relevant end users, stakeholders and/or consumers.
- Other Criteria ...

4.4. Application Format

See the SVIP CALL NAME Application posted with this call.

4.5. Pitch Format and Requirements

Applicants invited to present pitches will be limited to **fifteen (15) minutes for their oral presentations**. In addition, applicants making pitches may **provide up to ten (10) slides for presentation in either Microsoft PowerPoint or Adobe PDF**.

4.6 Contractual or Technical Inquiries

All contractual or technical inquiries to this OTS Call #70RSAT20R00000044 must be emailed to DHS-Silicon-Valley@hq.dhs.gov. Emails submitting questions are to include **“Questions: SVIP CALL NAME OTS”** in the subject line. All questions and responses will be posted on the Federal Business Opportunities website <http://www.fbo.gov>. Questions will only be accepted and answered electronically.

4.7 Order of Precedence

In the event that any of the terms and conditions contained in this OTS Call

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#70RSAT20R00000044 conflict with terms and conditions included in SVIP 5 Year Innovation OTS (HSHQDC-16-R-B0005), the terms and conditions in this OTS Call #70RSAT20R00000044 shall take precedence.