Urban Non-LOS Targeting Systems Feasibility Study (FS) and Rapid Prototyping Event (RPE)
Q&A Telecon Transcript

1. **Please expand on the EW aspects of non-LOS targeting (e.g., jamming of adversary systems over NLOS paths?).**
   Generally for us operationally, we know that the current and the future operating environments are all going to be EMI contested or just straight up, denied as well as a GPS denied. In regard to the aspects of non-linear side targeting we're getting jammed from a vertically oriented perspective mostly applicable to air-based mobility platforms from Group 1 to 3 platforms and larger for enabling assets. The ability to operate as we would in a counterinsurgency environment, with all the capabilities we have we're looking at getting into hardened everything, and then obviously for command and control and voice-based communications, that's also being jammed so we're seeing a lot more passive jamming where they're just barraging with power and wideband. And then, as you get deeper into a ground or a space-based domain, we're seeing more active, sophisticated capabilities from adversary jamming.

2. **Can performers provide multiple responses to a single focus area or provide responses to multiple focus areas; Would it be one additional page per focus area?**
   We know that this announcement is extremely broad because we know that every performer has a unique way that they would support non-line-of-sight targeting in an urban environment, so depending upon what your service, or what your platform is would kind of change our answer because if we look at it from an offensive technical targeting perspective, there is technical surveillance solutions for audio, video and tracking. There are EW solutions for ground, air, and space, there are influence activities and information operations, there are offensive and defensive cyber, probably more on the offensive side, and then there are all the robotics-based applications. That's just obviously on the technical targeting side. And then everything else from a virtual perspective in regard to hard and soft selectors and then IP attribution from what you look like on the interwebs from a non-line of sight targeting system. It's super broad, there really is no one right answer. There's no one answer that's better than the other. It just depends on what each of your individual organizations does, and how you could support us, using the example of non-line-of-sight-targeting. We just don't want to be sitting there in the open, fighting things, like we would, within a normal counterterrorism or counter-insurgency battle. We know that the future operating environment is going to put us further away from the targets than we typically are, whether it's just local non-line-of-sight or over the horizon. We really want more opportunities and flexibility. And we don't want to use things in one linear fashion.

3. **What are the KPIs for the (non-LOS) targeting system in an urban environment?**
   Right now, we don't have written KPI's for each of these segments that we're looking at. We're really looking at innovation, things that move fast, technologies that we can prove out more than a technical hard and fast requirement that we're measuring up against.

4. **How do we know whether to submit a FS white paper or a RPE white paper/quad for this first phase?**
   It's whatever you can do, so if what you think you can do is a lower technical readiness level, then it's going to be a Feasibility Study because you don't have a go-to-market capability yet,

or if it would require, integration of not just what you have, but what others might have within the commercial sector, that would probably be a good use case for a Feasibility Study. For a Rapid Prototype, if you have something that's maybe not go-to-market, but it's real, and you just want to prove or validate a concept or get feedback from a testing evaluation perspective, there's really no one right answer. Just because you write a Feasibility Study doesn't mean we won't ask you if you're capable of making a prototype, and vice versa. We may think that your prototype experimentation might be a little bit immature, and we'd rather see our Feasibility Study.

5. **Can you explain few scenarios?**
   An easy one, and I'll just keep this robotics base from a Group 2 drone, so that's kind of like a first-person viewer, and there's an endless amount of explanations like our scenarios we can give you, but currently, we fly a lot of commercial off the shelf first person viewer drones. Coincidentally they're all great because they're greatly divestible. They're low cost, they're low SWAP and we can modify them internally. The issue now is we saw that every single operating environment that we're finding ourselves in the last eighteen months, it's a jammed environment. Anything along our spectrum is being jammed, but if we can say just FPV drones, we're flying them on 186.8 megahertz to 915 megahertz, and we're transmitting sensor data, so video as an example at 5.8 Gigahertz. The uplink and the downlink of the drones are now being jammed, and so we already know that there are EMI-hardened solutions within the market, so where can we use opportunities like this to say, “How would you, facilitate the integration in EMI-hardened solutions on FPV drones?” That's kind of one of the things that we're solving right now, anything that deploys in the environment that can operate up in an EMI-contested or GPS-denied environment would be an example of a feasibility or rapid prototype experimentation of an effect that's currently commercial, but with integration, you can do A, B and C. For the other scenarios from urban non-line of sight, working with partners, a lot of partners, the US Government, as you can see, is doing a lot of enabling of allied nations, and so how do we enable them in those current situations that are similar to ours, it's just not us actually on the sticks anymore.

6. **Can performers provide multiple responses to a single focus area or provide responses to multiple focus areas; Would it be one additional page per focus area?**
   As one of the people reading the submissions along with the SOFWERX team and SOCOM, we have no preference. We would rather it just be compiled all into one submission so we can have a better understanding of the totality of services or capabilities and expertise that you have as an organization, instead of trying to piece it all together in multiple submissions.

7. **Non-LoS what is the distance we are trying to achieve?**
   Physical in nature, if you're actually going to be bringing something to the fight, and there's a lot of variables, obviously with the environments and with the topography of an area that you're going to, high-rises, as shore rises, or rural, semi-rule and urban and denser in the smart city, and so we would say if we have to put a numeric value to it, 300 meters and longer. 300 is the shortest, with like a tactical mesh radio network type of system that technically facilitates non-line of sight, but it's not over the horizon without an IP egress.

8. **Are these feasibility studies or rapid prototypes funded activities (Phase 4a or Phase 4b), or are only the Phase 5 OTAs funded?**
   We may fund anything in between. We may fund feasibility studies to go forward, we do a

rapid prototyping event that brings in each partner to partner to each of those segments. Any of those are possible, once we do the downselects to move forward.

9. **Please expand on the Artificial Intelligence you are looking for (including but not limited to what data types you are trying to build models on).**
   It's all types of data. We're not limiting anything to any specific type of data depending on the system and how it's using AI. It could be objects, data, geospatial, it could be any type of data. That is up to the proposer to find what data type they're capable of integrating into their model. But if we were to use another example, and the drone lawns are super easy, because it's just obvious but if we were able to launch a Group 2 drone, and it was going to have a kinetic engagement at the end, or a mission that it was going to do, we'll use kinetic engagement as an example, how do we then launch it, and, using artificial intelligence reduce the risk of civilian casualty while increasing the risk of lethality for the high valued individual or target that we are looking to engage, and how do we do that autonomously. The only thing that a person needs to do is say, yes.

10. **What are the desired outcomes for edge processing in terms of data analytics? vs cloud? sat. com**
    From our perspective, the outcomes are to facilitate all the processing on the edge, so whatever we're having to exfil is even smaller and we have reduced latency. If we can have whether it's “If this, then that” outcome, or some type of Boolean logic, so it does everything closest to the target in order to speed a decision, then that's kind of the end-state of what we're looking at for edge-based processing. The more you can do on the edge, the smaller the pipe is that you need to have, and so the smaller that we can have to have a pathway of transport, then the more opportunity we have to deploy capabilities. Even as a platform, SWAP matters so we're always interested in edge processing from the operator to the vehicle and beyond. Anything you can provide in those terms, just make sure that whatever you're proposing in the White Paper clearly states whether you're a cloud-based or edge process base, or somewhere between. A hybrid is fine, but make sure we understand what it is that you're using for the process. We ultimately want the end user to have the decision, and we know that depending upon what you're running, if it's going to be video-based, then you're going to have a lot of GPUs, and you can only run so many GPUs for a non-intended sensor just because of the SWAP requirements. But if based on the mission requirements, we can run it at the edge, we can run it an intermediary site, or we can run it over the horizon from a cloud or on-prem, those opportunities to have flexibility of employment will mean that we have more opportunities to deploy it. Usually if we're given a box and we're told, this is how you use it, and this is where the data points to, that pretty much pigeonholes us to support a variety of operations.

11. **Does non-line of sight targeting refer to just the operators or the systems doing the target, i.e. could a remote system doing LOS targeting work?**
    Yes absolutely. Whether it's if the operational environment allows and there's an operator that can interact with the sensor at the point of collection or survey, or whatever buzzword you want to use then great, but if we can place it, and then operate it from beyond line of sight over there, or whatever, the IP solution is that allows us to get outside of the contested space, then the answer is, yes.

12. **Are you interested in investing in system components or do you want the entire package as part of the proposal?**
    Either or. System components are great. If you're an integrator and you can plug right into an existing deployed capability or a box, then that's even better. So, we're not always buying the next box, and if you're the next box, and you provide an outsized impact on currently deployed capabilities, then we're a yes there, too. But we like having the ability to take what we have, integrating more capable technology instead of just building version 2 and version 3 and version 4.

13. **What are the redundancy and failover req for the data net to ensure uninterrupted op? For data network to ensure uninterrupted operation?**
    Typically, if we were to call out a plan of data transport, we would have a primary and alternative contingency and emergency, just like we would for normal military operations, and so depending on the environment, we may only have one, and we may have two, or we may have four. We always try to make sure that there's failover. As long as you can be command and controlled or move your data, line of sight point to point, point to Man A, and then IP or over there, then the more flexibility, obviously to get data in and then get data out and commands in the better. Obviously, file size and there's a bunch of variables to that.

14. **To confirm, are we able to submit a solution to one component of the entire list of needs, which may end up being part of the integrated solution?**
    Absolutely. What we're hoping is, we get a consortium of respondents to this, as well as the performers that we know about outside of this opportunity and if you, as an organization, are receptive to meeting the performer that may be the missing piece to your puzzle, then we'd be happy to make those introductions or facilitate a way ahead. If you have a sub-component, that is something that we don't want to pass up we'll make sure it gets to where it needs to go on a specific piece of technology.

15. **Does the Government have a general budget guideline for each solution and for the overall project?**
    With acquisition and technology, it really depends. If we get something that's a needle in a stack out of this, and then it meets our current acquisition strategies, invest in strategies, and it supports a problem today and solves a problem tomorrow, then obviously, the opportunity to receive additional funding is going to be great. If it comes into something that “Hey, we're curious, but we're not looking to invest in it in 4 years”, or “We're curious, but we're not currently seeing it as a 5-meter target for investment”, then we'll probably go down a little bit, and so we'd have to see if there's a right number that could be met between the Government and Commercial. There’s some funding available immediately, we’re also partnered with some other agencies across the Government and we’re looking to continue that partnership to go after some of the hard problems. We are interested in doing things very rapidly. Generally those events are smaller amounts of money to rapidly determine whether or not technology that's being proposed to us is viable and useful. There's sort of a broad SWAP of what we're doing here. We're also building out future capabilities, a rolodex of capabilities that we can use for our problems as they emerge. We're trying to scale this in a way that allows lots of companies to propose and allows us to organize that information, ingest it, and then decide whether this is a quick tech sprint or whether this is a more long-term project. So the only we can say is it's kind of both. It really just depends on what we see coming out of this and where we're currently at with current technology and where we want

to be with future technology. And by future we're not talking about like DARPA TRL 0. It's where are you at now and how fast can we get you to market that solves a problem.

16. **Are you looking for more of a mounted solution (MRZR or MATV) or something that can be used by dismounted patrols and reconnaissance units?**
From not just a SOCOM perspective, but holistically within the US Government, the likelihood of us going on MRZRs or MATVs to like another force-on-force conflict is a pretty cool day in the world, so the more that we can do without having to be on mounted solutions, just because the risk to force is so much greater with those applications the better. Dismounted, recce type units, partners, uncrude systems is really the way ahead.

17. **Expected solution is CE90 or SE90. What is the fidelity of targeting that you're looking at?**
Circular probability. So realistically, over asking right now but 5 meters or less if it's kinetic based. If it's non-kinetic based and it's not for pointed area and game targeting, then obviously the CEP can be better if we're talking like lethality. If we're talking RF spectrum-wise, the smaller the log the better it is. If we can get to probably get a CEP of a threshold of about 300 meters and an objective of 100 meters or less, then that would be what we're looking at. We think everybody, depending upon the service that you have, a CEP would be applied in every situation individually.

18. **From an intel/fires perspective, "validation" comes up a lot in targeting when dropping a point on an image on a software (GOTS/COTS). Is that a requirement?**
Yeah, we're always going to drop a cursor on target in order to inform for situational awareness, or in order to point a platform to a targeting location for it to employ an effect. We would like some top of some type of COT out feedback in order to employ an effect, and then it's the same thing in Adtech or soft selectors on a common operating picture. We need to be able to visualize the data. Yes, we want to be able to visualize whatever it is that's coming in order to enable us to make a decision. We really don't drop pins on images, we drop pins on maps.

19. **Just for clarity, Non-LOS refers to human eyes not on target? so video feeds, etc. are considered non-LOS?**
Yes. Non-line of sight is pretty much eyes not on target all the way to over the horizon. Depending upon the capability that you have and where it can be employed, and where a user can interact with the data, as long as it's not, on a blocking position in front of a house that we're going to go assault, that's kind of where we're looking at.

20. **What TRL is wanted from the solution? How soon should a solution be able to deliver at TRL 8 or 9?**
If you submit a feasibility study, we're comfortable with TRL 4. If you're submitting a prototype, then we're obviously looking at TRL 6 and above. Depending on, you may have a TRL 8, or even a TRL 9, but the way we want to use it drops it back down to a TRL 7, so not to make it any more complicated. Feasibility study probably 4 or above and then prototypes 6 and above. If you do have something where it's going to be a game changer, and you know you're accountable, and you can make it eventually, and it's lower TRL, or the sake of this, submit it but don't bombard it because we obviously are tied in in all the right places to get it to the folks that are focusing more on lower TRL capabilities.

21. **If system components are ok, how do you assess the ability to be inserted into a system and do you help make connections between different component providers?**
    To answer the latter question, Do you make connections between different component providers? Yes, we absolutely do. We do that all the time, and then essentially, we would get whoever has all the components and sub-components required to make a prototype or a material solution. We, with the appropriate government representatives put everybody in the room, commercial to commercial work out your own NDA stuff, and then we kind of facilitated a collective conversation since there's a lot of given takes from different organizations, and if we do one thing to your component, it messes up their components. We obviously all have to be at the same table, preferably in the same room, to figure out what we can actually define as a requirement. Then the solution through a KPP or KSI that will get us there.

22. **Should a solution address all, one, or multiple focus areas?**
    One to all. The more you can do the better, obviously, because we're going to less performers to facilitate a solution. But we have absolutely no issue with you having a unique capability, as long as you're open and receptive to working with others.

23. **Targeting is sensor location + range to target + angle to target. Operator maybe nlos but are one or more sensors expected to be having LOS with target**
    Depending upon the range and the reach of the sensor. If your front end can facilitate a targeting solution with a non-line of sight target then that's fine. But if your sensor has to be within visual or kinetic range of a target then that's fine, too. It kind of obviously depends on whatever that solution is. From a video perspective, if you don't have a vantage point you're likely line of sight, from an RF perspective with a big enough amp you could be up to a half a mile to a mile away from the ground, and even further away from the sky.

24. **What, if any, are non-goals of this the Non-LOS system?**
    A non-goal is to have another box that is the same as the box that everybody else is selling. We're looking for something that's innovated something that, it's a culture of targeting that we may not necessarily have, but it will inform what future targeting looks like. We just don't need the same thing that everybody sells, and they just call it themselves and the buttons are in a different location and the user interface is bespoke to the one provider. The other non-goal is things that don't integrate with others. If you have is that unique where it doesn't need to integrate, then that's fine. But obviously the US Government is moving to open architectures or they're moving to app-based solutions. The more people that we can have together, and combining more technologies, is going to be better.

25. **What are the worst problems with targeting through onboard sensors? Urban clutter? Rural clutter? CCD? EO/IR clutter and counter camouflage, concealment deception techniques.**
    The worst problems with targeting is the ability to actually understand the data. When you have these things in the environment, and you're not with them, and you're not telling it to do explicitly what to do and look at what, how do you filter all of the information that you're getting to make it relevant in a time that supports targeting. Then they're urban clutter and rural clutter. Feel like you're talking about maybe RF noise floors or just congestion in the environment, which is obviously an issue as well. We're not really dealing with those from an

EO/IR and physical camouflage and concealment. They're there. But we haven't heard a single person that's currently operational say that they have an issue with it. We have more of an issue with like dense foliage, foliage, or obfuscations when it comes to EO/IR. Typically it's going to be like a LiDAR or a thermal-based solution that you're having those issues.

26. **Is there a number of targets that the sensor needs to track (e.g., 1 to 1 or 1 to many)?**
    One-to-one or one to many. From an EO/IR perspective like we're talking about one to many as the example from a digital mobile radio push to talk to we're talking about, one to one and one to many. It really just depends.

27. **Where is current technology falling short?**
    The biggest one is electromagnetic interference jamming GPS denied. That is honestly probably the number one from our perspective of where current technology is falling short. Then dealing with smaller pathways, transport pathways. The one that's the biggest one that sticks out is EMI and GPS denied, and being able to operate in those environments because everything from the billion-dollar platform all the way down to the one-thousand-dollar platform is having issues.

28. **Can you clarify what "unique discriminating data" is for the sensors?**
    We're expecting the proposals to come in and identify. What we're really tackling here is a time factor. We want technologies that are available soon, very soon, we're trying to shrink the acquisition and bringing these technologies on board to a matter of days and weeks, maybe months, not years. It is something that's going to take years to develop. We certainly may make introductions to folks that are working those back at SOF AT&L within programs. We are really looking for stuff that is unique, quick and ready to go. And that's kind of what we're after in this problem set. The long-term solutions we'll dig back to some of the programs with the PEOs and program managers and SOF AT&L. We don't have any unique discriminating data. We're expecting you to tell us what that is to find it in your paper.

29. **Are there specific platforms the Gov is interested in putting sensors on (e.g. Drones)?**
    Yes. We can't say what platforms, specifically, but obviously drones are one of them ground mobility platforms are another one of them, large airborne platforms, rotary platforms, spacecraft if you can operate in space. We're really kind of immaterial. Whatever it is that needs to get your sensor to the location of interest, we're interested in it. Depending upon how this goes out, there's opportunity to be informed of that, whatever that future platform is.

30. **Do the respondents need to submit white papers for both the Feasibility Study and Rapid Prototype Events?**
    On the bottom of the webpage there are sections for White Paper submissions, including templates for the feasibility study white paper and the rapid prototyping white paper, along with a template quad chart for rapid prototyping. All of those can be submitted separately.

31. **What are the specific requirements for integrating with (ATAK) or similar devices (Common operating picture)?**
    If you have an applicable use case that provides capabilities, situational awareness, or command and control, and it makes sense for it to be in TAK then set that only requirement for yourself. If you don't if you're web-based and all of your stuff lives on a web-based portal,

and you have no TAK applicability then that's fine, too. Even if you don't, if you have interest in it, then please note that within your submissions, but not everything takes place on TAK. Obviously, if it's a maneuver operation when we have people on the ground, then TAK will obviously be in play. If we can get the data to our personnel through TAK then great, but if it doesn't make sense to interact with it through TAK, then that's, fine, too.

32. **Would the team be interested in geofencing / geolocation capabilities and then tracking of mobile devices that may be connected to an individual?**
Yes. Yes, all of the above. We'd be curious just to close that one out, how are you doing it differently than how we currently do it? And if you have a way, then that would be super interesting.

33. **Is the Phase 4b Rapid Prototype Event (RPE) funded by SOFWERX/USSOCOM, or will that be out-of-pocket by the respondent?**
Yes, in many instances we will pay for respondents to travel for rapid prototyping events.

34. **Are there any standards for displaying non-LOS targeting data alongside other display data?**
Once we hear about what your platform and what your data is, we're going to probably know where it plugs in in regards to the way that we run current operations, and we would facilitate that for you. You know whether it's an ICD, an SDK, we're going to make sure that you have what is required in order to support this event.

35. **For estimating purposes, how many users would require access to non-los solutions (~10? ~100? ~1000?)**
It varies hugely. From a command-and-control perspective of a sensor, we would say 1 to 20, and then from a non-line of sight viewing capability, if viewing is relative or relevant within a tactical bubble probably up to 200. Then if your video or your sensor data can be moved over the horizon then hundreds to thousands, depending upon what it is and what the operation is.

36. **During Phase 3's One-on-Ones, what is the expected format and duration of the session with the USSOCOM evaluation panel?**
They're basic briefs and more information will be sent out once it's determined who is selected to make it to that Phase for the one-on-one. If we don't have to meet face to face for us to understand what you have, or to see a material solution, we're good doing virtual, and if they have to be face to face then those are fine as well.

37. **Is there interest in an Offensive Cyber sensor that can collect on wireless mobile devices to obtain targeting information?**
Yes, there is interest in that, not to only collect, but to survey wireless mobile devices and obtain targeting information. Again, like obviously, this is a US Government capability, so how are you dealing with the new issues that we're having, whether it's a rolling mac to encrypted unencrypted links and so forth. We're interested in it but we're interested in the fact of how is this different than what everybody else is doing?

38. **If a platform is operating disconnected, for ex using computer vision to ATR in a jammed environment, how would detections get back to human to say "yes" on finish?**
It's interesting because the US Government's kind of like, we obviously do a lot of target

tracking, but automated target recognition to an endgame kinetic effect. There's a lot of people trying to figure out how they can say yes within the acceptable rules of law, but ultimately, we would like to not have it provide a question back to say yes. But if it's whether it's like a real-time enhanced shorter, is that us, you know, iridium that just sends back a flat file and a picture, and all we have to do is just send, a 2-kilobyte message back to just say continue or abort, then that's probably what it is however you could do that. Right now the solutions are typically sat-based but if it doesn't have to be sat-based it can be long-range line of sight, that's fine, too. Ultimately, don't want feedback, but just the way that the lawyers are right now, we need a way in order to say yes, it's not a four-year-old. It's actually a tank.

39. **If we have a sensor that can collect data from 30 - 45 feet, if the sensor can be drone-mounted does that answer the 300M minimum Non-LOS requirement?**
    Yes, but realistically, it would probably be flying at least 5-1,000 feet. If we're flying at 30-45 feet, that's only during assault operations, so we're always going to be flying at higher altitudes if we're not currently breaching doors.

40. **If this is going to be a dismounted solution (on-kit) what is the SWAP you have looking for? Assuming this will be spread across multiple members of the unit.**
    It's up to you. We're obviously not looking to add another 60lbs to our kits individually but there's not a threshold or an objective that we're looking to get after it just has to pass the commonsense test when you look at it. It can be mounted as well, just not to entirely discount mounted solutions, but the more mobile, whatever it is, we want it to be expeditionary is probably the best word, so we don't want to have to set up a travel trailer capability or take 20 people to operate one thing, so the more expeditionary as it equates to space and to people, is going to be better.

41. **Will the Gov please expand on "Targeting is intended for kinetic follow-on effects, but parallels to Cyber, EW, and other effects can be included."**
    Targeting is intended for kinetic follow-on effects, so obviously something that goes boom. Typically, we like to say EW or cyber-enabled effects to lead to a kinetic effect, but ultimately not everything that is a target is targeted kinetically, and so, using cyber and EW in order to degrade, to neutralize or to deter an adversary capability is also acceptable. So kinetic and non-kinetic effects are essentially the end states of this.

42. **End objective is to drop a pin on TAK or kinetic effect or both**
    If your capability is able to identify a rogue base station for follow-on kinetics. then yeah, we would want a pin that's dropped, or an automated pin created based on where the rogue base station is, and then whether it's a connected or disconnected kinetic effect thereafter, it's individually, it's both and it's either. It kind of just depends, like, because I think we probably have a lot of different capabilities that are participating in this, and if it makes sense that your effect, your sensor, your platform, is tracked through a cursor on target, or visualize, or command and controlled in TAK, then absolutely. But if you don't see any application on your capability in TAK and completely disregard this.

43. **Is it safe to assume that payload is looking for something specific or a group of items of interest**
    Payload as in sensor is looking for both. Sometimes we target individuals, so people, places and things. It just kind of depends on what the target of the day is. But yeah, absolutely a

person, and then something that's targetable on the person, whether it's a portable electronic device, a piece of clothing, something they're carrying, or someone they're talking to. Any way that we can target a person, place a thing, or an object is applicable.

44. **Are you looking for solutions that are deployed and retrieved, or are leave-behind components acceptable?**
Leave behind components are absolutely acceptable as long as there's failsafe and something in place that mitigates the ability to get exploited, or, collected against or red teamed, and we're looking for ones that are deployed and retrieved. Kinda just depends, but everything technically can be leave behind if you have the failsafe's and the protections on them that when discovered become a brick, or they have some type of low-grade kinetic to destroy it.

45. **Is there interest in sensors that can be airdropped and build out a mesh network of collectors (e.g. 100s or 1,000s of fake rocks)?**
Yes, there is, the hard part with that, because we've looked at it through a bunch of operations in the last few years, that means you have to have placement and access. So, if you have a thing that would also include your proposal of how to get it there, and it be as real as possible. Obviously, anyone can always say I can just attach it to a drone, but if you can just peel back the onion about what you mean by that, because we've looked up long drones over long distances and terrains with droppable stay behind non-retrievable sensors, and it's just hard to do. The more things you introduce into the environment, the more complex the operation becomes.

46. **Is there interest in solutions that also provide the non-kinetic effect? - In addition to the collection / targeting capability?**
110%. Non- always makes people feel good because there's less risk of escalation when you go non- kinetic, so that's actually the first thing we look at over kinetic.

47. **How is the effectiveness of the sensor-to-integration-to-visualization process measured, and what benchmarks to assess instantaneous data processing and util?**
Does it feel transparent to the end user right? When you actually say from the point the sensor collects something to the second that it's actually visualized in some in front of somewhere, we're talking to milliseconds. If we're talking milliseconds then, it should feel very transparent like there is no latency to the user. But obviously if it's a drone, then we're talking twenty-five milliseconds, and it's a lot more scrutinized. But ultimately, we don't want it to feel like normal iridium. We're always going to go when it comes to assessment, assessing like we're talking latencies when it comes to data to net flows, that will be measured out if it's applicable, and depending upon how slow it is if it meets the intent of how your capability needs to be used that's fine, but we can't wait 2 minutes for something that's going to trigger a maneuver-based operation.

48. **Can you please expand on what is meant by Assessment Criteria-> Sensors Criteria -> "The impact of the urban environment"**
As an example for sensor criteria, is your sensor interoperable with other sensors? If you have an EO sensor, can it trigger an RF based sensor? Can it operate in a high RF noise floor (urban) or does it have a specific use case? The less flexible, the less appealing. Same applies to the other portions of criteria. You don't have to meet all of the proposed criteria, but we're looking for reasonable flexibility in employment.

49. **Are there specific AORs or regional specific challenges that our solutions need to operate in (e.g. extreme heat, cold, etc)? Any details beyond urban density.**
    For this one no. We're not looking at anything that's IP compliant, or can withstand 50,000 feet or -40, just tell us what you have. Let us see it, and then we'll figure out what the right use cases are for it in regards to current operations and requirements, then, if needed, once we kind of peel back the onion on the prototype event or feasibility study that could always be included on like a statement of objectives. But if you already can do it, then you can tolerate the environmentals, and you've enumerated that then please include it in your submissions.

50. **Do you plan to support/demand MOSA (Modular Open Systems Approach) standards and open-source capabilities for future development on the platform? How does COTS fit in?**
    For a lot of it, but not all of it, and really some of it is going to have to be Government proprietary. That's maybe like the secret sauce or the waveform on a board spin, but ultimately we want to stay as much as commercial off the shelf as possible, because the US Government has proven it can't keep up with commercial technology development. The more government-controlled this becomes the less flexible and the slower it is to adapt to new technologies. We are a 100% on board with that and that is what we want.

51. **If environment is jammed both comms and GPS is it ok to retrieve platform to get coordinates back. Or do we need to provide targeting data in real-time**
    If our device doesn't know where it is, can we tell it where it is? If it makes sense to then yes, and if it doesn't incur a risk to force, then yes. If it goes out with communications in GPS it has to be able to hold it somehow, but if you can plan around it before you deploy the sensor, then that's absolutely fine. If it has GPS when it goes out and it loses it. How do we overcome that? If we can no longer communicate with it?

52. **Is Android Tactical Assault Kit (ATAK) seen as the future interface? We believe ATAK has significant limitations on performance with complex environments.**
    ATAK does have a significant market share within the DoD. There is more than just one common operating picture.

53. **Is there interest in capabilities that also provide the non-kinetic effect?**
    There is.

54. **We are under the assumption that current blue force radios have been blueprinted by red EW which is a liability. I'm assuming the solution will consider that?**
    Absolutely agree. I'm assuming the solution will consider that: 100%.

55. **What are the specific data cleaning and normalization standards that should be followed?**
    If it's in JSON, then we're happy.

56. **Are there any specific data accuracy and validation benchmarks that need to be met?**
    It should be accurate in regards to the front end that it should be able to collect against, but that's probably a broad question, and then probably no validation of benchmarks yet. Wouldn't worry about that for your submissions, that is all something that would be peeled back once we see what your wavetop capability is.

57. **For Phase 1, are there any specific guidelines or templates for submitting the white paper for USSOCOM review?**
    At the bottom of the webpage, you'll see the templates there.

58. **Are there any requirements on the data flow into or out of the SOCOM SIE?**
    No, there's not a requirement on it. We're going to peel back the onion once we see what your concept is, and then we're going to ask more follow up questions and those one to ones.

59. **Are there specific encryption requirements for the data link. For example, Type 1, CsFC, etc...?**
    The golden standard right now is, AES 256 and so as long as you're using an encrypted capability, but it's most common elementary terminology for AES.

60. **In Phase 5, what are the criteria for a successful negotiation of awards, and how will the follow-on production agreement be structured?**
    This is an OTA and post OTA. It can go a lot of different ways, this prototype and feasibility study is one, and then dependent upon what it is, there's an opportunity, if you want, there's always CRADAs and individual work plans, there's OTAs, there is standalone research and development contracts with single-points of performance and there's IDIQs. It just really depends on how much of SOCOM does this apply to? How much does it scale, and what are the costs? And where are we at our investment strategy for the technology that you have.

61. **Is multispectral and/or hyperspectral one of the sensors to be used?**
    It can be, it's up to you. If it solves a problem that you see and it would have an outsized impact on current technology employment then we'd absolutely be interested.

62. **What are the KPIs for the (non-LOS) targeting system in an urban environment?**
    Everyone's KPIs would be different depending on the hardware, software, virtual solution you're proposing. It's deliberately open ended so we don't stifle commercial innovation and their approach to solve the problem from their unique perspective and experience.

63. **Are there any existing commercial solutions or technologies that are being considered as a baseline or reference for this system?**
    Not to name, but solutions should be interoperable, non-vendor locked, and provide flexibility in employment within reason. Don't tell us how it needs to be used, tell us the effect it provides and we'll apply to technology to solve a problem in an urban environment.

64. **For Phase 4, what are the specific deliverables expected from the (FS) and (RPE) applicants?**
    Cost will play a role, but the hope would be a prototype(s) you can show the government, allow us to take it and use it without a vendor holding the hand, then provide feedback on the tech. There will be an opportunity to tinker with a TPOC so you won't be entirely in the blind

65. **What are the criteria for evaluating the integration of the different technology focus areas?**
    There is not a formal "test plan" that you would experience from a normal FAR-based development. We intend to be stewards of the FS/RPE and scope individual "criteria" pending the maturity of your technology, scale of implementation, and problem(s) it solves. For an

announcement this broad, it would be unjust to pre-impose criteria when we have no idea what creative ideas or solutions will be submitted. It's a two-way conversation.

66. **What is the participation criteria - any US person or has to established with D&B and operational with TAX report for a period of time?**
    You should always have a DUNS/CAGE if you intend to solicit services to the USG. We have no bias towards previous performers as it would limit our ability to identify emerging performers and technology

67. **Are submissions idea going to stay confidential? some tech we have stealth dev at the moment**
    Yes, it will only be shared with government personnel or contractors that are SETAs on behalf of the government.

68. **What is the funding range?**
    There isn't a ceiling but it depends on your solution. We know how much it costs to play with certain technologies, some being more expensive than others. Remember this is a FS and RPE, not a full scope development. Either way, we're stewards of commercial capital, P&Ls, and understand what is reasonable from a government funding and commercial IRAD perspective.

69. **Since proto is out of pocket, can it be done in virtual setting, simulations**
    By exception but not the norm, prototypes should provide a capability not a concept. It can be the lowest cost, non-repeatable in current SWAP/FF, but show us it's real and how you'll reach the finish line from prototype to capability

70. **Can we propose previously researched GOTS from project like the basement/TV/JATF world or are you looking for new concepts?**
    Previous research is fine. International research and capabilities are also fine if you've already established a U.S. only way-ahead.

71. **What is the desired data refresh rate for the sensors in real-time operations?**
    As fast as it needs to be in your concept of employment. The easy example, drones need stop have a refresh rate of 50 m/s against dynamic targets and up to 150 m/s against static targets unless otherwise augmented by AI/ML/HMT. EW typically needs to be near-real-time depending on the effect, and Information Environment effect can be minutes. It really depends as I need to know your tech to tell you the refresh rate recommendation.

72. **Are there specific standards for sensor data formatting and communication that need to be adhered to?**
    No but there may be a requirement for you to comply with an API/SDK IOT ingest your data with current platforms

73. **What are the redundancy and failover mechanisms envisioned for the data network to ensure uninterrupted operation?**
    Long Range LoS (directional and repeaters which are less ideal since it's urban and we'd be replying on vantage points), Mesh, and IP(s) solutions

74. **What are the expected data latency and throughput requirements for the network?**
Milliseconds to minutes depending on the technology and 56kbs to 5mb depending on the throughput requirement of the technology.

75. **What are the specific data cleaning and normalization standards that should be followed?**
Follow commercial industry standards, it's more relevant the current government standards. If you need to touch a classified domain than look up IL6 requirements and that would be the standard.

76. **What are the desired outcomes for edge processing in terms of data analytics?**
The ability for the platform to follow pre-determined rules (Boolean logic) and not need constant operator interaction, think triggers and ques.

77. **How will the system handle false positives and negatives during real-time target recognition?**
You tell me. If it's your system than we would like to hear your solution to that question. How to do you as a performer mitigate redundant false positives when the algorithm should be trained on relevant sample data or object libraries.

78. **In Phase 2, on what criteria will USSOCOM base the downselection of respondents/submissions?**
It will be based on what problems your technology solves, what market research says is otherwise available, TRL levels, costs, scalability, timelines, etc.

*The intent of this is to disrupt norms, deploy advanced technology, and provide an outsized impact compared to what is currently available. We're not looking for v2 of the next black box. Technology is more advanced than currently fielded within the USG, take risk, make bets, and win big. Be a positive disrupter with a road map to substantiate claims.