Quantum Benchmarking Initiative Topic (QBIT): Stage A

Frequently Asked Questions (FAQ)

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1) **Question:** What are some useful resources to learn about The Quantum Benchmarking Initiative (QBI)?

   Answer: You might find the following resources useful:

   - The DARPA QBI web page: QBI: Quantum Benchmarking Initiative | DARPA
   - The DARPAtv channel on YouTube: DARPAtv - YouTube
   - The QBI Topic (QBIT) announcement, DARPA-PA-26-02: Quantum Benchmarking Initiative (QBI) 2026 Announcement
   - The Stage A QBIT announcement, DARPA-PA-26-02-02: Stage A QBIT

2) **Question:** What is the purpose of this Program Announcement (PA), DARPA-PA-26-02-02?

   Answer: The purpose of this QBIT is to encourage new entrants into Stage A of QBI, ensuring DARPA has visibility into all approaches and potential solutions.

3) **Question:** If our company participated in a prior QBI or Underexplored Systems for Utility-Scale Quantum Computing (US2QC) effort but are not currently active participants, are we eligible to apply to this solicitation?

   Answer: While this QBIT is not intended to solicit proposals from performers selected under prior QBI or US2QC solicitations, those performers are not precluded from submitting new proposals under this PA if they believe their approach offers new or distinct contributions to the QBI. Performers who participated in a prior QBI or US2QC effort but did not move beyond Stage A should contact DARPA via QBI@darpa.mil prior to submission.

4) **Question:** If our company applied to a prior QBI or US2QC solicitation but was not selected, are we eligible?

   Answer: Yes. If you believe that you can make a strong case that your organization is on a path to building a utility-scale quantum computer by 2033, you are invited to apply to QBI. Please clearly describe recent advances in your approach and technology.

5) **Question:** This solicitation has a different structure from previous US2QC and QBI solicitations. Why is that?

6) **Answer:** Unlike previous solicitations, this opportunity has a rolling admission process such that any abstracts submitted prior to the date and time stated in the QBIT PA will be considered.

7) **Question:** Do we need to start with Stage A, or can we apply directly to Stage B?

   Answer: DARPA-PA-26-02-02 is soliciting abstracts for Stage A of QBI only. Per the PA, while six months is the expected Stage A term, milestones may be completed early, allowing DARPA the opportunity to evaluate performers' concepts ahead of the six-month timeline.

8) **Question:** How many awards are anticipated?

   Answer: Multiple awards are anticipated.

9) **Question:** Are you only interested in proposals to QBI for fault-tolerant, gate-based (or equivalent) machines, or are other quantum computing approaches, such as quantum annealing, acceptable?

   Answer: Yes, other quantum computing approaches, such as quantum annealing, are within scope. DARPA is interested in revolutionary approaches from any entity who believes they can build an industrially useful quantum computer by 2033.

10) **Question:** We are interested in developing applications and algorithms for fault-tolerant quantum computers. Can we apply to QBI Stage A?

    Answer: Entities interested in working only on applications and algorithms should only apply to this QBI solicitation as part of a larger team that is developing a complete quantum computing solution. Alternately, you may submit a abstract to the QBI Independent Verification and Validation (IV&V) Topic, to supply innovative infrastructure, equipment, and expertise for independent verification and validation (IV&V) support to QBI (QBIT Link: DARPA-PA-26-02-01.)

11) **Question:** If we are selected for IV&V support, does that exclude us from submitting to QBI as a performer?

    Answer: An entity receiving an award for IV&V support under DARPA-PA-26-02-01 may be excluded from receiving an award under Stage A QBI (DARPA-PA-26-02-02) as a research performer due to potential organizational conflicts of interest (OCI). Additionally, DARPA may require IV&V performers to declare their participation in QBI to the relevant contracting activity when proposing to any other U.S. Government solicitation related to quantum computers. This ensures transparency and mitigates conflicts of interest. Any

entity with specific concerns or questions about eligibility should contact the cognizant QBIT email address.

12) **Question:** Will QBI have a parallel "seedling" or "SBIR adoption" track for transformational subcomponents like sub-4k cryofluids or cryo-thermal-electro-optic-system designs that would benefit all the QBI performer teams?

Answer: Not at this time.

13) **Question:** Can foreign companies participate in the program? Would a foreign company be required to have U.S. citizen staff or hardware physically located in the U.S. to be eligible for any stage?

Answer: 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.

14) **Question:** The solicitation uses the phrase "Computational Value" – how will this be evaluated and defined?

Answer: In general, computational value will be measured in dollars. It is anticipated proposers will describe their approach to quantify the value of their utility-scale concept.

15) **Question:** If two companies propose similar system designs based on comparable technologies, does DARPA intend to contract both for Stage A if their approaches are deemed sound, or will only one company be selected per technical approach?

Answer: There is no limitation on the number of performers per hardware paradigm. Multiple approaches using similar technology will be considered. Proposals are evaluated against the criteria in the program announcement – not each other.

16) **Question:** Given Intellectual Property protection requirements, how does DARPA plan to manage potential transitions of personnel between proposer institutions and T&E institutions over the course of the QBI program, while ensuring compliance with IP safeguards and avoiding conflicts of interest?

Answer: DARPA has established robust procedures for evaluating and managing conflicts of interest to ensure the integrity of the program. Each agreement includes specific terms governing data and intellectual property (IP) rights, with additional provisions for entities performing Independent Verification and Validation (IV&V) to address their unique role in the program. Any potential conflicts of interest or IP concerns will be handled on a case-by-

case basis, in accordance with applicable laws, regulations, and DARPA policies, ensuring compliance and fairness throughout the program.

17) **Question:** What information should an entity include in a submission if they have conducted serious due diligence and believe they can deliver an industrially useful quantum computer by 2036, but not by 2033?

Answer: It is recommended that proposers include details about what will be built by 2036, what milestones will be achieved by 2033, and any potential strategies for accelerating the proposed timeline.

18) **Question:** What if a company believes they can deliver a militarily useful but not an industrially useful quantum computer by 2033? Is that acceptable, or does it have to be "industrially relevant?"

Answer:

DARPA is interested in advancing technologies with both commercial and defense-specific utility and has included both Research OTs and Prototype OTs as possible award instruments. This approach allows for the negotiation of awards that are intended to (1) spur dual-use research & development with a path to commercialization; and (2) acquire prototype capabilities for the Department, with the potential for follow-on production.

19) **Question:** Can an organization submit multiple abstracts?

Answer: The announcement does not limit the number of abstracts, either in total or from a given organization. However, DARPA encourages each organization to present their strongest team capable of meeting the program's objectives, ideally through a single abstract submission.

20) **Question:** How can support technology firms participate in the QBI process?

Answer: Support technology firms interested in participating in QBI can do so by directly contacting a performer to discuss opportunities for collaboration as a subperformer. This may involve providing components, subsystems, or other technical contributions to support the performer's efforts in building a utility-scale quantum computer.

21) **Question:** The program announcement states, "Specifically excluded is research that primarily results in evolutionary improvements to the existing state of practice." Could you describe what you mean by this?

Answer: DARPA seeks revolutionary rather than evolutionary solutions given its mission is to drive transformative advancements in technology that can significantly impact national security and scientific progress. Evolutionary solutions typically involve incremental improvements to existing technologies, which may not be sufficient to address the complex challenges posed by emerging fields like quantum computing. Revolutionary solutions, on the other hand, aim to achieve breakthroughs that fundamentally change the state of the art, enabling capabilities that were previously unattainable.

22) **Question:** What specific assurances can DARPA provide that performer proprietary information shared during the proposal process and the QBI program will be handled appropriately?

Answer: DARPA takes proprietary information very seriously. Any information submitted to DARPA as part of a proposal to DARPA-PA-26-02-02 is considered selection-sensitive information and is protected in accordance with DoD Instruction 5200.48 and established Agency policies. Prior to the start of performance, DARPA will work with the performer to negotiate terms and conditions that include robust data and intellectual property protection measures. All QBI Test and Evaluation and IV&V personnel employed during contract execution are required to adhere to strict conflict of interest and data protection agreements to ensure the confidentiality and security of proprietary information.

23) **Question:** Can I propose my own Schedule of Milestones and Deliverables?

Answer: It is anticipated that all QBI Stage A performers will use the same Schedule of Milestones and Payments, as shown in Table 2 of the Program Announcement; however, proposers may suggest an alternate schedule of milestones and payments as long as the total payments in Stage A do not exceed $1M.

24) **Question:** Will there be any restrictions on the publication of scientific advances by a performer that come about due to QBI work?

Answer: Publication restrictions will be negotiated prior to a Stage A award. Draft terms and conditions addressing items such as publication of scientific results, technology developed under the award, and content of technical feedback will be provided as a part of the full proposal invitation package. At this time, DARPA does not anticipate imposing restrictions on performers releasing their own company's data.

25) **Question:** What advice do you have for first-time applicants to a DARPA program?

Answer: Potential proposers are encouraged to carefully read the Program Announcement (PA) in its entirety to fully understand the requirements and objectives. Proposers should utilize the required templates provided in the announcement and ensure their submissions adhere to the outlined instructions. Additionally, any questions should be submitted in accordance with the procedures specified in the PA. The DARPAConnect platform at DARPAConnect.us is a valuable resources for familiarizing oneself with DARPA, its processes, and insights into how programs and proposals are assessed.