

HR001117S0045

Assured Autonomy

Frequently Asked Questions

As of August 30, 2017

Q32. I understand that an organization cannot submit proposals to TA4 as well as other technical areas in the Assured Autonomy call. I was wondering if it would be possible to submit two abstracts, however, one in the TA1-TA2-TA3 areas and one for TA4, so that we could get feedback on which of the proposed work are of most interest to your program? Is there a limitation on number of abstracts that an organization can submit?

A32. Multiple abstracts from the same organization on the same TA is not allowed, however, multiple abstracts targeting different TAs (i.e., one for TA4, and one for TA1-3) is allowed. These are non-binding, so the BAA does not impose any conflict of interest restrictions on abstracts.

Q31. There is a three page limitation for the abstract under BAA HR001117S0045. Must the Cover Sheet contain only cover sheet information alone on the page, or may Goals and Impact information be included on the first page in addition to the cover sheet information to make full use of the three pages available for the abstract?

A31. The cover sheet should contain ONLY the cover sheet information.

Q30. In non-profit universities, it is common for different Principal Investigators (PI) to compete on the same program and create internal firewalls such that they are effectively two distinct teams. Would different PIs within the same university be recognized as different proposers such that one PI could receive an award on TA4 and another PI could receive an award on TA1-3?

If a proposer is a subcontractor to a prime organization on TA4 to provide the autonomy system and does not take part to the evaluation tasks of TA4, would it be allowed to also be a performer on the other TAs (TA1-3)? Could a large company have different independent sectors perform on TA1-3 and TA4 respectively if their teams are firewalled off from each other?

A30. As stated in the BAA, "to ensure independence and prevent conflicts of interest, proposers selected for TA4 will not be selected for award as a performer (prime or subcontractors) on TA1, TA2, or TA3. The decision as to which technical area(s), if any, to consider for award is at the discretion of the Government." Therefore, consistent with the BAA, the Government will have the discretion as to the PI(s) within the same university as to which TA, if any, to consider for award.

No and no. As stated in the BAA, "While proposers may submit proposals for all four technical areas, proposers selected for TA4 (Integration and Experimental Platform) cannot be selected for any portion of any of the other three technical areas, whether as a prime, subcontractor, or in any other capacity from an organizational to individual level. This is to avoid COI situations between the TAs."

Q29. Does the government anticipate to have one TA4 award to a proposer who can provide two platforms in different domains (e.g. one ground and one air platform) or to have two TA4 awards to two different proposers?

A29. Each TA4 performer will produce an assured version of a single learning-enabled autonomous platform, so a TA4 proposal should propose only one platform. As stated in the BAA "Proposers should not submit multiple proposals as a prime contractor for the same TA."

Q28. The Special Notice talked about open tool chains, but this morning's briefing mentioned government purpose. What are the ground rules for TA1-3?

A28. Assured Autonomy will emphasize creating and leveraging open source/one architecture technology. Solutions could include the use of existing open source technology (commercial IP), the development of new open architecture technology (non commercial IP), or a combination of both. Intellectual property rights asserted by proposers are strongly encouraged to be aligned with open source regimes, but fall into different categories depending upon whether or not they are commercial or noncommercial items as defined by DFARS 227. See Section VI.B.1 of the BAA for more details.

Q27. What is the anticipated scale for a proposal spanning TA1-3?

A27. Multiple awards are anticipated. The level of funding for individual awards made under this solicitation has not been predetermined and will depend on the quality of the proposals received and the availability of funds.

Q26. What funding is allocated for each phase? For each TA?

A26. The level of funding for individual awards made under this solicitation has not been predetermined and will depend on the quality of the proposals received and the availability of funds.

Q25. Can a single TA4 performer propose and provide both platforms?

A25. Each TA4 performer will produce an assured version of a single learning-enabled autonomous platform. A TA4 proposal should propose only one platform. As stated in

the BAA "Proposers should not submit multiple proposals as a prime contractor for the same TA."

Q24. Are TA4 proposers expected to be part of a team?

A24. For proposal submission, TA4 proposals must not address any other technical area. After program kick-off, each TA4 performer will be expected to work with multiple TA1-3 teams.

Q23. Could a large company have different independent sectors perform on TA1-3 and TA4 respectively if their teams are firewalled off from each other?

A23. No. As stated in the BAA, "to ensure independence and prevent conflicts of interest, proposers selected for TA4 will not be selected for award as a performer (prime or subcontractors) on TA1, TA2, or TA3. The decision as to which technical area(s), if any, to consider for award is at the discretion of the Government." Therefore, consistent with the BAA, the Government will have the discretion as to which TA, if any, to consider for award in case they chose to submit a TA4 as well as one of TA1-3.

Q22. Will any facilitation (e.g. online discussion board, mailing list, etc.) be provided towards matching TA1-3 ideas/challenge problems with potential TA4 problem implementations before submitting a proposal (e.g., from information in selected executive summaries or white papers)?

A22. No.

Q21. Can proposers submit ideas for one TA only, e.g., TA2 for phase 1 only, with plans to team with other performers of TA1-3 for phases 2 and 3 later on?

A21. DARPA encourages, but doesn't require, integrated TA1-3 proposals. Proposers submitting a single TA proposal should anticipate joining a TA1-3 team post program kickoff, and describe their interface and plans for working with other TAs. The Government will form TA1-3 teams, if necessary, after the kickoff meeting occurs.

Q20. Is there any sort of cost breakdown or profile that you can provide for potential bidders? Of particular interest would be funding anticipated for each TA across each phase.

A20. Multiple awards are anticipated. The level of funding for individual awards made under this solicitation has not been predetermined and will depend on the quality of the proposals received and the availability of funds.

Q19. In case of a combined TA1-3 team, would separate proposals per TA be required, or a single combined proposal be allowed?

A19. A single combined proposal for TA1-3 is allowed.

Q18. Are TA1-3 proposals allowed/expected to submit joint proposals with TA4 proposals? We are a logical teaming group for TA-2 and TA-4. Is it preferable that we submit a joint response to TA-2 and TA-4 when the BAA comes out or are two separate bids recommended?

A18. Proposers may submit a single proposal as a prime contractor that addresses TA1-TA3 (or some subset thereof). TA4 proposals must not address any other technical area. While proposers may submit proposals for all four technical areas, proposers selected for TA4 (Integration and Experimental Platform) cannot be selected for any portion of any of the other three technical areas, whether as a prime, subcontractor, or in any other capacity from an organizational to individual level. This is to avoid COI situations between the TAs.

Q17. For a proposal integrating Technical Areas 1, 2 and 3, is there an expectation that there will be significant novelty in all three technical areas, or is it acceptable, for example, to have creative approaches primarily only in one of the technical areas (but while addressing the other two as well in a single proposal)?

A17. Proposed research should investigate innovative approaches that enable revolutionary advances in science, devices, or systems.

Q16. Are technologies that provide assurance/trust to the human operators/collaborators of autonomous CPS platforms in scope? For example, technologies that provide predictive insight to platform behavior.

A16. It is the program expectation that the assurance measure and the dynamically evolved assurance case will provide insight into the platform behavior. Intuitive representation of assurance measure and ability to trace back factors that result in loss of assurance are in scope.

Q15. The overview did not touch upon the distinction between single and distributed systems, and we are wondering what DARPA's position is on that, in the context of this program.

A15. The focus is on single vehicles. However, multi-vehicle systems are in scope if a compelling case is made in the proposal.

Q14. I have a question about what kind of assurances you are looking for. Are you only interested in ironclad guarantees or are probabilistic or statistical assurances also in scope?

A14. Probabilistic and statistical assurance are in scope, however, a case should be made about the sources and validity of the probability measures used in deriving probabilistic assurance.

Q13. Will assurances of cyber resilience be an enhancing or core requirement of the technical areas?

A13. Assurance of cyber resilience is not in scope for this program.

Q12. Will a government team be formalized?

A12. No.

Q11. Are there any existing standards or regulations with which proposed technologies should ultimately comply?

A11. No. However, the TA4 platform may need to be designed and validated to conform to regulations specific to platform domain.

Q10. What is conditional evidence? Can you provide a couple examples?

A10. Conditional evidence simply refers to the explication of conditions under which the provided evidence is valid.

Q9. Which TA is primarily responsible for identifying the unsafe region?

A9. TA4 is expected to define requirements for which assurance cases must be developed.

Q8. Which TA is responsible for developing the learning components?

A8. TA4 is expected to develop initial learning components, however, should allow use and integration of TA2 developed learning components on their platform.

Q7. The automated synthesis of assurance monitors was listed as one of the TA1 research challenges, but in general the assurance monitoring was given as a TA2 task – could you please clarify the TA1/2 boundary with respect to assurance monitors?

A7. TA1 is expected to identify conditions that need to be monitored, whereas the framework and algorithms for monitoring need to be developed by TA2. Automated synthesis from TA1 refers to the ability of TA1 to invoke capabilities provided by TA2.

Q6. You mentioned adversarial environments, but there are many situations in which there is little you can do to remain safe from adversaries. Consider normal city driving for example - if a driver of an oncoming car chooses to cross the lane line, there is often little that can be done to avoid a collision. Should we be concerned about such situations?

A6. The program expects the platforms operating in a dynamic environment with active and passive objects. The autonomy components should be designed for ensuring safety particularly when the trajectory of the dynamic object can be predicted within bounds. The assurance case should identify and monitor the limits under which the safety guarantees hold. These types of maximally stressing scenarios are relevant for evaluation of program technologies.

Q5. Should we consider cyber threats (hackers) or is that not intended to be a part of this program?

A5. Cyber threats are not in scope for this program.

Q4. What is the role of the adversary? For example, can the adversary attempt to deliberately fool our machine learning system?

A4. Adversarial machine learning is not in scope for this program.

Q3. The TA4 platforms need to have availability and support for the other performers - is it reasonable to expose interfaces for all parts of the system needed to perform TA1-3, while keeping proprietary components isolated or do you require a system that is fully exposed to the other performers?

A3. If there are proprietary components, and they are relevant to building an assurance case then the TA4 performer should provide a suitable abstraction of the proprietary components for the TA1-3 performers to analyze and develop the assurance.

Q2. Is TA4 addressing only an individual platform (e.g. single AxV) or could it also be a system of systems (e.g. Swarm AxVs) that learn and behave both individually and collectively?

A2. The focus is on single vehicles. However, multi-vehicle systems are in scope if a compelling case is made in the proposal.

Q1. What environments, air, land, sea or underwater would you like the TA4 platforms to operate in? Is there interest for an underwater platform? Is an air platform of interest to DARPA for a TA4 offering?

A1. DARPA expects that the TA4 performers will propose a mature, militarily-relevant autonomous platform – examples of such platforms may include autonomous surface ships, underwater vehicles, ground or air vehicles.