

VTCS-02

Low-SWaP Distributed Sensing with On-Device Edge AI

Challenge guide: the challenge, who can apply, every application question, and answers to common questions.

Intake window	12 to 30 October 2026. The portal closes at 11:59 p.m. Eastern on the last day.
Apply	dingusa.org/vedder/apply . One application per challenge; you may apply to both.
Program page	dingusa.org/vedder
Questions	questions@dingusa.org

The challenge

Advance low size, weight, and power (SWaP) distributed microsensors that detect and characterize chemical, biological, and environmental signals with on-device edge AI, operating with minimal infrastructure and reporting actionable information rather than raw data.

In scope

- Miniaturized sensing modalities for chemical, biological, and environmental targets
- On-device inference, classification, and anomaly detection
- Low-power networking and distributed operation
- Ruggedization and manufacturability
- Commercial applications in environmental monitoring, public health, agriculture, industrial safety, and critical infrastructure

Out of scope

- Cloud-dependent architectures with no on-device processing
- Laboratory bench instruments
- Sensing without a path to distributed field deployment

What a strong applicant looks like

A U.S. company with a functioning sensor or edge-AI stack, a defined dual-use market, and the ability to demonstrate detection performance (sensitivity and specificity) under realistic conditions.

Indicative funding: same structure as Challenge 1. Cohort 1 awards under Challenge 2 may follow Challenge 1 awards by roughly 30 days.

About VEDDER

VEDDER is a biotechnology accelerator for U.S. companies whose technologies can serve both commercial markets and the national-security mission. The Defense Innovation Networking Group (D!NG), a 501(c)(3) nonprofit, was selected by the U.S. Army to establish and operate VEDDER. D!NG connects selected companies with technical resources, business support, capital networks, government-acquisition expertise, and industry partners, with the aim of reducing the barriers between commercial innovation and national-security application.

VEDDER works differently from a grant program. Companies are selected against specific technical challenge statements, receive milestone-based prototype agreements, and are surrounded by the resources and relationships needed to prove their technology, strengthen their business, and reach the customers who need it. Commercial viability is a qualifying criterion, not a bonus: VEDDER exists to build companies that succeed on their own.

Who can apply

VEDDER is built for U.S. biotechnology and sensing companies with a working technology, a commercial strategy, and the ambition to serve the national-security mission. Startups, small businesses, university spin-outs, and nontraditional defense contractors are all welcome. You do not need prior government contracting experience; helping you gain it is part of the program.

Before you apply, confirm that:

- Your company is organized in the United States and majority U.S.-owned and controlled.
- You can disclose all sources of foreign investment or funding. Foreign ownership, control, or influence is evaluated during review and may be disqualifying.
- Personnel assigned to VEDDER work will meet program security requirements. U.S. citizenship is required for key personnel; restrictions on foreign-national participation apply.
- You have a demonstrable technology, not only a concept. Applicants self-rate technology readiness (a TRL reference is provided in the form).
- You are willing to team or partner where the challenge calls for it.
- You can describe how the technology succeeds commercially with or without government customers.

The eligibility screen

The application opens with four yes-or-no questions. You need to answer yes to each to continue:

- 1 Is your company organized in the United States and majority U.S.-owned and controlled?
- 2 Can you disclose all sources of foreign investment or funding? (Foreign ownership, control, or influence is evaluated during review and may be disqualifying.)
- 3 Will personnel assigned to VEDDER work meet program security requirements, including U.S. citizenship for key personnel?
- 4 Do you have a demonstrable technology, beyond a concept or a paper study?

What you will submit

- 1 The eligibility screen above.
- 2 Company information, shared across your applications in this cohort. Required: Legal company name, State of organization, Primary contact, Contact email, Contact phone number, How you found out about VEDDER. Also asked: Website, Year founded, Headcount, UEI, CAGE code, Prior federal awards.
- 3 Program details, asked once with the company information: non-traditional defense contractor, willing to team or partner with other companies, pre-negotiated agreement framework. Also asked: existing SBIR or STTR data rights.
- 4 Response details for this challenge: one yes-or-no question, "Are you responding with one enabling component (power and energy, a sensing modality, manufacturability, deployability, or secure networking) rather than a complete sensing system?" If yes, a short description of your component (up to 300 characters) and one follow-up yes-or-no question. This challenge also asks for two statements: related Government sensing efforts (up to 1,500 characters) and component provenance (up to 1,000 characters). The statements are read by program staff and do not affect how your answers are scored.
- 5 Answers to the 10 written questions in the next section, each with its own character limit, and a technology readiness self-rating.
- 6 A capability statement of 1 to 2 pages in any layout, uploaded as PDF, DOCX or PPTX, up to 10 MB.
- 7 Three confirmations at submission: (1) The information in this application is accurate and complete to the best of my knowledge. (2) I consent to D!NG sharing this application with reviewers under non-disclosure obligations. (3) I understand that VEDDER is a selective program and that submitting an application does not guarantee an award.

The company section also asks how you found out about VEDDER. The options are: LinkedIn post, Direct email, Referral from a colleague, Conference, Web search, Media report, Other.

Answer yes if your offer advances one of those areas on its own. Some questions are then scored only where they apply.

Related Government sensing efforts: Has this approach been funded by, or submitted to, any related Government sensing effort? Name the program and say how this effort differs. Write 'None' if it has not.

Component provenance: Country of origin of your critical hardware components and microelectronics, and any you cannot yet trace. Write None if your response has no hardware components.

Tips for strong answers

- Be specific. Name the systems, numbers, partners, and results behind each claim. Reviewers assess what your answer says, not what it implies.
- Each question lists what to include. Cover every item that applies to you, and say so plainly when one does not.
- Write plainly. Specific facts count for more than polish, and early-stage work is welcome when it is described honestly.
- The form saves as you type, and you can edit your answers until the deadline. Drafting offline first is fine.

The application questions

The VTCS-02 application has 10 written questions and a technology readiness self-rating. All are required. Character limits include spaces.

QUESTION 1

Up to 1,400 characters

Detection performance

What do you detect, and how well?

Include: the analytes and agent classes; limit of detection, dynamic range, and quantitation for each; the background or matrix they were measured in; whether those concentrations are operationally relevant; and how consistent results are across units and conditions.

Be specific, and name analytes, numbers, partners, and results.

QUESTION 2

Up to 1,600 characters

False alarms

How often is your detector wrong on data it was not trained on, and how do you know?

Include: false-positive and false-negative rates; the interferences and environmental backgrounds you tested against; whether testing was in the lab, out of distribution, or in the field; the conditions under which performance degrades; and how drift and recalibration behave over time.

Be specific, and name analytes, numbers, partners, and results.

QUESTION 3

Up to 1,600 characters

On-device decisions and the analyte library

Does the detection decision happen on the device, and how do you teach it to recognize new agents?

Include: whether inference runs on the device today; model size, latency, and power draw; what you traded away to fit it; how long it has run without reachback; where the recognition library lives and how it is updated; and how many new analytes you have added without redesigning hardware or retraining from scratch.

Be specific, and name analytes, numbers, partners, and results.

QUESTION 4

Up to 1,400 characters

Emplacement and deployment

Where has your sensor worked outside the lab, and how does it get there?

Include: the emplacement conditions you have demonstrated; how performance holds when there is no line of sight or the target substance does not reliably reach the sensor, with data; how it degrades in vegetation, terrain, or buildings; and how the sensor is emplaced and recovered, including any unmanned delivery.

Be specific, and name analytes, numbers, partners, and results.

QUESTION 5

Up to 1,000 characters

Power and endurance**How long does your sensor run on its own, and how do you know?**

Include: measured power use per duty cycle; your energy source or harvesting approach; endurance you have demonstrated, not modeled; servicing needed; and, for power-only responses, how it integrates with a host sensor.

Be specific, and name analytes, numbers, partners, and results.

QUESTION 6

Up to 1,600 characters

Trade-offs, unit cost, and manufacturing**What does each unit cost at scale, and what did you trade to get there?**

Include: the trade-offs among sensitivity, selectivity, endurance, manufacturability, and cost, with one conflict you resolved and why; how you chose your operating point; unit cost at representative volumes and its basis; yield; your production approach and where units are made; and any pilot production run.

Be specific, and name analytes, numbers, partners, and results.

QUESTION 7

Up to 1,200 characters

Data, networking, and compute**How does a detection reach someone who can act on it, and what computing does your system need behind it?**

Include: the data format and interface the sensor exposes; how data is secured; how nodes combine readings; behavior when connectivity is degraded or denied; time from detection to a usable alert; any integration with an existing operating picture or dashboard; where training and analysis run; what high-performance computing (HPC) they need, meaning large shared compute clusters that run jobs through a scheduler; and any experience running in restricted, batch-scheduled environments.

Be specific, and name analytes, numbers, partners, and results.

QUESTION 8

Up to 1,400 characters

The demonstration**How would you prove your capability in a first demonstration?**

Include: the analyte, concentration, and environment; how you would show detection without guaranteed line of sight or delivery; on-device classification feeding a common operating picture; the commercial use case it matches; the benchmark and success criteria; expected failure modes; a test site; and whether it fits an initial contract period.

Be specific, and name analytes, numbers, partners, and results.

QUESTION 9

Up to 1,600 characters

Market, defense relevance, and funding**Who buys this, who funds it, and what defense problem does it solve?**

Include: your first commercial market, for example environmental compliance, industrial safety, water, agriculture, or public health, and why; named pilots, letters of intent, channel partners, customers, or revenue; whether unit economics hold on commercial demand alone; the specific defense use and why your capability transfers, with any defense-relevant testing; your current investors; and whether they would co-invest alongside a B2B award.

Be specific, and name analytes, numbers, partners, and results.

QUESTION 10

Up to 1,000 characters

What you own and the gap to close**What do you own, who supplies the rest, and what gap would this award close?**

Include: which technology bases you own (sensing hardware, edge inference, detection chemistry, power) and which come from named partners; whether interfaces are defined so subsystems can combine; any integration already done; why you have not been funded or acquired at scale; the TRL or MRL gap; and whether a B2B award moves you at least one level.

Be specific, and name analytes, numbers, partners, and results.

SELF-RATING**Technology readiness level****Rate your technology readiness level.**

Self-rated on the standard 1 to 9 scale. Choose the level you can defend with evidence today, not the level you expect next year. The form shows a description of each level, from 1 (basic principles observed) to 9 (system proven in operational environment).

Process and timeline

Dates after intake closes are target windows, not commitments.

Intake opens	12 October 2026	Eligibility screen, then a challenge-specific application (10 questions with character limits and a technology readiness self-rating), plus a 1 to 2 page capability statement in any format. Progress saves automatically.
Intake closes	30 October 2026, 11:59 p.m. Eastern	Portal closes. Late submissions are not accepted; a general-interest signup remains open for future cohorts.
Initial review	First half of November 2026	D!NG and subject-matter experts screen all applications against the challenge criteria.
Invitation to propose	Mid-November 2026	Selected applicants are invited to submit a short proposal (5 to 10 pages on a provided template) and join a recorded Q&A session.

Expert panel review	Late November to December 2026	Each proposal is evaluated by at least two reviewers drawn from science and technology, military, commercialization, and investment backgrounds.
Selection and agreements	December 2026 to January 2027	D!NG recommends the cohort to the sponsor; selected companies negotiate and execute prototype agreements.

Frequently asked questions

Who can apply?

U.S.-organized, U.S.-owned and controlled companies with a demonstrable technology responsive to one of the current challenge statements. See the eligibility list on the program page.

Can I apply to both challenges?

Yes. Each challenge has its own question set and its own review panel. Submit one application per challenge.

How much funding is available per company?

Prototype agreements are milestone-based and sized to the work proposed. The indicative range for Cohort 1 agreements will be published at intake open.

Is this a grant?

No. Selected companies enter a prototype agreement with defined milestones and deliverables, and retain ownership of their technology subject to negotiated data rights.

Who owns the intellectual property?

Companies retain ownership of the background IP they bring and, in general, the foreground IP they create. Data-rights terms are negotiated in each agreement and explained during the proposal stage.

Do I need prior government experience?

No. Learning how the government defines needs, evaluates technology, and buys is part of what VEDDER provides.

Do I need a security clearance or a secure facility?

Not to apply. Program security requirements, including U.S. citizenship for key personnel, apply to selected companies and are explained before agreements are signed.

What if my company has foreign investors?

Disclose it in the application. Foreign ownership, control, or influence is reviewed and may be disqualifying depending on its nature and extent.

What does "dual-use" mean here?

A technology with a commercial market and a national-security application. VEDDER selects for companies that can succeed commercially, because commercial success is what sustains the capability.

Where is the program located?

D!NG is headquartered in Indiana; VEDDER is a national program. Applicants from any U.S. state are eligible, and most program activity is remote with periodic in-person events.

What happens after the prototype?

Successful prototypes may be eligible for follow-on production opportunities.

I missed the deadline. What now?

Join the general-interest list. New challenge statements and cohorts will be announced there first.

I am not a company. How can I get involved?

See Partner with VEDDER. States, investors, universities, and corporate sponsors all have a defined role.

Still have a question? Email questions@dingusa.org and someone from the program will reply.