Quantum Benchmarking Initiative Topic (QBIT)
DARPA-PA-26-02-01
QBI Independent Verification and Validation (IV&V)

All dates and times are specific to DARPA-PA-26-02-01 only.

Posting Date: November 17, 2025
Abstract Responses Due: September 01, 2026, by 4:00 p.m. Eastern Time (ET)
Full Proposal Responses Due: October 15, 2026, by 4:00 p.m. Eastern Time (ET)

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A. Topic Description

The Defense Advanced Research Projects Agency (DARPA) is issuing a Quantum Benchmarking Initiative topic (QBIT) inviting submissions of innovative infrastructure, equipment, and expertise available to provide independent verification and validation (IV&V) support for DARPA's Quantum Benchmarking Initiative (QBI), described in the QBI 2026 Program Announcement (PA), DARPA-PA-26-02. All proposals in response to the technical area(s) described herein will be submitted to DARPA-PA-26-02-01 and, if selected, will result in an award of an Other Transaction (OT) for Research project.

To view the original DARPA Program Announcement for QBI 2026, visit SAM.gov under solicitation number DARPA-PA-26-02:
https://sam.gov/workspace/contract/opp/c26b38bf041a4d70b00ed619bebb4773/view

B. Introduction

It has been credibly hypothesized—but not proven—that quantum computers will have a transformative impact on a variety of scientific and technical disciplines. Through QBI, DARPA is soliciting proposals from quantum hardware developers on how they plan to build "industrially useful" quantum computers. The primary goal of QBI is to determine if any emerging approaches to quantum computing can achieve industrially useful operation much faster than conventional predictions. The QBI program will verify and validate computing approaches that enable revolutionary advances in the design, engineering, testing, and evaluation of fault tolerant quantum computing and explore application workflows that include quantum compute steps.

The determination of the requirements for an industrially useful quantum computer remains a challenging task for three reasons. First, although several algorithms and applications for quantum computers have been suggested, quantifying the value added by a quantum-enhanced workflow over current best practice is often poorly understood or articulated. Second, in most cases, a rigorous comparison to the best classical alternatives for real-world usage has not been completed. Third, it is unclear when or if a utility-scale quantum computer (USQC)—one whose computational value exceeds its costs—can be built, particularly for applications that require fault-tolerance. For these reasons the IV&V of industrially useful quantum computer concepts and prototype devices is an essential activity in evaluating these emerging technologies.

DARPA is interested in any stakeholder (industry, academia, federally funded research and development centers (FFRDCs), university-affiliated research centers, government, or other) that has infrastructure, equipment, lab space, workforce, and expertise available to support the IV&V of DARPA QBI performers' efforts to accomplish the program's goals.

C. Topic Objective/Scope

The goal of the IV&V QBIT is to solicit cutting-edge facilities, testing, evaluation tools, and highly skilled teams to augment the capabilities of the QBI Test & Evaluation team and support the IV&V of innovative technical solutions for building and using fault-tolerant quantum computers. These IV&V activities span the breadth of the quantum computing stack, including use-case definition, systems engineering, integrated test of prototype devices, description of individual component performance requirements, and device testing.

From a top-level perspective, DARPA is seeking IV&V technical teams that have skills including, but not limited to, the following subject areas:

- Systems engineering (especially for large-scale physics and computing facilities)
- High-performance computing (design, solicitation, provisioning, operations)
- Computing application expertise (especially in high-impact quantum-amenable applications)
- Quantum information science (quantum algorithms, quantum error correction, quantum component modeling)
- Hardware design, testing, and validation

DARPA is particularly interested in teams with experience planning and red-teaming the design, R&D, and IV&V of first-of-their-kind, large-scale, complex technical systems. Similarly, DARPA is looking for IV&V facilities that provide infrastructure resources (e.g., computing, space, power, cooling) that could host and test quantum computing devices. These tools will assist the Government to verify and validate that the envisioned USQC concept can be constructed as designed and operated as intended. Augmenting the capabilities of the QBI Test and Evaluation Team through the development of quantum computer testing and evaluation tools and/or concepts is crucial to the success of QBI.

For the purpose of abstract submission, proposers should assume a 12-month period of performance for any IV&V effort awarded under this QBIT.

a. Topic Structure

The QBI IV&V team will be comprised of multiple U.S. Government employees and support organizations that engage in close collaboration to perform full stack IV&V of quantum computation. The team's primary objective will be to perform IV&V of QBI performer progress towards an industrially useful quantum computer—without imposing any delay to pre-existing R&D efforts.

D. Evaluation Criteria

1. Abstract Evaluation Criterion

Abstracts will be evaluated using the following criterion: Value Add to the Existing QBI IV&V efforts.

Value Add to the Existing QBI IV&V Effort
The proposed effort provides significant value to the overall QBI IV&V initiative by introducing distinctive and innovative approaches to verifying and validating critical lines of effort required for the development of a utility-scale quantum computer. The proposed approach strengthens the integrity and reliability of the IV&V framework, enhancing its ability to independently assess emerging technologies and ensure robust scientific and technical validation. By augmenting the government's existing QBI IV&V capabilities, the effort contributes to a more comprehensive and impactful evaluation process, accelerating progress toward program objectives and advancing the national security technology base.

2. Proposal Evaluation Criteria

Proposals will be evaluated using the following criteria, listed in descending order of importance: Technical Feasibility and Execution; Scientific Validation and Evidence; and Budget and Price.

Technical Feasibility and Execution
The proposed technical approach is practical, achievable, and well-structured to meet the program's objectives. Task descriptions and associated technical elements are complete, logically sequenced, and clearly defined, ensuring that deliverables align with the program's goals and can be successfully executed within the proposed timeline and budget. The proposed team demonstrates the expertise and experience necessary to accomplish the outlined tasks, with access to the required tools, resources, and infrastructure to support execution. The proposal identifies major technical risks and provides feasible and appropriate mitigation strategies to address challenges, ensuring the effort remains on track. The proposed effort reflects a clear understanding of the program's requirements and demonstrates the ability to deliver meaningful outcomes that advance the program's objectives.

Scientific Validation and Evidence
The proposed effort demonstrates a commitment to rigorous scientific validation and reproducibility, ensuring that claims are grounded in robust evidence and defensible methodologies. The approach includes unbiased assessments of emerging technologies, verifying and validating performer claims to ensure the integrity and reliability of proposed solutions. The proposal outlines a clear plan for reproducing results and defending findings, enhancing the likelihood of technological breakthroughs while mitigating risks to cost, schedule, and performance. The proposed team demonstrates independence in validation activities, with access to necessary tools and equipment to conduct thorough evaluations. The effort reflects a dedication to maintaining scientific rigor, ensuring that DARPA's early technology investments are supported by reliable data and contribute to advancing the national security technology base.

Budget and Price:
The proposed solution is realistic and affordable. The budget is realistic and accurately reflects the technical goals and objectives of the solicitation and reflects a sufficient understanding of the level of effort and staffing needed to successfully accomplish the proposed technical approach. It is expected that the effort will leverage all available relevant prior research in order to obtain the maximum benefit from the available funding. For proposals that contain resource share, the proposer has provided sufficient rationale as to the appropriateness of the resource share arrangement relative to the objectives of the proposed solution (e.g., high likelihood of commercial application, etc.).

Unless otherwise specified in this announcement, for additional information on how DARPA reviews and evaluates proposals through the Scientific Review Process, please visit: Proposer Instructions and General Terms and Conditions

E. Submission Information

- All abstracts must use the templates provided as attachments to this QBIT and follow the instructions therein. All full proposal submissions must utilize the templates provided with the invitation to submit a proposal package. Information not explicitly requested in this QBIT, its attachments, or the full proposal invitation may not be evaluated.

- This announcement allows for Other Transactions for Research. The following website is incorporated by reference and contains additional information regarding overall proposer instructions, general terms and conditions, and specific award instrument type.
    - **Other Transaction agreements**: Proposer Instructions: Other Transactions

- This announcement contains an abstract phase. Abstracts are required. The Government will review all submitted abstracts against the evaluation criterion in Section D. DARPA will acknowledge receipt of the submission and assign a control number that should be used in all further correspondence regarding the abstract. After the Government's review, selected proposers will be invited to submit a proposal package.. Abstracts will be accepted on a rolling basis until the abstract due date outlined in this announcement. **Attachment A** contains specific instructions and templates that constitute a full abstract submission. Please visit Proposer Instructions and General Terms and Conditions for specific information regarding submission methods through the Broad Agency Announcement Tool (BAAT). Abstracts submitted in response to this notice are due no later than **4:00 p.m.** on **September 1, 2026.** Abstracts as described in this QBIT must be submitted per the instructions outlined therein *and received by DARPA* no later than the above time and date. Abstracts received after this time and date may not be reviewed.

- This announcement solicits for abstracts only. If DARPA expresses interest in an abstract, proposers will be asked to provide further details on their proposed effort through the proposal package. A proposal package will only be accepted from invited organizations as discussed above. Proposal packages from these organizations will be accepted on a rolling basis until the proposal due date outlined in this QBIT. The proposal package contains specific instructions and templates that constitute a full proposal submission. Those invited to submit a full proposal will receive a proposal package and instructions within their abstract response letter. Those not

invited to submit a full proposal will receive feedback within their abstract response letter. Upon receipt and review of a proposal package, proposers will be notified if their submission does not conform to the proposal package instructions. If their submission does not conform to the proposal package instructions, the proposal may not be reviewed. Organizations invited to submit a full proposal should visit Proposer Instructions and General Terms and Conditions for specific information regarding submission methods through the Broad Agency Announcement Tool (BAAT). Proposals submitted in response to this notice are due no later than **4:00 p.m.** on **October 15, 2026.** Proposal packages described in this QBIT DARPA-PA-26-02-01 must be submitted per the instructions outlined therein *and received by DARPA* no later than the above time and date. Proposal packages received after this time and date may not be reviewed.

- Proposers are warned that the proposal deadline outlined herein is in **Eastern Time** and will be strictly enforced. When planning a response to this notice, proposers should take into account that some parts of the submission process may take from one business day to one month to complete (e.g., registering for Unique Entity ID or TIN, renewing entity registration in SAM.gov).

- This QBIT, stated attachments, and websites incorporated by reference constitute the entire solicitation. In the event of a discrepancy between the announcement, attachments, or websites, the announcement shall take precedence.

- All technical and administrative correspondence and questions regarding this announcement should be submitted to QBIT_IVandV@darpa.mil. Proposals sent directly to individual DARPA program managers and/or telephone inquiries will not be accepted. This announcement contains all information required to submit a response. No additional forms, kits, or other materials are needed.

- NOTE: DARPA intends to conduct individual discussions with respondents as necessary to gain a full understanding of the technical and partnership models. Prior to submitting an abstract, please contact QBIT_IVandV@darpa.mil to discuss your capabilities and DARPA can help you understand if you're a good fit for the QBI IV&V team.

F. Award Information

Selected proposals that are successfully negotiated will result in the award of an OT for Research project. As a part of the proposal package, Proposers will receive a model OT for Research which should be reviewed prior to submission of the full proposal. Further details and instructions will be provided in the proposal package.

QBI Topic Authority

- In alignment with 10 U.S.C. § 4021, the government will consider resource share commensurate with the proposed approach. To the maximum extent practicable, proposers are encouraged to consider resource sharing, which generally consists of labor, materials, equipment, software, and facilities costs directly related to the project. The final amount of any

proposed and recognized resource share will be based on full consideration of factors such as the team's existing tools, equipment, and staff, prior investment in the technology, commercial versus military relevance, and unusual performance risk. The following websites are incorporated by reference and contain additional information regarding overall proposer instructions, general terms and conditions, and Other Transactions for Research.

- **Proposer Instructions and General Terms and Conditions**: Proposer Instructions and General Terms and Conditions
- **Other Transaction agreements**: https://www.darpa.mil/about/offices/contracts-management/proposer-transactions

- DARPA will consider a variety of proposed resource contributions to include cash and in-kind contributions, provided they are allowable, allocable, reasonable, and consistently accounted for by the Performer. The proposed resource sharing should be 1) straightforward and clearly described; and 2) include assets that will be used in the performance of the program, not just items of inherent value. It is the responsibility of the proposer to provide detailed justification for any proposed resource sharing to include value assessments and determinations, rationale as to the relevance to the proposed scope of work, and a commitment schedule.

- DARPA will not consider foregone profit or fee on this resultant award or other awards, previously funded government research, pre-existing IP, Internal Research and Development (IR&D) conducted prior to the OT award, or cost of money as resource share.

- Regardless of the type of resource-shared asset offered, **any resource-shared Research OT will not include payment of profit or fee to the performer.** Such a payment would skew the share ratio and would be contrary to the principles behind the purpose of resource sharing.

G. Eligibility

1. Federally Funded Research and Development Centers (FFRDCs), University Affiliated Research Centers (UARCs) and Government Entities

FFRDCs, UARCs, and Government Entities should not propose directly to this QBIT but are encouraged to contact QBIT_IVandV@darpa.mil to discuss potential involvement and eligibility.

2. Other Applicants

Eligible to respond to this announcement in any capacity:

- For-profit and Nonprofit organizations.
- Institutions of Higher Education to the extent that such participants comply with CUI requirements and publication restrictions.
- Non-U.S. organizations and/or individuals may participate to the extent that such participants comply with any necessary nondisclosure agreements, security regulations, export control laws, and other governing statutes applicable under the circumstances.

H. Special Considerations

- As of the time of publication of this announcement, all proposal submissions are anticipated to be unclassified. Proposers who wish to propose classified solutions should contact QBIT_IVandV@darpa.mil for further instructions. Included within the request to share classified information should be, if possible, the level of information, information owner, disposition system, and a point of contact for further instructions.

  This program is subject to the **QBI Controlled Unclassified Information (CUI) Guide**. It is the expectation that the Prime contractor will be capable of handling and protecting CUI. All individuals accessing CUI agree to protect CUI in accordance with *DoD Instruction 5200.48 CONTROLLED UNCLASSIFIED INFORMATION (CUI)* and *NIST Special Publication 800-171 Protecting Controlled Unclassified Information in Nonfederal Systems and Organizations*.

- As of the date of publication of this solicitation, the Government expects that program goals as described herein either cannot be met by proposers intending to perform fundamental research or the proposed research is anticipated to present a high likelihood of disclosing performance characteristics of military systems or manufacturing technologies that are unique and critical to defense. Therefore, the Government anticipates restrictions on the resultant research that will require the awardee to seek DARPA permission before publishing any information or results relative to the program.

- All data provided by DARPA to the IV&V performer shall remain the property of DARPA and shall be used only for the purpose of supporting the contract. DARPA's expectation is that all data generated under a resultant IV&V effort would be delivered with Unlimited Rights. Should a proposer wish to assert anything less than Unlimited Rights for any data to be delivered, the proposer must provide a detailed description of the data to be delivered and the rationale for the restriction.

- Offerors are advised that DARPA is committed to avoiding organizational conflicts of interest. As such, DARPA may require offerors to submit an OCI mitigation plan if the proposed IV&V support could create a potential conflict of interest. For additional information and instructions on organizational conflicts of interest, please visit Proposer Instructions and General Terms and Conditions.In addition, offerors are hereby notified that in accordance with DARPA Instruction 70 (https://www.darpa.mil/sites/default/files/attachment/2024-12/di-70-signed-may-2022.pdf), IV&V performance under this effort may render offerors ineligible for research performance on future DARPA programs.

- In order to avoid conflicts, DARPA may require as a condition of award that IV&V performers declare their participation in QBI to the relevant contracting activity at the time of proposing to any other U.S. Government solicitation for goods or services related to quantum computers. IV&V performer access to and use of proprietary information, from any source, is strictly subject to the terms and conditions of award and any applicable non-disclosure agreement (NDA).

I. Frequently Asked Questions (FAQs)

All technical, contractual, and administrative questions regarding this notice must be emailed to QBIT_IVandV@darpa.mil. Emails sent directly to the Program Manager or any other address may result in delay or no response.

All questions must be in English and must include name, email address, and the telephone number of a point of contact. DARPA will attempt to answer questions publicly in a timely manner; however, questions submitted within seven (7) days of the proposal due date listed herein may not be answered.

DARPA will post an FAQ list under the QBIT on the DARPA/MTO Opportunities page at http://www.darpa.mil/work-with-us/opportunities. The list will be updated on an ongoing basis until one week prior to the proposal due date. In addition to the FAQ specific to this notice, proposers should also review the Program Announcement for QBI General FAQ list on the DARPA/MTO Opportunities page under the Program Announcement (DARPA-PA-26-02).