DANHUD AE Q&A Telecon Transcript
29 April 2024

1. **If downselected for Phase 4, what is the POP before Criteria Evaluation? 3 mos, 6 mos, 12 mos?? Is that negotiated or set?**
   That is something negotiable. We are looking for around the twelve-month mark, but if you believe it needs to be a little bit longer, we are certainly open to discussion.

2. **Is there an anticipated time frame on delivering the prototypes after an award after the June AE?**
   That twelve-month mark is what we'd like to be around. If you need longer to develop your prototype if selected, certainly include that in the proposal.

3. **Is the End User USASOC SOF Units?**
   This is for USSOCOM in general. We have the four component commands and USASOC is one of the intended customers. However, we've got buy in from the others as well (NSW, AFSOC and MARSOC).

4. **What is the expected period of performance of Phase 4 (time to reach TRL 6 for the technical requirements)?**
   Roughly 12 months. As previously mentioned, this can be longer if needed.

5. **How many awards are anticipated for Phase 4?**
   We don't have a fixed number yet. At the end of our evaluations, we plan to move forward with a solution for display hardware, a solution for a smart battery pack, and a solution for the software portion. Now, it might be one company that's doing all three parts, or we might have three separate companies, or somewhere in between those two. That said, we do not expect we will have two separate companies working on just the software or two working on the just smart battery pack. Potentially there could be a case where we award to more than one display hardware technology proposal to mitigate risk and explore options, but that's certainly not a guaranteed thing. It will all come down to funding amounts and technical merit of the proposals.

6. **Is there an ICD (including power requirements) for the PVS-31A and A-NVG?**
   A-NVG in this case would refer to the L3 or ELBIT ENVGB or the L3 F-Binos. And then of course the PVS-31A is an L3-Harris product. We would have the ICDs that we can provide for those units to the selected companies.

7. **Would a solution that doesn't require a PVS-31A or A-NVG be interesting to end users?**
   Not in this case. The intent of this is to be able to use both standalone by itself during the day as a day HUD, but also at night with a PVS-31A.

8. **What are the cost goals for the program?**
   Like any government program, as inexpensive as possible. Realistically, roughly around the million-dollar mark per section (remember, there's three sections: Display Hardware, Modular Smart Battery Pack, and Software), just to help scope costs in your proposals. The technical merit of the proposals will help determine this and help drive this. So certainly not guaranteed that amount, but just in that ballpark.

9. **Is the point that 3 vendors might win the 3 pieces, build them to a common ICD, and then the government integrates?**
   Not quite. If there are three separate vendors each working on their own piece, they are expected to also work collaboratively with the other vendors that are doing the other pieces. At the end of this, the Government expects that there will be quantity eight identical complete DANHUD kits that all work together as part of the final delivery. And so that means that the vendors or our industry partners should be working together to develop the ICD between all the pieces as the development progresses.

10. **If we are just proposing software, do we show our own hardware too, or do we expect to integrate with the other 2 winners?**
    You would be expected to integrate with the vendors or industry partners that are doing the other pieces of the DANHUD effort.

11. **Display requirement mentions full-motion video: what resolution and frame rate is anticipated?**
    Ideally, we would say 640 x 480 at 60 frames per second would probably be the ideal kind of threshold case. That's not necessarily a hard requirement. It's going to depend on the technology you're proposing, but we think that's a realistic goal at least to try to achieve.

12. **Follow-up. So, is it intended that the 3 venders provide everything, including for instance helmet mounts?**
    Only if the helmet mount is specific to DANHUD display itself. The Government is not expecting you provide a helmet mount for the PVS-31A night vision goggle or anything like that. But if the DANHUD display requires a specific mount to interface with the helmet, that would be expected to be included with this.

13. **How many companies does the AE anticipate hosting and will meetings/demos/results be private?**
    That really depends on the technical merit of the proposals that we receive. If we receive a bunch of good proposals that we want to hear more about, then we will have a bunch of presentations, but those will be private. Each company will be presenting to the Government and Government support contractors by themselves. The other potential offers would not be in the room.

14. **As a follow-up about not requiring A-NVG: what if the DANHUD kit still operates at day and night despite no A-NVG? This would bring costs down scalability up**
    We already have a bunch of PVS-31 night vision goggles. We must have interoperability with the PVS-31A.

15. **Rephrase. If just proposing software, then to get through the AE, should we show on our own hardware, or just show PowerPoint?**
    If you have existing hardware that it runs on, you could use that to demonstrate, however, that's not required. I'll just take this moment to highlight one of the requirements of working with some of those advanced night vision goggles – i.e, an F-Bino or the Enhanced Night Vision Goggle – Binocular (ENVG-B). To interoperate with those, you must ingest the thermal video

feed, overlay your augmented reality data, and then present that feedback to the goggle with minimal latency. Make sure if you're looking at hardware solutions, that it'd be capable of that.

16. **Connection to ATAK: required to be wired? Or is wireless an acceptable alternative?**
    We always need a wired fallback, so the bare minimum is a wired connection. We also need to be able to push power from the user's body (a radio battery or something similar) up to the smart battery pack. As it calls out in the statement of objectives, one cable should be able to do both; provide that connection to ATAK and provide external power to the Modular Smart Battery Pack.
    Wireless is also desired. There are situations where wireless can be useful if the user is in an environment that permits wireless operations, and they don't need that external battery power. Then Bluetooth and Wi-Fi would both be great in that case, and the statement of objectives does call that out; with a caveat of you must be able to disable those entirely when you want to go with a purely wired solution.

17. **What is the desired field of view for the display?**
    We don't have a hard requirement on this. Wider FOV is always better, if it still meets the other requirements.

18. **Do you intend that this is just about one proposal getting funded by the Army, or is it also substantially about the smaller vendors getting their ideas on the table so that SOFWERX, or the Army, or the winning vendor, or the community, can build a stronger team next time**
    We want to see the best of breed. If you think you do one piece of the puzzle better than anybody else, we absolutely want to see that proposal. And part of the flexibility that USSOCOM has, by leveraging SOFWERX is that (assuming the companies are open to it), they can create business to business agreements so that we can all work together to provide the best solution that we can. So not necessarily a fixed like prime and subcontractor relationship, although that is certainly one option, but we have a little bit more flexibility here via SOFWERX than we normally would.

19. **Preferred or minimum resolution?**
    Right now, 640 x 480, just based upon the type of content we'd want to display. Again, higher resolution has benefits & if you believe you can provide that, please include it in the proposal.

20. **Is there a hard upper bound on the cost of the total unit to produce at scale?**
    We're not there yet. Cheaper is better, but without really having an idea of the available technology, or at least how well that available technology translates into the SOF environment, we don't have a great idea of what we would be looking at price wise. If something's expensive, maybe we'd only buy a few of them and then only certain members of the team (team leaders or maybe JTACs) would get them. If they are more affordable, potentially more SOF units would get them. We don't have a fixed upper bound yet.

21. **What is the plan for (timeline) and quantities of an LRIP & FRP award?**
    We are too early in the development phase of this to be able to answer that, unfortunately.

22. **Do you see the HUD and the underlying architecture being parallel developments or is there some implied sequentially?**
    A lot of it ideally could be done in parallel. The resolution and frame rate and sensors that the actual display hardware has and requires will drive the architecture (mainly the ICD between the smart battery pack and that display hardware). Some of that needs to be hammered out first before the ICD can be started on. However, knowing that some of the basics of what needs to be done, there's a lot that can be done on the smart battery pack while the HUD hardware or the display hardware is being pushed along for those initial phases.

23. **Requirement mentions PVS-31A FOV of 40deg, is that what the Display Unit should match?**
    Not necessarily. We didn't put a hard requirement or limit on the display hardware. There are advantages obviously to being able to display inside that 40-degree field of view. If there's information that the user wants to see all the time, then there's a benefit to displaying it there inside the 40 degree FOV. However, you should keep in mind that outside of that 40-degree field of view, you might also want to be able to put more peripheral information that maybe the user doesn't always need to see. Then he just wants to be able to glance over and see it without it plotting his main field of view at night. We don't have a hard requirement for either one of those. It is driven by the display technology proposed.

24. **Can you give more detail on the requirement: "be capable of powering and interfacing with helmet-mounted directional laser warning devices."**
    Unfortunately, not yet. Directional Laser Warning Devices are in development now, and the ICDs for those are getting finalized now. Hopefully, as we move into that June-July timeframe, as we start solidifying things and down selecting, we'll be able to provide that information so that potential offerors can understand that more. But for now, we don't have any additional info.

25. **Any forecast on annual production targets? Total expected/required for each of the 4 commands?**
    No forecast right now. That will depend on the system's total price and our component priorities. There are a lot of things that we're buying right now - it's just going to depend on what they feel like they need to put money towards first.

26. **If we submit a software solution, are we able to recommend hardware that would make the HUD performant with our software solution? Ex. additional sensors.**
    Absolutely. That would be important to understand upfront. Especially from the software side, what are the hardware inputs that you're looking for to be able to do the calculations that you need to do? Head tracking and pose estimation is non-trivial to do, especially in devices like this. If you know you can perform well with certain types of hardware inputs, then absolutely. Please include that in your proposal.

27. **Can companies submit separate white papers for each tech area or is one consolidated submission per entity preferred?**
    Please submit separate white papers for each tech area. If you want to propose on all three areas, please submit three separate proposals, ideally with as minimal overlapping information as possible. Please make it pertinent to that area, so we can understand what you bring to the table in whatever area you propose.

28. **Can one company submit more than one white paper per tech area?**
    We have a small team, so to try and limit the number of proposals we need to go through, no. We understand it can be difficult to try to fit everything that you want into that. If your tech is interesting, we'll ask you to come and pitch/present, virtually or to a private government audience in person. So, try to keep it to that three-page limit.

29. **Is there a requirement for display brightness range? Low for night operation and high for day?**
    We did not define hard brightness requirements. We said we wanted to work at night, we wanted to work during the day – since there's different ways to achieve this, we didn't want to specify a hard numerical brightness requirement.

30. **Is there a target weight for each of the components in the system? Or a permitted total headbourne weight?**
    For the display portion, try to keep it under **6oz.** For the battery pack, as light as possible. We understand that there's a certain amount of weight for the batteries carried and the processing that we've asked for. The lower weight we can keep it, the better. We do understand that some of what we're asking for here is inherently going to be a little bit heavier than we would like.

31. **How does the government envision the eventual system and component IP will be managed, especially with integrated technologies?**
    That's part of the reason we asked for a complete software, mechanical and electrical ICD between the Modular Smart Battery Pack and the proposed display hardware. The intent here is that we should be able to upgrade both of those or either of those in the future with minimal overall system impact.

32. **What's the video format coming from the A-NVG? And back into the unit?**
    It's a high-speed serial link. We'll have that ICD for the company selected to move forward with it.

33. **Is the DANHUD envisioned for ground use only or also Airborne use?**
    We're intending this for ground use. Usually with airborne platforms, some of that processing can be offloaded. It doesn't have to be soldier carried at that point. So, in this case, we're expecting the primary target audience to be ground forces here.

34. **Clarification, Airborne as in infiltration by parachute**
    It depends on total headborne weight, but it could be utilized for jump operations.

35. **What was the timeline to produce a prototype if downselected?**
    The twelve-month range.

36. **Do you intend to have the operator remove the PVS-31A for operations during the day?**
    Absolutely. They won't be wearing their night vision goggles during the day.

37. **Are any system attributes scored according to a weighting convention?**
    Not really. Unless otherwise called out, these are all threshold requirements we need in the system.

38. **Will there be an RFP after the AE? If so, will that be open or invite-only?**
    We'll downselect to a number of companies that we'll want to hear more in depth from. We'll ask you to do a presentation and then from there, the Government team will downselect to those we want to award to. That's when the negotiations start between the companies and SOFWERX/Government so that we can all come to an agreement on what we're paying for.

39. **How soon after AE do you hope to have a contract award?**
    We hope to have the business-to-business agreements in place roughly in the July timeframe.

40. **Will we need to accommodate RX prescription requirements on the HUD or is the HUD sitting on top of the RX eyewear?**
    Depending on your proposed display technology. If you're proposing to integrate it into a set of glasses, that should be something that you at least consider. If it's not part of a pair of glasses, then you should expect that the operator is probably going to be wearing either prescription eyewear or the very least safety eyewear underneath.

41. **If the HUD can see at night without the PVS31A, would this still be a submittable solution?**
    No, because it is unlikely that the proposed HUD solution will have as good of imaging performance the PVS-31A. Our operators require the capabilities of the PVS-31A.

42. **What is the time length for the tech development?**
    That twelve-month mark is what we're shooting for.

43. **Is there value (wrt award decision) in system attributes outside/beyond the scope of the base requirements**
    Within reason, yes. Of course, if you're going to ask for crazy amount, then sorry, we don't have that level of funding, but if you can meet all of the requirements for whatever tech area that you're proposing in and then exceed some of those, certainly those are going to have value and could help elevate your proposed solution above others.

44. **Follow-up: Even if the solution performs measurably better than the PVS31A?**
    You are welcome to submit it.

45. **Does the need to store ATAK data on the MSBP result in an ATO requirement?**
    Eventually, potentially. Once we get out of the prototype phase, if we were moving this towards a program of record, (i.e everything works great and we want to transition this into one of the program of records that our program office has), then we would cross that bridge once we get there. For the prototyping and early testing phases (i.e, the end-state devices that we'll have here at the end of the SOFWERX effort), we won't need an ATO. But if we wanted to field that device in the future, that's something we would pursue.

46. **My apologies if already stated - is funding collectively $1M for the entire initiative or $1M for each line of effort (software, battery, display).**
    We are roughly looking at that $1 million per line of effort. If some lines of effort end up being a little bit cheaper, that gives us a little bit more room to push money into other regions. $1 million per tech area is not guaranteed in any way, but that's just how we have it budgeted out right now.

47. **Does this first milestone require extended temperature requirements?**
    Yes. We understand that adding the environmental requirements to the system is certainly a challenge. But at the same time, paying to develop a piece of hardware that wouldn't be operationally useful for a SOF operator is pointless. It would just be a waste of taxpayer dollars. And that's really one of the key differences what we're doing here versus maybe what's available out on the street: These devices needs to be ruggedized and capable of withstanding the operational environments that our guys have to operate in. So that's why in the statement of objectives, we've got that environmental and EMI section called out at the very end.

48. **What would the environmental requirements be?**
    See the Assessment Criteria document.

49. **Do you have a preference for established companies or small business?**
    No preference. We're all about getting the best kit we can for our warfighters. If that's a small business, great. If it's a big business, great. It doesn't really make a difference to us.

50. **Currently, how is eyewear used in conjunction with NVG in operations? How are RX needs currently met for each user?**
    The PVS-31A has a 25-millimeter eye relief. So that's enough room to get safety glasses behind the goggles, with room to spare. In the case of prescription, they'd be wearing prescription safety glasses.

51. **What makes the battery module smart? Is it just the ability to vary the # of cells and type, or something more?**
    Traditionally, the battery pack for night vision goggles is just going to provide power to the night vision goggles and nothing more. There's no sort of computing or anything happening in it. What we're asking for here with the Modular Smart Battery Pack in DANHUD is, yes, the ability to vary the number of cells and the type of cells used, but also the ability to do all the processing that you need onboard, up on the helmet. That's going to be doing all the head pose estimation and then providing the display or the feed to the display portion. Or if the user is using an advanced night vision goggles (an ENVG-B, F-Bino, or F-Pano), it's ingesting that thermal camera feed from that advanced night vision goggle, overlaying the HUD/AR data, and then feeding that back to the internal display on an advanced night vision goggle. So, that's what we mean when we call it a smart battery pack.

52. **Do you have existing solutions to get video out of PVS-31a, or would we design that?**
    There's no need. We're not trying to get video from the PVS-31A. Your display hardware just needs to be able to interface with so that the user can view **both** the imagery through the PVS-31A, and also the HUD/augmented reality data that you are displaying, whether that's integrated into eyewear or a different technology. It's not expected that you ingest and digitize the PVS-31A display and then provide that to the user, because that's just going to be a degraded experience overall.

53. **If the users are wearing Rx Safety Glasses, we would need to add an accessory HUD to these safety glasses or make our own RX Safety Glasses + HUD?**
    It's going to depend on the type of technology that you're proposing. Either of those could potentially be acceptable solutions.