# Headquarters Supreme Allied Commander Transformation

## Norfolk, Virginia



# QUESTIONs & ANSWERs #1
# RFI-ACT-SACT-22-66

**Request for Proposal Number:** | RFI-ACT-SACT-22-66

**Reference:** | Q&A #1

**Date of Issue:** | 26 MAY 2022

The following questions were raised with respect to subject RFI. Responses are to provide clarification.

| Question | Response |
|---|---|
| Q1. Is the next generation modeling and simulation options expected to be principally managed and employed by the NATO ACT major subordinate commands of JWC, JFTC, and JALLC? Or, is it anticipated to be applied to only one of those commands and support their mission? | A1. Answers to these questions or those of who a host nation might be (reference questions to nations in RFI) are being collected in responses to this RFI and also being shaped in this phase of the capability development by stakeholders across the NATO command structure. Trade studies will also be conducted during alternatives analysis and will consider the identification of candidate sites for investment, use case dependency analysis, existing reusable resources, legacy systems, and the maturity and transition readiness of application areas. |
| Q2. Is the future M&S systems expected to focus on the operational level of war or function as a tool for exercises, experiments, and analysis to examine NATO operations at the strategic, operational, and tactical levels and across the competition continuum? | A2. The Future M&S system will not be a single tool but a modular designed system that utilizes a number of tools drawing from a future common NATO dataset. The system will service the M&S application areas laid out in the RFI at every level of war (Pol-Mil to tactical). |
| Q3. Based on Annex A KPP 1.13, is the M&S system also expected to be an intelligence analysis tool for JIPOE-level applications? | A3. Within the scope of the Next Generation M&S capability is providing tools for analysis across the application areas in the RFI. A requirement for in the area described "intelligence analysis tool for JIPOE-level applications" – has not been submitted by end-users at this time. There is a need to associate and reflect state changes across PMESII categories. There is a need to compile information, conduct analysis activities, and visualize the operational environment to inform decision making and situational understanding. |
| Q4. Is the M&S system expected to be employed at COEs, PCOEs, and across all NATO colleges and education locations? | A4. The Next Generation M&S capability will primarily serve the NATO Command Structure but will likely provide access and benefits to Centres of Excellence and other educational institution that will certainly provide education for M&S to NATO military and civilian staff. |
| Q5. A KPP in Annex A identifies that a future system must represent the results of lethal and non-lethal actions in terms of effects across PMESII variables. However, PMESII are operational level of war variables. Is it also anticipated that the system will model and integrate the strategic variables of DIME and the tactical variables of METT-TSL as well? | A5. It is anticipated that the future system will be interoperable with a range of tools that allow modelling of kinetic and non-kinetic actions across domains and among the various levels of war. At this stage, the programme cannot definitely say whether the utilization of the DIMEFIL Framework for some application areas will be required. |
| Q6. Is the systems expected to be able to replicate or mimic representative | A6. Yes it is expected that the future system will have this capability. |

| | |
|---|---|
| response cells at strategic, operational, and tactical levels for friendly, ally, and adversary forces in a virtual and automated interaction when live response cells cannot be furnished, or it when it would not be required? | |
| Q7. Is the system expected to accept standard inputs from established processes (i.e. allied planning process or tactical level orders) as the primary method to generate actions and responses within the model & simulation? | A7.  So far, accepting standard inputs from established processes is one of several desired methods to generate actions within simulations.  Capabilities are expected to maintain current abilities of accepting standard inputs to generate actions, such as the ability to process air tasking orders. There is a need to support the processes of several application areas including but not limited to strategic and operational planning, training, wargaming, strategic studies, procurement, concept development, and experimentation. Translating the outputs of certain activities (e.g. Courses of Action) into sets of simulation commands has been discussed. There is a need for models to support decision making activities, using the current situation as input.  There is a general need to parameterize models in an efficient manner and reuse datasets that could be used as model parameters. |
| Q8. Is the system primarily expected to replace all manual/analog tools or applications for training, exercises, and experiments (i.e. board games and manual stochastic modeling tools)? | A8.  During this stage of capability development, the programme is not specifying transition priorities. |
| Q9. Is the future M&S system expected to be real-time networked to all institutions employing the system to feed live data base updates for all validated applications of the M&S system? | A9.  There is a general need for interoperability between capability components pre-execution, execution, and post-execution. Certain applications areas require different degrees of connectivity and interoperability with other organisations, national systems, C2 system, and functional services. Application areas that conduct distributed simulation wish to maintain runtime consistency and cohesion.  There is a need for both NATO and multi-national interoperability, with the NATO Command Structure (NCS) and NATO Force Structure (NFS) being the minimal requirement. For certain application areas, there are bandwidth limitations that may require functionalities and information sources to be within close proximity vs a centralized location. |
| Q10. Is the system expected to provide in-stride adjudication capability? | A10. It is desired that solutions that support in-stride or rapid adjudication are low overhead (time and cost) to set up and operate. |
| Q11. What resources within NATO can be leveraged as data sources for future M&S system development (school house, intel, etc.)? Is there a data storage challenge with current data collection—e.g., how often is data "dumped" instead of stored? | A11. Data storage, curation, access, and availability are key components of the high-level requirements.  NATO data sources reported to the programme are currently being analysed. Capabilities may consider the Data Exploitation Programme, an ongoing NATO's Warfighting Capstone Concept (NWCC) effort that identifies NATO and national open source and classified data sources. Some application areas require the ability and resources to store relatively large amounts of unstructured and structured data. Challenges include limited storage capability, manual transactions exporting data from different systems, data formatting, cost constraints, and security policy. Challenges also include operational data extraction, requiring manual transactions and data manipulation, and locating data stored in individual system databases.  Minor instances of data dumps have been reported between functional services and simulations. |
| Q12. Based on KPP 1.2 is the system expected to be interoperable with real operational systems (i.e. fire control or air defense) or simply remain at the virtual and constructive levels? | A12.  Training institutions want to maintain interoperability with constructive, virtual, C2 systems, and functional services. Some communities have mentioned a need for improved integration with functional services (e.g. TOPFAS, LOGFAS, and Intel-FS). Other application areas do not require interoperability with virtual, C2 systems, or functional services. The detailed capability requirements provided by NATO stakeholders in FY 2022 will determine targeted systems and integrating |

| | architecture. |
|---|---|
| Q13. What is NATO ACT's expected implementation timeline? What is the maximum period of development being considered if a tool is state-of-the-art and bespoke to NATO? | A13. The current IOC date for an M&S application area to be demonstrated to a critical set of stakeholders is 2024. FOC is 2029 with the expectation that the future system will support all application areas and federate with national capabilities to maximum extent feasible. |
| Q14. What are the systems or family of systems specifically that NATO ACT is looking at replacing across its exercise, experimentation, and analysis enterprise with this common M&S system? Is there a prioritization? | A14. Prioritisation of delivery is the goal of the current phase of capability delivery and will be developed with stakeholders and mission requirements coupled with a view of the solution space from industry and the nations that answers to this RFI provides. |
| Q15. Does NATO ACT have a prioritization to implement a next generation M&S system or a test bed location? For example; is it desirable to optimize a system first for the JWC at the operational level for exercises and experiments and then migrate out to other centers and applications? | A15. It is too early in the development process to adequately answer this question. Any prioritization of applications areas, identification of candidate sites for investment, or roadmaps for the phased roll-out of capabilities will depend on the future capability requirements, dependency analysis of use cases, and their importance to stakeholders and their processes. Trade studies will also be conducted during alternatives analysis and will consider existing reusable resources, legacy systems, and the maturity and transition readiness of application areas. |
| Q16. Is there a primary focus area for an adversary for a next-gen M&S system development? I.e. is their greater concern for cyber, space, and informational challenges over ground, air, and maritime lethal challenges? Is there a desire to be able to explore concepts like human or cognitive domain/environments? | A16. All of the mentioned areas/ domains/ concepts are within the scope of the Next Generation M&S capability programme. |
| Q17. What are the current and future NATO and national systems that are in mind for which interoperability would be needed and expected? | A17.The detailed capability requirements provided by NATO stakeholders in FY 2022 will determine the systems that are in mind and whether current systems will be maintained, enhanced, or replaced. There is a need for both NATO and multi-national interoperability, with the NATO Command Structure (NCS) and NATO Force Structure (NFS) being the minimal requirement. Architecture analysis and analysis of existing and future data exchange requirements will be determine in future phases of procurement. Reported systems include but aren't limited to: |
| Q18. What is the current level of user expertise and experience to undertake modelling and simulation? | A18. M&S is provided to NATO customers by technical experts. Example - personnel and skillsets include but aren't limited to data scientists, data analysts, database developers, M&S technicians and specialists, expertise in the integration of new and or modified data sources, wargamers with a shared understanding of wargaming, expertise in modelling PMESII, expertise in TOPFAS, understanding of CAX capabilities and the proper use of simulation to create a realistic training environments, and trained personnel to play the CAX roles for exercises. |
| Q19. What is the anticipated budget for each new use case or scenario using the Next Generation Modelling and Simulation Capability? | A19. Answer not available or shareable at this time. |
| Q20. How far out to the tactical edge do you need sharing of displays for collaboration to be? | A20. At this time, stakeholders have not yet mentioned a need for connectivity far out to the tactical edge. There are desires for distributed access to collaborative planning tools to as many users as possible and with minimal client resource and |

| | installation requirements. |
|---|---|
| Q21. What are the expected needs for disconnected/low bandwidth working and collaboration? | A21. At this time, stakeholders have not yet mentioned any expected needs for disconnected/low bandwidth conditions. |