



S²MARTS Project Number: 20-10b - Threat Missile (TM) System Exploitation in Support of Hardware in the Loop (HITL) Simulator Development

Request For Solutions (RFS) Questions & Answers | Posted December 18, 2020

1. **Question:** To clarify, is the deliverable suite of T&E ready, V&V HITL simulators a suite of current/legacy threats or emerging/future threats?

Response: There is another effort aimed at the legacy threats. This effort is aimed at the emerging/future threats as they are acquired.

2. **Question:** Is there criteria available for verified, validated, and accredited?

Response: The simulators will be configured to operate in both a field-ready and HITL configuration to allow for rapid VV&A. Crane is working with other government partners to develop the VV&A criteria. It will involve collection and comparison of data in the lab and in the field. The collected data will be provided to multiple Government entities. The vendor will have to work with the entities on content, formatting, etc., needed before submitting.

The prototype simulator must be accredited for use by one or more programs. Major accreditation agencies include NAVAIR PMA-272 for developmental testing and Commander Operational Test and Evaluation Force (COMOPTEVFOR) for operational testing. The simulator may also be accredited by individual program offices, or other DoD services.

This process includes development of an accreditation support package which includes the V&V reports as well as other documentation including configuration management, system maintenance and development.

This phase includes all activities leading to a successful accreditation, including development of the accreditation support package and reviews by various subject matter experts.

3. **Question:** How many threat simulators will be required in the "suite" and in what timeframe?

Response: We require one simulator for each threat as it is acquired and reverse engineered.

4. **Question:** How many RSIMS-based HITL simulators are desired for the suite of simulators?

Response: We require one simulator for each threat as it is acquired and reverse engineered.

5. **Question:** Do you have any target timelines for delivery of the system?

Response: The desired timeline is a complete and delivered simulator within 24 months. We will require continuous updates as knowledge is acquired during the reverse engineering efforts. The knowledge will be used to insure the Crane laboratories are prepared for the VV&A process.

6. **Question:** Is this effort limited to only infrared seekers, or are other seekers included (radar, for example)?

Response: It is not limited to IR.

7. **Question:** This research can be extended to developing cyber threat simulators and for counter measures. Would such a cyber threat related effort be in scope for this project?

Response: Cyber threats are not included in this effort at this time.

8. **Question:** Have you thought about using a gaming platform or some other M&S tool to determine what countermeasures would be effective for producing the data that you need?

Response: We currently use all forms of M&S in the development of countermeasures. This effort is aimed at HITL in order to provide rapid VV&A typically not achievable with full digital models. All forms of M&S would be welcome as suggestions.

9. **Question:** This effort is calling for a, "A suite of reconfigurable signal-injection missile simulation (RSIMS) based HITL simulators of various threat infrared missile systems is required " due to expanding requirements in the threat environment. The description references wanting to develop this reconfigurable system...then on the other hand states the following" The Government is seeking a suite of test and evaluation (T&E) ready RSIMS HITL simulators for threat exploitation and countermeasure development that have been fully documented, verified, validated, and accredited." We are not sure if the requirement is develop a solution or only to provide existing accredited systems. Can you clarify what the customer is looking for – prototype development or existing system?

Response: Prototype development only. The verbiage use in the FMS was, regrettably, not accurate. We do not expect the vendor to deliver prototypes that already meet VV&A requirements.

10. **Question:** Can you confirm that the scope requested for the proposed funding and 24 month timeframe is for a full FME and development of a HITL simulator of a previously un-exploited threat versus a HITL delivery for a previously exploited threat?

Response: In spite of the poorly worded RFS, this effort is for new, unexploited threats only. And, the expected timeframe is 24 months.

11. **Question:** The RFS states the T&E ready simulator will be a "Track Loop Simulator" HITL design. Is this a generic term, or will the Track Loop Simulator format, standards, and ICD be provided as part of the GFI?

Response: It is a generic term. The format and standards will be provided as GFI.

12. **Question:** What class/type of threat system is expected for this effort (i.e. EO/IR, RF, surface to air missile, Air-to-Air missile, Surface-to-surface missile, MANPAD/shoulder-fired, vehicle-launched, etc.)?

Response: The initial intent was for EO/IR anti-aircraft, e.g. MANPADS, Surface to Air, and Air to Air. However, WXR is also responsible for RF countermeasures and supports shipboard protection. As such, all of the above will be possibilities.

13. **Question:** The current project budget of \$980,000 does not seem to be sufficient for a comprehensive foreign materiel exploitation (FME) and digital/HITL prototype development for a new weapon system. While this value is identified as being subject to change, it is difficult to develop a plan to meet the desired end-state objectives in the absence of either dollar value or labor hour guidelines. Can NSWC Crane provide any additional guidance concerning the scope of this effort?

Response: The \$980k amount represents funding on hand. It also represents a government estimate based on a generic threat system. Respondents are encouraged to submit realistic estimates, i.e. do not ignore any cost item in order to meet a proposed cost of \$980,000.

14. **Question:** Should bidders assume that threats of greatest interest would be surface-to-air systems, or air-to-air systems, or both?

Response: The degree of interest is based on the complexity of the system. Newer and more complex systems will be the focus.

15. **Question:** Should bidders assume threats are hypersonic and maneuverable?

Response: Assume subsonic, hypersonic, fire and forget, and maneuverable.

16. **Question:** The RFS includes the requirement for personnel and facilities cleared to the secret level. This seems inconsistent with foreign materiel exploitation (FME) activities, which typically require personnel and facilities to be cleared to a higher level. Should bidders assume that personnel and facilities cleared to the secret level will be adequate for the duration of the stated activities?

Response: It is anticipated that security above SECRET will be required on some systems. The security level will be handled on a case by case basis and will be defined in the RFS.

17. **Question:** While it is understood that integration and checkout activities associated with the reconfigurable signal-injection missile simulation (RSIMS) based HITL simulators would take place at NSWC Crane, can the bidders assume that foreign materiel exploitation (FME) would take place, and FME data storage occur, at other locations, including the bidder's facility?

Response: Yes.

18. Question: It appears that this solicitation is seeking only scene injection solutions, and is not interested in scene projection technology---is this correct? Or, is the government also interested in scene projection advances along with scene injection? Thank you in advance!

Response: Scene projection is a subject of interest to Crane. However, any investments by Crane in scene projection would be indicated in a separate RFS. This RFS is strictly focused on scene injection.

19. Question: Some data requirements (e.g., wind tunnel aerodynamic measurements, missile eject/flight motor testing) may be cost-prohibitive, given the budget. May we request that these data are provided via GFI? Alternatively, would simulated data be acceptable as a lower-cost alternative?

Response: Simulated data would be acceptable as an interim step in the process. The vendor may request the above data as RFI. Alternatively, the vendor may provide a cost estimate to provide the data even if this step increases the cost above the \$980k initial estimate.

20. Question: Is it advantageous for a performer to have cleared facilities adjacent to NSWC Crane for ease of data sharing/collaboration and ease of access to GFE (e.g., the asset of interest, access to the RSIMS environment/lab, NSWC Crane personnel/SMEs, etc.)?

Response: It would be advantageous to have space in close proximity to Crane. However, it would not be a limiting factor if the vendor did not have such access.

21. Question: Will the Government consider providing representative FME data (covering portions of Phases 1-3) so that the performers may have a focused prototype development effort on T&E ready RSIMS HITL simulators?

Response: Yes.

22. Question: May the performer work with NSWC Crane to gain access to the RSIMS environment/hardware/facilities for periodic integration testing and milestone demonstration events?

Response: Yes.

23. Question: Does the current project budget of \$980K represent available funds for GFY21? Are there additional funds anticipated for future years?

Response: The \$980k amount is for FY21. There is no guarantee of additional funds. It is anticipated that this will be an ongoing effort, so additional funding has been requested for out years.

24. Question: Are multiple awards anticipated, or will this be a single award?

Response: Multiple.

25. Question: Will the Government/NSTXL consider moving the solution due date to accommodate holiday schedules?

Response: Yes; reality dictates that some accommodations in the schedule may be necessary.