Hyper-Enabled Awareness Kit (HEAK) Assessment Event (AE)

Q&A Telecon Transcript

1. **Can you provide full specs for the wrist-mounted display - What is the hardware being used for the wrist-mounted display? What software (i.e., Android, Linux, etc.)? Local connection with on-person comms or cloud-enabled? Will there be IMUs in the device (accelerometer, gyro, etc.)? Touch enabled?**

   Essentially, we wanted to leave that open. There are certainly off-the-shelf components that could work, such as a smartwatch or just a standalone display unit that could be mounted on a wrist, but we are not specifying what you need to use. So that is up to industry to determine what you'd like to propose.

2. **What Classification level is this?**

   As of right now this entire project is at the unclassified level. Nothing is moving beyond that for the foreseeable future regarding this project.

3. **What is the connectivity range expectation for communication between users of these devices?**

   Being that we're piggybacking off ATAK and then off the radios it's not necessarily something that this system itself is going to have to worry about.

4. **Does the device have to work both on/off-grid?**

   The processor pack, wrist mounted display and weapon mounted controller needs to all work in the radius of the soldier. But we don't want to be blasting that with too high of power due to battery life and signal.

5. **Is there a particular radio frequency or network communication protocol required?**

   We're not going to specify a specific protocol at the moment.

6. **Is there an expectation of secure communication between devices (e g. encryption)?**

   Yes – some form of encryption is required. The exact form will likely change depending on the wireless solution proposed.

7. **Can you provide more specs about the potential head up display and rifle mounted controller? Apart from communication hardware, should the HEAK foreseen connection with personal equipment and external devices such as LRF, Shot sensors, VDL and others?**

   We laid out in our statement of objectives what our user requirements are, and so we are looking to industry to propose what you've got and have to offer. For communicating or connecting with other external devices, currently I don't think there's a requirement for that. As far as being able to interface with LRFs, FS or other items, since this is going to be integrated into the tech system, I don't think the HEAK itself needs to be able to talk to any of these other items.

8. **Is there interest in solutions that operate independent of existing infrastructure (i.e., no cellular network, or GNSS)? Are you looking for a fully customized wrist-mounted display or could a large watch form-factor work as a display?**

    We're piggybacking on to ATAK/piggybacking onto the radio system to communicate with the other HEAK users within that area. As far as a fully customized wristband display versus a large form factor smartwatch, It's up to you folks, a smartwatch type display could work if that was something that wanted to be proposed. We don't want to limit you to that and if you've got something you think will work better, we would love to see it. But we're not going to require that you build something from the ground up, and once again, we are looking for a complete solution.

9. **Are you looking for a complete solution from a single offeror?**

    Really, we want to get the best we can out of this with this developmental effort. If that means getting several offers to collaborate, that's OK, but it must be clearly laid out in the offeror's proposal. SOCOM will not be "pairing up" companies to complete a solution.

10. **Are haptic-enabled wearables (e.g., vibrotactile feedback pads, vests, watches) of interest for messaging or navigation as an augment to the graphical displays?**

    At the end of the day, for the graphical displays it needs to be wrist mounted. There would be more d notification systems I'm assuming further on, especially within the haptic enabled wearables. That's not that system that we're trying to get to at this moment however.

11. **If a proposer can provide a component to the solution, will there be a way to connect with other interested proposers to arrive at a complete solution?**

    SOFWERX does encourage collaboration for participants and their capabilities, given the stakeholders approval. However, for this assessment event, the stakeholders request a full submission from participants. If you'd like to collaborate with others, please ensure all parts the of HEAK are included in the white paper with labeled sections of each companies work and explanation of their contributed capability.

12. **The SOO describes a system augmenting ATAK ("or other systems"). Does this mean a client to an existing device that provides ATAK and network link, a standalone ATAK-capable device (BYO network link), or a standalone ATAK-unrelated system that provides simplified functionality?**

    Our concept is that this would be a series of devices and software. The processor pack, the wrist mounted display and the weapon mounted remote would integrate into ATAK Systems that are currently out there; we're not asking you necessarily to build the entire radio transmitting system. We are just at looking for equipment that can interface with a tech. That's going to require some software on the back end to handle that to be able to communicate. That's part of the reason a processor packs going to need to handle the wireless communications between the wrist mounted display and the weapon mounted remote and then to be able to pass all that information via a cabled connection to the EUD; that end user device, and therefore to ATAK.

13. **Is it a requirement for the display to be wrist-mounted or is a HUD preferred?**

    Wrist-mounted is what we're looking for right now.

14. **The requirements mention direction and distance to an objective. Is routing over roads also a requirement?**

    It wouldn't really be required; we want more along the lines of an indicator and a distance and direction from ATAK.

15. **Will the HEAK be in addition to or In lieu of the ATAK?**

    It is going to be in addition. The idea is we're getting some heads up operation/increased situational awareness; being able to have that display on your wrist rather than forcing you to look down at your end user device on your chest.

16. **Is a Peer-to-Peer Architecture a requirement for team comms or is a net-client server approach envisioned?**

    This I believe goes back into the question how all this data is passed around. It should be integrated into ATAK that is going to be handled on the back end and that ATAK runs as a net client server. The net client server you can pull data from, but they can also have a standalone functionality, but it's only as good as its last data pull if required. For any sort of real time updates, being able to pull data from that network, we would still want to be able to see the most current data that device has locally.

17. **How do you intend to contract this effort?**

    The contract will be in development through SOFWERX as we are using their ecosystem to do this development work and after we finish that, if we want to continue moving forward into a larger production number of assets, we would use SOCOM's contracting shop.

18. **Would there be interest in discovering how our Low code / No code CV/AI could be used in the HEAK? We are CPU/RAM based processing, including existing wearable, lightweight and low-power devices**

    At the end of the day, we need a complete package. You are certainly more than welcome to collaborate with someone who's proposing a complete package, that's going to be on that offeror, not necessarily on stakeholders.

19. **Could you give a usage scenario for the "rifle-mounted controller", as you did with the wrist-mounted display?**

    The rifle-mounted controller is not necessarily a standalone item, it is controlling what you're seeing with the wrist mounted display because you only have so much space on that rifle (precluding the use of a display on the rifle itself). The rifle-mounted controller will provide a tactile way to input data/make selections from the wrist-mounted display.

20. **Do you have a specific EUD model that you are designing around?**

    The current Galaxy S6 is a little antiquated, but as we continue further in this, it's probably going to be some sort of Samsung based phone. The rationale is that with it being open software with corrections that we can be made in lieu of some type of iPhone or some type of closed circuit and manage software system. It's probably going to be a Samsung-esque device and that'll be the same for MSW as well. We have a variety of models that are being used now between the phones and notepads but all Samsung as of now**.**

21. **For companies who were SBIR selected not funded phase II (AFWERX) that meets the requirement for HEAK, how can they move forward through SOFWERX?**

    It would be a submitted proposal and the stakeholders will review. The SBIR process is separate from this event, so if you have a SBIR phase II you will have to resubmit it through the SBIR process.

22. **Does this need to be a cloud/edge/local combined system ?**

    Since we are integrating into ATAK, there is going to be some form of cloud in this, helping coordinate the different users and pushing out updated positioning data to the different HEAK users. That being said, the soldier processing pack does need to be able to handle in the event of losing connectivity to that server. I think that would fall under what you're calling a combined system to be able to handle either instance.

23. **Do you envision an open architecture approach to the solution?**

    Open architectures are nice because it allows us to add things in the future, made potentially by other vendors. However, it's not necessarily a requirement here, as that wasn't laid out in the statement of objectives.

24. **Can you characterize information and update characteristics in DIL setting?**

    When the system loses connectivity, the HEAK needs to be able to function utilizing the latest data available locally – however, it also needs to alert the user that it is using cached data.

25. **Is there a requirement for a wireless power capability for any of the systems (specifically ATAK)?**

    No, none of these systems need to be able to or need to be compatible with any wireless power delivery systems at this point.

26. **It seems that GPS is heavily relied upon by ATAK users to navigate. Will one of the program requirements be to address GPS spoofing/ manipulation?**

    GPS spoofing is certainly a big issue, but that's not something that we're trying to address here with the HEAK. But if they do have a cool solution, we don't mind you submitting on that as part of the HEAK.

27. **Not sure I understand the purpose/function of the rifle mounted controller in comparison to the processor pack. Is the rifle mounted controller GFE?**

    The purpose of the rifle mounted controller is to help control the functions on that smart watch or the wrist mounted display I should say. The processor pack is helping act in addition to other things. One of the things we expected it to do is act as that intermediary between ATAK EUD (end user device), the wireless remote and the wireless wrist mount display since ATAK/ the EUD cannot connect directly via Bluetooth to those devices. The Rifle Mounted controller is not GFE. That is something that we are looking at for industry to propose.

28. **The SOO requests the rifle-mounted controller be compatible with MIL-STD 1913. Would the Picatinny Smart Rail (power and data rail) be an acceptable option (also MIL-STD 1913 compatible)? Are there specific weapon platforms that will be used for the user evaluations, such as the M4, M240?**

    It would be an option if it mounted to the smart rail. But it does need to have its own battery since the smart rail isn't really a fielded item yet, and certainly not on SOCOM's inventory. The wireless remote would still need to have its own battery built into it so that it can be used on any sort of a rifle with a 1913 rail. In the statement of objectives we specifically called out most standard 1913 because all our weapons that we're running right now are 1913 rails. So that would make it compatible with all our weapons. If they're going to be 1913 compatible, it shouldn't be an issue mounting to any of the current weapons.

29. **Can we utilize the wireless capabilities on an ATAK EUD (e.g., BLE) to communicate with the wrist-mounted display & remote controller?**

    Unfortunately, my understanding is that in these end user devices, the Bluetooth, is disabled due to the communications that they've got with the radio and just the potential vulnerabilities with Bluetooth. That is part of the reason we're wanting to utilize that processor pack as an intermediary to go between the wrist mounted display and that rifle mounted controller to that processor pack so that processor pack could then communicate via wired connection to that ATAK device.

30. **Is any of the data being communicated (e.g., location) considered classified and are there any additional requirements for encryption?**

    All data communicated between the system components is unclassified

31. **Given that a fully inclusive system is being looked for, does SOFWERX plan to accept whitepapers and potentially "pair" industry partners based on technology and fit?**

    We're not going to do that at this time, unless one company already talks to another company in their proposal, (i.e they're kind of recommending teaming up). Then we can address it at that time.

32. **What's the strategy for encryption of data flowing to the devices?**

    This is left to the offeror to propose – some form of encryption for the communication between the processor pack, wrist display, and weapon-mounted controller is desired, but depending on the communication protocol proposed to be implemented this could change.

33. **How is it going to handle DIL - delayed Intermittent and latent comms?**

    It needs to be able to provide and pull the most recent data available to the device when it loses connectivity. It still needs to be able to use whatever its most recent data was. However, there ought to be a way that it should alert the user that they do not have an active connection to the network so whatever data that they're seeing or that they're using could be delayed.

34. Will the Nett Warrior hub/battery be available to connect the processor pack with the ATAK EUD?

Yes, it's currently able to connect through jump, so they do connect. We're using net warrior phones for the ATAK that we utilize in theater.

35. Are you considering using a new/upgraded EUD which could serve the purpose of the processor pack and run ATAK? This combined device would have to use another connection type (perhaps wired) with the wrist and rifle components.

As you call out the issues with trying to use just strictly an EUD, is that it can't have that wireless connectivity. While something like that S20TE, the Samsung S20 Tactical Edition, would be able to handle all the processing easily, we would **not** be able to connect wirelessly to the components that we need to. We are asking that a processor pack be included to act as that intermediary. All our EUDs are covered under another program of record so we do not control that device.

36. To follow up on the earlier question about pairing up / partial solution, a key question is if companies must do this for consideration. Is submitting something that solves only a portion of the need without having found a partner for the rest of it a non- starter?

If you and a different company have a total solution and you clearly lay out in your proposals who is doing what, that would be one thing but submitting only a proposal that covered say just the wrist mounted display without any of the other items is unfortunately not going to be applicable for this effort. There is only interest in completed solutions submitted.

37. On "DIL" - what is the prioritization of messages once the person finally reconnects?

That's currently undefined. That would have to be hashed out or as we work through development of this, work with the users to find out the messages they need to see first once they reconnect. Have it be operator-selectable, because each position of the operators within a team that is going to be wearing and utilizing this system will have a different set of priorities for messaging. A team leader might want to see his top three list of messages that he wants to come in once he reestablishes vice an assaulter might want to see something completely different and have a different priority of messages once they reestablish comms.

38. Is the intent for the messaging, check-in, etc. an integration with the ATAK .apk or a side app on the ATAK EUD?

The intent is for it to be a plug into the ATAK software, so would not necessarily be integrated into the based ATAK loadout but would be a plug in that the users could download and install.

39. Does the Workflow Configurator need to be Plug-in to WinTAK or its own software?

Either of those would be acceptable as far as being a plugin versus a standalone piece of software.

40. How many devices will be battery powered?

The rifle-mounted controller and the wrist-mounted display are going to be battery powered. The processor pack should either be independently battery powered or potentially it could tether off a different battery already worn or used by the soldier. We did not call out

one way or another in our statement of objectives. We would be interested in looking at solutions that provided either.

41. **Do you intend the HEAK to have specialized behaviors for operating in contested LPD environments? For example, this would minimize traffic on the air, and utilize specialized waveforms to avoid adversary detection.**

   The HEAK itself, since it's integrating with ATAK is not really going to be handling any sort of the larger communication schemes, so it's not going to need to integrate any sort of specialized communications.

42. **What data from the device do you expect to be transmitted back up to TOC, TSOC, etc...?**

   It is not expected that our device, the HEAK itself, will really generate any new data by itself. What we're looking at here is an easy way to display data from ATAK or send inputs or simple messages via ATAK, not necessarily anything beyond that. At the end of the day, the biggest thing we've noticed is lack of situational awareness and people getting shot in the chest over opening phones and looking at them, so the implementation of using this device is just a diluted info from ATAK ported out into the user to be able to exactly see what he needs or doesn't need and adjust with the rifle-mounted control, something that needs to be corrected, or a new point on the soldier. Within higher command this is more of a tactical level limitation for usage so that the TOC or TSOC does not necessarily need data ported from the HEAK, rather it would be information from ATAK porting it from a data stack.

43. **Should the HEAK be connected/packaged to an alternative type of EUD with a more performant software then ATAK, would that be an option to present?**

   Since ATAK is the just ubiquitous wide fielded solution, that is what we are interested in - Solutions that are going to integrate with ATAK specifically.

44. **Based on the Samsung S example, is an example of a uses case being to use the Samsung-type phone as a Wi-Fi provider to the ecosystem, and if so if that is allowed, will ATAC be allowed to work with this hardware? Will the hardware need to be ATO certified?**

   If you're going to use the Samsung phone as your processor pack and port that via a wired connection to the ATAK-enabled EUD, that would probably be sufficient as long as you can get the data from a wired connection out of that.

45. **How much is the max allowed total system power draw under full load? What is the max allowable weight of the entire system? Do you have any numbers on the max allowable dimensions for each peripheral?**

   The wrist-mounted display and the rifle-mounted controller are going to be providing their own battery power. The only thing that could be drawing power from the operator's battery setup would be that processor pack. In our statement of objectives, we did not provide a hardnumber for that. As per usual, the lower power the better, but if you have something that draws a little bit more power but provides a large capability increase over others, we still would be interested in looking at that similar idea as far as the max level dimensions. Our users are always looking for smaller, lighter, faster, however, technology doesn't always keep up with that, or where they would like it to be, so we did not put a hard dimension on any of these. So, as small as possible, but if you can offer a large capability increase with a small size increase, that could certainly be worthwhile. **What we're looking for is for industry to come**

back and tell us what's in their realm of possible for size, weight, power. What can you do and provide the capability we're looking for.

46. **What is the value of this award if selected to move forward?**

    The dollar value of this award will vary based on the what the government determines to be the best value to the SOF operator.

47. **Is there a target timeline for fielding a HEAK solution? Is there a target quantity of units the Government wishes to acquire?**

    Both a quantity and timeline can be found in the statement of objectives on the webpage.

48. **So BLE could potentially be a wireless solution, just not using the EUD's BLE capability?**

    Yes, Bluetooth low energy could be a wireless solution, you just can't utilize the EUD (that is the ATAK phone) integrated Bluetooth capability. That's controlled by a different program office, but the Bluetooth on those devices is disabled. The users are not able to enable it, so, you could Bluetooth to the wrist-mounted display and to the rifle-mounted controller, to the processor pack, and then from the processor pack transmit via a wired connection to that end user device/ATAK phone.

49. **Is there a minimum operating endurance (i.e., what battery endurance is required)?**

    It needs to mimic the EUD. With an S6, you're looking at a 5-hour battery endurance with the battery reset. With specifically some of the newer ones, you're looking at a 6–8-hour battery endurance. We envision a 6–8-hour battery endurance.

50. **Are there any limitations on country of origin for components making up the system?**

    We are trying to keep it to U.S. citizens, if possible.

51. **If the watch has a display, how do you envision it not giving away someone's position?**

    Certainly, it's always going to be a risk. We are trying to mitigate that risk with a smaller display than the EUD on their chest. You (the offeror) can put a filter on or something like that. There's no limitation of what you guys can provide. One of the biggest ones that is utilized in the field are some of the off direct view filters for a lot of smart watches and phones and that will allow for the light to not radiate in a 180-degree bubble. The other one would be that the tactical use of this item's actual employment and end use is directed at the user instead of up and out towards the sky. So just tactical implementation for the guys to utilize it.

52. **Since this will be on a closed loop, is it ok if components and the system are not ATO certified?**

    As long as it's not connected to the NIPR network or any of our networks directly, then it doesn't need to be ATO certified. But if it connects to the network, then it must be certified, and you would need an approval to operate.

53. **What are the operating temperature ranges?**

    -20C to +50C

54. If the watch is Blue Tooth, are you worried of jamming? Should hard wire be threshold and wireless objective?

We are currently not worried about jamming in this situation since it is such a low power device. Our operators are not interested in a wired solution, due to cables clutter.

55. Does the wrist-mounted display have any way for the user to provide input (touch, physical buttons, etc.) or does the rifle-mounted controller perform all those functions?

The wrist-mounted display is not required to have any way for the user to provide input. It's intended that the rifle-mounted controller is completely providing those functions for the user to select things or confirm selection etc.

56. Is there an updated HEAK SOO PDF doc?

Currently what you see posted on the SOFWERX website is the most up-to-date version of the rifle mounted controller for the display, it is only a controller.

57. If the rifle is the controller for a wrist mounted display, what is the purpose of the wrist mounted display. Is there going to be a display on the rifle? If so, what is the purpose of the WMD unit?

The controller is a controller that can control that display, so there is no rifle mounted display. The watch would be a display so the operator can visually see the text messages that come across along with the blue force picture as necessary, that's their only visual device for the operator out of the three components required of this system.

58. The ATAK EUD sounded like the phones have no wireless communications on it at all. Certainly, no Bluetooth, but is there Wi-Fi or LTE available on the EUD devices?

The majority of the EUDs have both Wi-Fi and LTE disabled.

59. Can the wrist device communicate directly to ATAK device using a secure, non-Bluetooth method?

As long as the secure wireless method is compatible with all currently fielded EUDs, this would be acceptable.

60. Will there be multiple awards or is HEAK limited to one?

There will be one award for the HEAK.