

# Quantum Benchmarking Initiative (QBI)

## Questions and Answers (Q&A)

Originally posted on September 6, 2024

- 1) **Question:** Will there be other opportunities in the future, or do we need to start with Stage A now?

**Answer:** This is an initiative not a program – it is possible that there will be other solicitations in the future, but that is not guaranteed. Right now, we are soliciting Abstracts for Stage A of QBI only.

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

**Answer:** Entities / organizations / persons interested in working only applications and algorithms should only apply to the QBI PS as part of a larger team that is developing a complete quantum computing solution. Alternately, you may submit a response to the QBI RFI for test and evaluation capabilities to assist the government in developing requirements for a utility-scale quantum computer (RFI link:

<https://sam.gov/opp/dcc81594f5f64156ab20e88ca9939520/view>)

- 3) **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 primer teams?

**Answer:** Not as part of this solicitation, but at this time, nothing has not been announced or ruled out for future QBI solicitations.

- 4) **Question:** How many awards are anticipated for Stages A, B, and C?

**Answer:** Multiple awards are anticipated, but the Government reserves the right to select for negotiation all, some, one, or none of the proposals received in response to this solicitation.

- 5) **Question:** If our company applied to US2QC but aren’t currently part of the program, either because we weren’t selected as a performer or because we worked on US2QC but no longer are a performer, can we apply to QBI?

**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.

- 6) **Question:** Can you please confirm the timeline for submission?

**Answer:** Summarizing page 2 of the Program Solicitation (PS), a) submit abstracts by September 19 at 5pm Eastern Time, b) if invited, submit an oral proposal package by October 28, and c) give an oral proposal presentation sometime between November 11 and December 13.

- 7) **Question:** Can foreign companies participate in the program? The solicitation notes that foreign firms are permitted to apply, but 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, most notably during Stage C? What does DARPA anticipate from foreign companies?

**Answer:** Section II.F describes proposer eligibility. There are no blanket restrictions to foreign participation, including participating in Stage C, apart from following relevant laws and regulations.

- 8) **Question:** The solicitation defines “Computational Value” – how will this be evaluated and defined?

**Answer:** In general, we think about measuring computational value in dollars. We anticipate proposers describing their approach to quantify the value of their utility-scale concept.

- 9) **Question:** In the case that two companies propose similar system designs (based on similar technologies), is DARPA’s intention to contract both for Stage A if the Systems Engineering is sound? Or will only one company be chosen per technology approach?

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

- 10) **Question:** Over the proposed 4.5 years of the project (6 months A, 12 months B, 36 months C), it seems likely that some employees will move from proposer institutions to T&E institutions and vice versa. Is transitioning roles within the QBI possible? If so, how

do you see that path playing out given the Intellectual Property protection considerations?

**Answer:** We have robust procedures in the place for evaluating and handling conflicts of interest. Each case will be handled appropriately within the scope of the relevant laws and regulations.

- 11) **Question:** If a company has done serious due diligence and thinks they can deliver an industrially useful quantum computer by 2036, would you prefer they (a) exaggerate and apply with a claim of a 2033 delivery date, (b) apply and say they can make a 2036 date but not a 2033 date, (c) don't apply and waste the reviewers' times because 2036 is after 2033, or (d) something else?

**Answer:** We recommend but do not require that you propose and include details about what you will build by 2036, what you will have accomplished by 2033, and what, if anything, could be done to accelerate your timeline.

- 12) **Question:** What if a company believes they can deliver a militarily useful but not an industrially useful quantum computer by 2033? (for example, one that runs a cryptanalytically relevant instance of Shor's algorithm). Is that acceptable, or does it have to be "industrially relevant?"

**Answer:** If you believe your utility-scale, fault-tolerant quantum computer will be of interest to DARPA or the federal government, you are encouraged to submit an abstract.

- 13) **Question:** What is DARPA's overall strategy for Quantum Algorithms in general, and for hybrid classical-quantum algorithms specifically?

**Answer:** Please see the Quantum Benchmarking program publications listed in <https://www.darpa.mil/work-with-us/publications-highlighting-potential-impact-of-quantum-computing-in-specific-applications>, that are posted on arXiv.

- 14) **Question:** Are you interested in proposals to QBI from [alternative quantum computing approach X] or are you only interested in fault-tolerant, gate-based machines?

**Answer:** We will not pre-judge approaches; anyone who believes they can build an industrially useful quantum computer by 2033 is encouraged to apply. That said, DARPA has the clearest understanding of the value proposition for fault-tolerant, gate-based (or equivalent) systems. We encourage performers who are developing an

alternative approach, such as an application-specific machine, to provide very compelling information about the expected industrial value of their approach.

- 15) **Question:** What specific competencies will the T&E team bring that would make “a grueling slog” worth getting their opinion?

**Answer:** We believe that DARPA has assembled the best quantum computing T&E team in the world, with a broad range of skills that can be applied specifically to your approach. This includes deep physics expertise, broad system evaluation expertise, and utility estimation expertise.

- 16) **Question:** Based on the solicitation timeline, the program will run for 4.5 years. Could you elaborate on your expectations for year 2029, given that the program states that utility scale can be achieved by 2033?

**Answer:** All Stage durations are approximate; proposers should describe their own expected research and development timeline. The goal for the end of Stage C is to have mutual agreement between DARPA and a Stage C performer that the performer is ready to finalize the design of their utility-scale quantum computer and begin manufacture because the major risks have been sufficiently reduced to justify this.

- 17) **Question:** The Abstract deadline is a very short time frame – why such a quick turnaround from Proposers Day?

**Answer:** DARPA is interested in speed. To help the process, the Abstracts are eight pages, and comprise only the first gate in the process.

- 18) **Question:** Can you please provide the Proposers Day slides?

**Answer:** The slides from Proposers Day are posted on the DARPA website under the QBI Resources page (<https://www.darpa.mil/QBI>) and will be posted on SAM.gov.

- 19) **Question:** Do you anticipate that Stage B/C funds will be an Other Transactions Agreement (OTA), or do you expect a different contract vehicle?

**Answer:** Our current assumption is that a Stage B will be a modification of a Stage A OTA, and Stage C will be a modification of a Stage B OTA.

- 20) **Question:** Is there a limit on the number of abstracts? Can an organization submit multiple abstracts?

**Answer:** The solicitation does not limit the number of Abstracts, either in total or from a given organization. That said, DARPA is hoping that each organization will give us their best team capable of achieving program goals, and hopefully that can be done with one Abstract.

21) **Question:** Will QBI host a teaming forum website?

**Answer:** No. The Proposers Day Special Notice, DARPA-SN-24-97, describes how DARPA will distribute the attendee list and the prospective proposer profile.

22) **Question:** I am virtually attending the QBI Proposer's Day – can I receive a copy of the attendee list?

**Answer:** Please see the Proposers Day Special Notice, DARPA-SN-24-97, for instructions.

23) **Question:** Is the allocated budget for Stage C intended to cover the cost of building a utility-scale quantum computer?

**Answer:** No, we do not anticipate that Stage C will build a USQC. The purpose of Stage C is to verify and validate components and prototypes to show that a team is ready to finalize the design of their USQC and begin manufacture.

24) **Question:** Is the T&E team expected to be embedded at the company developing the quantum computer technology?

**Answer:** This is just one possible model but is not required. DARPA is interested in having the T&E teams work with your organization as effectively and efficiently as possible.

25) **Question:** For the Abstract cover page, are the period of performance and budget for Stage A only, or for all stages?

**Answer:** Stage A only.

26) **Question:** Is the Stage A budget only for the DARPA-funded portion of the R&D?

**Answer:** Yes.

27) **Question:** How much focus should be given to [X vs. Y topic] in the Abstract.

**Answer:** Proposers should provide the strongest case for their approach while following the required template for the Abstract. Proposers should assume a deeply technical audience that may not be experts in their exact approach.

28) **Question:** You have already selected companies in the Underexplored Systems for Utility-Scale Quantum Computing (US2QC) program. Is QBI intended to build on those technologies?

**Answer:** No – QBI is open to all technologies, this is a separate solicitation. DARPA is hoping to get a very broad response from the gamut of technologies.

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

**Answer:** If you want to support a performer by making a component, subsystem, etc., you should contact that performer directly about being a subcontractor.

30) **Question:** As a subcontractor, can a company support proposals from multiple prime contractors?

**Answer:** Yes

31) **Question:** Can other groups (collaborators, subcontractors) join a team at a later stage of the program?

**Answer:** Yes, Other Transaction Agreements are designed to be very flexible.

32) **Question:** How can a team participate in the Test and Evaluation part of QBI?

**Answer:** Please see the QBI Test and Evaluation Support Request for Information (RFI), DARPA-SN-24-101 on <https://sam.gov>.

33) **Question:** The PS 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:** This is standard language for a DARPA solicitation; anyone who believes that they can build a utility-scale quantum computer by 2033 has cleared this bar.

34) **Question:** Can there be multiple co-Principal Investigators from the same organization?

**Answer:** Yes.

35) **Question:** What opportunities might exist for collaboration between T&E teams and performer teams? Will collaboration be limited to Stage C co-design?

**Answer:** Please use your imagination and tell us how you would like to work together with DARPA. We expect all Stages to be collaborative.

36) **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. Please see Section V.E of the PS for how DARPA treats submissions to this PS. After the proposal process, DARPA will work with each performer to determine how they want their proprietary information to be handled inside the program.

37) **Question:** Can I propose my own Schedule of Milestones and Payments?

**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 PS.

38) **Question:** Our organization is just getting off the ground, but we believe we can build a utility-scale quantum computer by 2033 – should we apply to QBI?

**Answer:** All proposers and performers will be evaluated based on the same criteria; new organizations / efforts will not be held to lower standards. That said, if you believe that you can make a strong case that your organization is on the path to building a utility-scale quantum computer by 2033, you are invited to apply to QBI.

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### Questions added September 12, 2024

39) **Question:** How much discussion of target application algorithms is important for the Stage A proposal?

**Answer:** Quantifying the utility of large-scale quantum computers is a complicated topic that is the subject of ongoing research. We expect proposers to argue why their concept can reach utility-scale operations and how they approach the problem, but are not required to definitively prove the utility of their concept in the proposal.

40) **Question:** How much focus should be given to hardware architecture vs. target applications in the Abstract?

**Answer:** The Program Solicitation contains attachments that describe how DARPA intends to assess your utility scale concepts, which should give you a sense of relative weighting. Formally, the Abstract will be evaluated based on the criteria defined in Section III.C of the main Program Solicitation.

41) **Question:** Will there exist any path for T&E teams to publish scientific advances that come about due to QBI work, whether through anonymization or exclusion of performer-specific data?

**Answer:** Strictly speaking, publication rights are or will be negotiated as part of the contract between DARPA and each individual organization contracted to perform Test and Evaluation. That said, T&E teams are never authorized to publicly disclose performer proprietary information without explicit permission from both the performer and DARPA. There are typically restrictions on publication of DARPA-generated data that does not include performer-proprietary information, but there is not a broad ban on such activities. Each case is considered individually to ensure compliance with all laws, regulations, and contract requirements.

42) **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 and rights will be negotiated as part of the Other Transaction Agreement prior to Stage A – see the QBI Model OTA for specific details. That said, DARPA does not anticipate any restrictions on performers releasing their own company data.

43) **Question:** Per the solicitation, “*Offerors will be required to submit invoices for payment electronically via Wide Area Work Flow (WAWF) at <https://wawf.eb.mil>, unless an exception applies. Registration in WAWF is required prior to award.*” Could you please clarify when registration in WAWF system is needed to be completed in relation to proposal submission deadline?

**Answer:** Registration is needed before an Other Transaction Agreement can be awarded. DARPA desires that contracting move quickly, so a good goal would be to register immediately after receiving an invitation to negotiate a Stage A contract (expected to be in late December or early January).

44) **Question:** We are registered on baa.darpa.mil and sam.gov, but are still in the process of getting a UEI and CAGE number. Are these required for the Abstract to be considered? Will they be required to submit a full proposal for Stage A?



**Answer:** The Program Solicitation states that “*Offerors must be registered in the System for Award Management (SAM) <https://sam.gov/> at time of proposal submission*”, which is an Oral Proposal Package. It is not required for Abstract submission but is required for Oral Proposal Package submission.

45) **Question:** Is it permissible to add/remove team members between the abstract submission and the full proposal, and again at Stage B and Stage C?

**Answer:** Yes, Other Transaction Agreements are designed to be very flexible.

46) **Question:** During the Proposer Day event on Tuesday, it was mentioned Figure 1.0 that appears under in Section B under “Definition of a Utility-Scale Quantum Computer” would be updated with a revised “y” axis. Can we please get a copy of the updated Figure or be pointed to a document that contains the updated version?

**Answer:** The graph in the presentation correctly plots a version of circuit volume, (T-gates)  $\times$  (# of computational qubits), on the y-axis versus # of computational qubits on the x-axis. Some of the discussion of the plot may have incorrectly stated that the y-axis was only the number of T-gates.

47) **Question:** In reviewing the QBI Program Solicitation, it appears the focus is on approaches to address challenges related to quantum computing. Our company is working to operationalize XXX capability that will provide YYY for processing and data transfer. Is QBI interested in this capability?

**Answer:** DARPA is interested in quantum computing approaches that can achieve utility-scale operation by the year 2033. If you can potentially support a proposer by making a component, subsystem, etc., you should contact that organization directly about being a subcontractor.

48) **Question:** In Figure 1 of the Program Solicitation, is the number of physical qubits indicated in the grey staircases a requirement or an example? That is, if there’s an opportunity to use fewer number of physical qubits to achieve the number of computational qubits due to better fidelities or a different code than a reconfigurable surface-code, is that an option?

**Answer:** The gray contours are shown **only** for visualization as an example. DARPA is interested in all concepts that have potential to reach utility-scale operation, and to understand your particular tradeoffs.

49) **Question:** In the Abstract Summary Slide Template, you ask “*Summarize utility-scale concept, and verification and validation strategy*” but there is no reference for the verification and validation strategy in the abstract template.

**Answer:** This is asking proposers to summarize their internal approach to verifying and validating the technology they are developing.

50) **Question:** Do attachments C, D, E, F, and G need to be submitted at the same time as the abstract for Stage A?

**Answer:** No, only Attachments A and B are required to be submitted with the abstract. Attachments C through H are provided for reference.

51) **Question:** What are the guidelines for the submission of the abstract?

**Answer:** Submission Guidelines are described in Section III of the Program Solicitation.

52) **Question:** Can videos of a demonstration of our utility-scale quantum computer, source code, and log data be sent along with our abstract, to prove capability?

**Answer:** No. You may describe these capabilities. If you are invited to submit an Oral Proposal Package, you will be able to elaborate on your capabilities.

53) **Question:** A group of us at [FFRDC organization] are considering putting in a proposal under the QBI program solicitation. However, we cannot use OT agreements as a funding instrument. Is it possible to use a MIPR in the event that we submit and win a proposal?

**Answer:** No, we only intend to award Other Transactions Agreements for this solicitation. Please see Section II.F of the Program Solicitation for further details on restrictions. Alternately, you may submit a response to the QBI RFI for test and evaluation capabilities to assist the government in evaluating utility-scale quantum computers (RFI link:

<https://sam.gov/opp/dcc81594f5f64156ab20e88ca9939520/view>).

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### Questions added September 17, 2024

54) **Question:** Regarding Attachment C, *QBI\_Model\_Other\_Transactions\_for\_Prototypes*, when will a clarification or discussion session related to the contract be held, and at what stage of the program should this document be signed?

**Answer:** Please see Question 6 and the Program Solicitation for the timeline. It is DARPA's intent to negotiate Other Transaction agreements after successful Oral Proposals. DARPA hopes that by supplying Attachment C now (for information only) the timeline for negotiation will be minimized.

55) **Question:** Due to the timeframe to obtain UEI and CAGE numbers, we will not be able to complete registration for <https://sam.gov> until after the Proposal Abstract submission date. Are UEI or CAGE numbers required in order to submit a valid Proposal Abstract?

**Answer:** No. Registration on <https://sam.gov> is not required for Abstract submission – please see Answer #44.

56) **Question:** Can you please confirm that all we need for a valid submission is both Attachment A and Attachment B together and nothing else?

**Answer:** Yes. Please see Section III.B of the Program Solicitation and Answer #50.

57) **Question:** Can a company with a foreign subcontractor participate? Does the hardware R&D need to be done in the U.S. or is there a requirement that the work needs to be done in the US for Stage A, Stage B, and Stage C?

**Answer:** Please see Answer #7.

58) **Question:** We have a proposal ready that we think will be interesting; may I kindly ask you to remind me where and how to submit it? May I confirm the link to the submission of abstracts, this coming September 19th?

**Answer:** Please see Section III of the Program Solicitation.

59) **Question:** Part of the Stage B and C funding constraints describe effectively a kind of cost share approach to research and development (R&D) expenditures. Can those R&D funds spent by performers be in part or whole drawn from other federal R&D support (grants), or will there be constraints as yet undescribed in the call?

**Answer:** No constraints on funding are anticipated outside those described in the Program Solicitation and negotiated within the Other Transaction agreement.

60) **Question:** Given that the T&E team is likely to include many talented government scientists, if a performer enters into a QBI contract, will there be constraints against

collaborating with members of the T&E team on either direct or indirectly related research?

**Answer:** DARPA has implemented robust procedures in the place for evaluating and handling conflicts of interest. Each case will be handled appropriately within the scope of the relevant laws and regulations.

61) **Question:** What foreground IP does the Government see as being part of QBI at each of the stages? Does the government expect to use general purpose rights as default?

**Answer:** Each agreement will be negotiated separately and to the mutual benefit of both parties. For further guidance on DARPA's starting point for Intellectual Property, please see Attachment C, *QBI\_Model\_Other\_Transactions\_for\_Prototypes*.

62) **Question:** How will the Government ensure that any sensitive and proprietary information related to existing product development roadmaps shared by the Proposer will be controlled and limited to only those that have a need to know?

**Answer:** Please see Answer #36. DARPA has significant means to control access to proposer/performer proprietary information.

63) **Question:** If private sector quantum computing companies are used to support Verification and Validation, how will the government ensure proposer's IP is protected from any potential commercial competitors?

**Answer:** Please see Answer #36. DARPA uses only personnel for QBI Test and Evaluation who have clearly established that they do not have conflicts of interest, and are bound by appropriate agreements for handling proprietary information.

64) **Question:** For this program, do you need proven data, or will a concept also be considered that is viable, but we don't have hard data on?

**Answer:** It depends – if you are convinced that your concept can result in a utility-scale quantum computer by 2033, please convince DARPA.

65) **Question:** We want to understand utility in the concept of power consumption, which was not shown in the plot in the PS. Is power consumption considered in the concept of utility?

**Answer:** The plot in the PS does not fully explain the cost needed to solve a problem; both construction and operating costs should be considered.

66) **Question:** Can we partner with national laboratories?

**Answer:** It is not ruled out, but there are some obstacles to FFRDCs participating – please refer to the Program Solicitation.

67) **Question:** We have internal reports that are similar to the information that is being requested during Stage A. Can we apply directly to Stage B?

**Answer:** No. DARPA is soliciting Abstracts for Stage A of QBI only. That said, DARPA will accept a Draft Concept Design Review document early in Stage A to accelerate the timeline, and Stage B awards can therefore be accelerated.

68) **Question:** Is a Green Card required?

**Answer:** Section II.F describes proposer eligibility. There are no blanket restrictions to foreign participation, including participating in Stage C, apart from following relevant laws and regulations.

69) **Question:** Is there a mailing list I should subscribe to, so I can stay informed?

**Answer:** Please see <https://sam.gov>. Saved searches for *Contract Opportunities* can have the “notify” feature enabled.

70) **Question:** How quickly after Stage C will the performer be required to build a Fault Tolerant Prototype (FTP)?

**Answer:** The expectation is that by the end of Stage C, the performer will have burned down sufficient risk to justify beginning construction of the proposed utility-scale quantum computer. Any U.S. Government participation after Stage C would transition from DARPA to other partners.

71) **Question:** Do you expect, in Stage B, to work only in roadmap and simulations or do you expect hardware?

**Answer:** Stage B should describe a research and development plan capable of realizing the utility-scale quantum computer, the risks associated with that plan and the planned risk mitigation steps, and the prototypes needed to burn down these risks. Stage B will also include test planning for independent verification and validation during Stage C as well as reporting on any ongoing component test results that may help inform DARPA’s overall evaluation. Direct testing of hardware by DARPA may be considered if it helps further these goals, but is not a requirement.

72) **Question:** Will DARPA fund a [specific R&D or risk mitigation] effort?

**Answer:** QBI is not significantly funding research, it focuses verification and validation of ongoing research and development efforts. Please see Section II.D for Stage B and Stage C funding limits and constraints.

73) **Question:** Can the budget be used for hiring?

**Answer:** DARPA generally remains silent on internal company decisions.

74) **Question:** What does a “Model OT” mean?

**Answer:** The Attachment C, *QBI\_Model\_Other\_Transactions\_for\_Prototypes* template contains the terms and conditions that are the starting point for contract negotiations between performers for DARPA QBI awards.

75) **Question:** We anticipate getting funding from other sources; would accepting government grants over private funding impact our ability to participate vis a vis the requirement that DARPA not fund more than  $\frac{1}{3}$  in Stage B or  $\frac{1}{2}$  in Stage C of our effort?

**Answer:** DARPA anticipates all performers will raise funds on their own. The source of your other funds should not affect your participation, apart from following relevant laws and regulations.

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

**Answer:** Proposers may participate in both processes but, ultimately, can only either be on the T&E team or be a QBI performer.

77) **Question:** Why is DARPA not convinced by [specific qubit hardware approach]?

**Answer:** QBI is open to all technologies – please convince DARPA why [specific qubit hardware approach] has the potential to create a utility-scale quantum computer.

78) **Question:** Will DARPA consider working with companies with staged funding and co-investments, or that are still fundraising?

**Answer:** Evaluation of proposals and technical concepts during program execution must be the same for small and large companies. That said, DARPA recognizes that 2033 is still many years away and has attempted to stage the level of evaluation to increase over time to accommodate this fact.

79) **Question:** In the timeline, is 2033 the date when you expect utility? What if that does not match our internal timeline?

**Answer:** DARPA encourages proposers to describe their entire roadmap, and what they anticipate various iterations of systems will be capable of achieving. Please also see Answer #11.

80) **Question:** Is the cost of the machine, the total cost, including R&D, or just cost to build?

**Answer:** The Program Solicitation states that the cost should not include R&D; please see Footnote 4 on Page 5 of the Solicitation.

81) **Question:** Can I submit the Abstract before the deadline?

**Answer:** Yes.

82) **Question:** Do we need to be able to show scalability or can we just prove value of our system?

**Answer:** Concepts must be able to scale up to utility-scale, which implies both scaling and describing value.

83) **Question:** Can a private company support QBI on the test and evaluation (T&E) team?

**Answer:** Private companies may respond to the QBI T&E team RFI. DARPA takes security and protection of IP very seriously, therefore private companies must be able to identify potential conflicts of interests, and to ensure appropriate handling and information protection of proprietary information.

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

**Answer:** We suggest that you consider submitting an Abstract, which is intended to be a low barrier for entry. Also, please visit the DARPAconnect site at <https://pathfinder.theari.us/darpaconnect/home> for resources to familiarize yourself with DARPA, our processes, and how we think about and assess programs and proposals.

85) **Question:** How far-reaching does being a Support Contractor exclude participation in “Related Programs”?

**Answer:** DARPA will decide this on a case-by-case basis. The spirit of the language in the Program Solicitation is to preclude any performer from also being on the T&E team, and to avoid any potential conflicts of interest that may arise due to financial connections between various parties.

86) **Question:** Is there an expectation that any work in future phases will be carried at a classified level?

**Answer:** QBI is an unclassified program. DARPA anticipates having conversations with selected performers about security to provide advice and ensure that your Intellectual Property is appropriately protected.

87) **Question:** What if I have problems with DARPA's BAA Website or the SAM website?

**Answer:** Both systems have their own Help Desk capabilities. Please utilize those resources first and foremost but also consider emailing the QBI team at [QBI@darpa.mil](mailto:QBI@darpa.mil) to communicate your issues.

88) **Question:** Do I need to register at <https://sam.gov> before submitting my Abstract?

**Answer:** No, please see Answer #44. Proposers will need to register to submit Abstracts on DARPA's BAA Website, <https://baa.darpa.mil>.

89) **Question:** Our organization is currently partnering with DoD and DoE labs. How do we navigate conflicts of interest with the T&E teams while protecting our existing relationships?

**Answer:** The QBI T&E team will be configured to meet your particular conflict of interest needs.

90) **Question:** Will DARPA help to introduce teaming with other organizations?

**Answer:** DARPA will not be creating teams as part of QBI. The Proposers Day Special Notice, DARPA-SN-24-97, describes how DARPA will distribute the attendee list and the prospective proposer profile, which can be used to find teaming partners independent of direct DARPA intervention.

91) **Question:** We were not selected for award under DARPA's US2QC solicitation. Can we get feedback on our proposal?

**Answer:** Proposers to US2QC had the opportunity for feedback at the time of US2QC awards – no further feedback is available now.



92) **Question:** Can we build interaction with the T&E team into our execution plan?

**Answer:** Please see Answer #35.

93) **Question:** We are looking into building a consortium to demonstrate a USQC. Would you consider funding a consortium with an end user, or, e.g., only as an unfunded member?

**Answer:** DARPA does not expect to be the primary funder of any effort, we expect to rigorously verify and validate if any quantum computing approach can achieve utility-scale operation by the year 2033.

94) **Question:** The PS discusses both industrial relevance and utility to the US government. Do you recommend we focus on industry or government use?

**Answer:** Please see Answer #12.

95) **Question:** Can DARPA provide support for development/prototyping at Stage A?

**Answer:** The goal of Stage A is to describe a utility-scale quantum computer concept that has a plausible path to realization in the near term. Please see Table 1 for the expected tasks. Development/prototyping is not completely ruled out, but since OTAs use milestone payments any work would have to be complete during Stage A.

96) **Question:** Will you release our company name if we are not funded?

**Answer:** Please see Section V.E of the PS for how DARPA treats submissions to this PS. Proposal information is never disclosed, including the names of entities that are not selected. If a proposal is funded the names of awardees become public information after the contract is awarded.

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#### Questions added September 18, 2024

97) **Question:** (Can) the application deadline for the DARPA Quantum Computing Initiative 2024 (be extended by) 2-weeks?

**Answer:** DARPA will continue to evaluate Abstracts after the initial deadline, but we do not plan to extend the Oral Proposal due date. Any entities invited to propose late will still need to meet these deadlines and may be at a disadvantage when scheduling their Oral Proposal presentation date.

- 98) **Question:** At what stage of the proposal/program will an Other Transactions Agreement (like *Attachment\_C\_QBI\_Model\_Other\_Transactions\_for\_Prototypes*) be signed?
- Answer:** After Oral Proposal evaluation, DARPA reserves the right to invite several, one, or no proposers to negotiate an Other Transaction Agreement.
- 99) **Question:** When will a clarification or discussion session related to the contract be held?
- Answer:** After the Oral Presentations, the Government will select proposers to enter negotiations for an OT for Prototype award under 10 U.S.C. §4022.
- 100) **Question:** For on the registration form for our company on the DARPA BAA website <https://baa.darpa.mil/registration>, may I confirm what is being referenced as the appropriate definition for our 'Organization Division' field? We are unsure what list we can reference to choose what is the appropriate division for our company at this time.
- Answer:** You should consider 'Organization Division' to be defined as 'any major subdivision or sub-organization within your company that is leading this QBI effort'. If you whole company is involved in this effort, you may leave this data field blank.

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#### Questions added February 14, 2025

- 101) **Question:** In your press release from July 2024 you mention collaboration with the state of Illinois on QBI. How may other states or academic institutions with existing or planned quantum research facilities also collaborate on QBI?
- Answer:** Our engagement with Illinois is potentially one of many as we anticipate the need for broad government, industry, and academic participation. The Quantum Benchmarking Initiative is focused on rigorously verifying a performer's approach to building a utility-scale quantum computer by 2033. This is a significant undertaking dependent on whole-of-country collaboration. We will require building the world's largest test and evaluation team for quantum computing, as well as building and testing both virtual and physical components, subsystems, and commercial prototypes. All these activities have the potential for synergy or direct overlap with State efforts to stimulate local commercial quantum computing activities. DARPA does not intend to influence any State's independent decision about whether to start an effort to encourage quantum computing activities. DARPA is open to partnering with any State on quantum computing, if (1) that State has already launched and funded an effort related to quantum computing, and (2) the specific nature of the

State effort has the potential to directly contribute to goals of the Quantum Benchmarking Initiative. Any State who has implemented or is planning a similar program is invited to send an email to [QBI@darpa.mil](mailto:QBI@darpa.mil) to schedule a conversation with the Program Manager, Joe Altepeter, and discuss specific details.

102) **Question:** How much is DARPA contributing to the collaboration with Illinois?

**Answer:** DARPA's collaboration with the State of Illinois does not establish or require specific funding levels. Depending on results achieved, however, DARPA and Illinois have agreed they could provide matching contributions of up to \$140M each over a five-year period. The funding will go towards activities that (1) directly support QBI, and (2) are connected to the Illinois Quantum Proving Ground.