NORTH ATLANTIC TREATY ORGANISATION

HEADQUARTERS SUPREME ALLIED COMMANDER
TRANSFORMATION 7857 BLANDY ROAD, SUITE 100
NORFOLK, VIRGINIA, 23551-2490

Invitation

For

International Bidding

IFIB-ACT-SACT-23-62

Next Generation (NexGen) Modelling and Simulation (M&S)

Wargame Proof of Concept Support

Bidding Instructions

AMENDMENT #3

Table of Contents

CHANGES INCORPORATED:

AMENDMENT #1 dated 12 July 2023 - Removes reference to "HQ SACT Special Terms and Conditions dated 10/08" in the Terms and Conditions section, pg. 38, as **THIS DOES NOT APPLY.**

AMENDMENT #2 dated 17 July 2023 - Adds in WP #9 deliverable to pricing chart in Enclosure 3; Provides an update to the scoring matrix for 3, 13 & 14 in ANNEX B: & Update travel details in section 9.

AMENDMENT #3 dated 2 August 2023 - - Changes Bid Closing Date from 11 August 2023 to **28 August 2023.**

BIDDING INSTRUCTIONS

1. General

   This is a Firm Fixed Price deliverables contract in accordance with the HQ SACT General Terms and Conditions; as such, all employer responsibilities for the contractor performing under this contract shall lie with the contractor company. **Contract Award is contingent upon funding availability; Partial bidding is not allowed.**

2. Classification

   This Invitation for International Bidding (IFIB) is a NATO UNCLASSIFIED document.

3. Definitions

   (a)   The "Prospective Bidder" shall refer to the entity that has indicated thereon its intention without commitment, to participate in this IFIB.

   (b)   The term "Bidder" shall refer to the bidding entity that has completed a bid in response to this IFIB.

   (c)   The term "Contractor" shall refer to the bidding entity to whom the contract is awarded.

   (d)   The term "Contracting Officer" designates the official who executes this IFIB on behalf of HQ SACT.

   (e)   "Contracting Officer`s Technical Representative" or "COTR" is the official who is appointed for the purpose of determining compliance of the successful bid, per the technical specifications.

   (f)   The term "HQ SACT" shall refer to Headquarters Supreme Allied Commander Transformation.

   (g)   The term "ACT" shall refer to Allied Command Transformation.

   (h)   The term "NATO" shall refer to the North Atlantic Treaty Organisation.

(i) The term "days" as used in this IFIB shall, unless otherwise stated, be interpreted as meaning calendar days.

4. Eligibility

(a) This IFIB is open to governmental or commercial entities.
(b) Established in a North Atlantic Treaty Organisation Alliance member nation.
(c) Working in the required field of study and legally authorised to operate in the country and countries in which this contract is to be performed, at the time at the time of bidding. Please refer to our terms and Conditions paragraph 23 "Authorization to Perform." Has performed the desired past performance including size, cost and scope, as described in this IFIB.
(d) All proposed key personnel on this requirement must be citizens of a NATO member nation.

5. Duration of Contract

(a) The contract awarded shall be effective upon date of award.

(b) The base period of performance is on or about 1 September 2023, with one (1) option period:

- Base Year: 1 September 2023 – 31 December 2023

- Option Year 1: 1 January 2024 – 31 December 2024

6. Exemption of Taxes

(a) In accordance with the agreements (Article VIII of the Paris Protocol dated, 28 August 1952) goods and services under this contract are exempt from taxes, duties and similar charges.

7. Amendment or Cancellation
(a) HQ SACT reserves the right to amend or delete any one or more of the terms, conditions or provisions of the IFIB prior to the date set for bid closing. A solicitation amendment or amendments shall announce such action.

(b) HQ SACT reserves the right to cancel, at any time, this IFIB either partially of in its entirety. No legal liability on the part of HQ SACT shall be considered for recovery of costs in connection to bid preparation. All efforts undertaken by any bidder shall be done considering and accepting, that no costs shall be recovered from HQ SACT. If this IFIB is cancelled any/all received bids shall be returned unopened, per the bidder's request.

8. Bidder Clarifications

(a) Prospective Bidders should seek clarification at their earliest convenience. Any explanation regarding the meaning or interpretation of this IFIB, terms, clause, provision or specifications, shall be requested in writing, from the Contracting Officer. The Contracting Officer must receive such requests for clarification no later than 3 (three) calendar days prior to the bid closing date.

(b) In lieu of a bidder's conference, HQ SACT invites bidders to s u b m i t initial

technical and contractual questions not later than **20 July 2023.**

(c) Information in response to all inquiries / requests for clarification to a prospective bidder shall be furnished to all prospective bidders at the following link: http://www.act.nato.int/contracting as a Question and Answer addendum. All such addendums and any necessary solicitation amendments shall be incorporated into this IFIB. Oral interpretations shall not be binding.

9. Bid closing date

Bids shall be received at HQ SACT, Purchasing and Contracting Office, no later than **28 August 2023**, **0900 hours, Eastern Daylight Time, Norfolk, Virginia, USA.** No bids shall be accepted after this time and date. **No hard copy proposals will be accepted.**

10. Bid Validity

Bids shall be remain valid for a period of one hundred and twenty days (120) from the applicable closing date set forth within this IFIB. HQ SACT reserves the right to request an extension of validity. Bidder shall be entitled to either grant or deny this extension of validity. HQ SACT shall automatically consider a denial to extend the validity as a withdrawal of the bid.

11. Content of Proposal

A table of contents for the entire proposal
(a) The bidder's full name, address, Point of Contacts, Telephone, Fax number; Internet site;

(b) Compliance statement (See Enclosure#1);

(c) Past performance (See Enclosure#2);

(d) Provision of technical and price volumes (See Sealed Bid Price Proposal Enclosure #3), (Reference Annex A - Statement of Work, Annex B - Compliance Matrix, Annex C – Capability Matrix).

12. Proposal Submission

(a) Proposals shall be submitted electronically in a two separate PDF documents, one containing the **Technical Proposal** and one containing the **Price Proposal,** each e-mailed separately to:

- Technical proposal: techproposal@act.nato.int

- Price proposal: priceproposal@act.nato.int

E-mail subjects shall include the solicitation information along with company name (for example: IFIB-ACT-SACT-23-62_Tech_ABC Inc. / IFIB-ACT-SACT-23-62_Price_ABC Inc.). **Allow sufficient time in your submission should you encounter e-mail size challenges.**

(b) **Price proposals shall be in U.S. Dollar currency.** Contractor may request payment post award in alternate currency based on agreed conversion rate.

(c) Prices shall be on a **Firm Fixed Price Basis** and include any relevant discount schedule.

(d) No oral bids or oral modifications or telephonic bids shall be considered.

(e) It is the ultimate responsibility of a prospective bidder prior to submission that all proposal submissions are reviewed to ensure they meet the technical, contractual and administrative specifications and that offers meet the limitations and expressed conditions.

13. Late Proposals

(a) It is solely the bidder`s responsibility that every effort is made to ensure that the proposal reaches HQ SACT prior to the established closing date and time. Only if it can be unequivocally demonstrated that the late arrival of the bid package was the result of NATO staff negligence (mishandling) shall the bid be considered.

(b) **A delay in an e-mail exchange due to server or size restrictions does not constitute a delay by NATO.**

14. Bid Withdrawal

A bidder may withdraw their bid up to the date and time specified for bid closing. Such a withdrawal must be completed in writing or facsimile, with attention to the HQ SACT Contracting Officer.

15. Bid Evaluation

(a) The evaluation of bids and determination as to the responsiveness and technical adequacy or technical compliance, of the products or services requested, shall be the responsibility of HQ SACT. Such determinations shall be consistent with the

evaluation criteria specified in the IFIB. HQ SACT is not responsible for any content that is not clearly identified in any proposal package.

(b) Due to the highly technical nature of this requirement, HQ SACT reserves the right conduct pre-award discussions with proposed key personnel to accurately assess identified technical competencies. Discussions will be limited to scope of this IFIB and the evaluation criteria identified in Annex A.

(c) Proposals shall be evaluated and awarded based on the proposal(s) that represents the best overall value to NATO. The following factors are considerations:

- Successful administrative submission of bid packages and requested documents;

- Compliance with mandatory criteria identified on Annex A (Compliant / Non-Compliant);

- Technical factors / pricing factors rated the following: Technical / Price = 70/30;

- Acceptance of HQ SACT General Terms and Conditions.

16. Proposal Clarifications

During the entire evaluation process HQ SACT reserves the right to discuss any bid with the order to clarify what is offered and interpretation of language within the bid, to resolve in potential areas of concern.

17. Award

HQ SACT intends to award a firm fixed price contract to the Offeror whose proposal represent the Best Value offer to NATO. Partial awards are not authorized. In regard to its past performance, contractors must provide authorization to contact references. HQ SACT reserves the right to negotiate minor deviations to the listed General Terms and Conditions to this IFIB.

18. Communications

All communication related to this IFIB, between a prospective bidder and HQ SACT shall only be through the nominated HQ SACT Contracting Officer. Designated contracting staff shall assist the HQ SACT Contracting Officer in the administrative process. There shall be no contact with other HQ SACT personnel in regards to this IFIB. Such adherence shall ensure Fair and Open Competition with equal consideration and competitive footing leverage to all interested parties.

19. Points of Contact:

Magdalena Ornat, ACT Contracting Officer ,
757-747-3150, magdalena.ornat@act.nato.int

Catherine Giglio, ACT Contracting Officer,
757-747-3856, Catherine.giglio@act.nato.int

Tonya Bonilla, ACT Contracting Officer,
757-747-3575, tonya.bonilla@act.nato.int

Enclosure 1

COMPLIANCE STATEMENT TO SEALED BID IFIB-ACT-SACT-23-62

It is hereby stated that our company has read and understands all documentation issued as part of IFIB-ACT-SACT-23-62. Our company proposal submitted in response to the referenced solicitation is fully compliant with the provisions of IFIB-ACT-SACT-23-62 and the intended contract with the following exception(s); such exemptions are considered non substantial to the HQ SACT solicitation provisions issued.

Clause   Description of Minor Deviation.

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                                          (If applicable, add another page)

Company:_____   Signature: _____

Name & Title:_____   Date: _____

Company Bid Reference: _____

Bidder's proposal must be based on full compliance with the terms, conditions and requirements of the IFIB and all future clarifications and/or amendments. The bidder may offer variations in specific implementation and operational details provided that the functional and performance requirements are fully satisfied. In case of conflict between the compliance statement and the detailed evidence or explanation furnished, the detailed evidence/comments shall take precedence/priority for the actual determination of compliance. Minor or non-substantial deviations may be accepted. Substantial changes shall be considered non- responsive.

Enclosure 2

PAST PERFORMANCE INFORMATION FORM

(a)   Contracting Entity:

(b)   Contract No:

(c)   Type of Contract (Firm Fixed Price, IDIQ, Requirements):

(d)   Title of Contract:

(e)   Description of Work Performance and Relevance to Current Acquisition (Type of facility, capacity, estimated patronage, summary of staff used):

(f)   Contract Dollar Amount:

(g)   Period of Performance:

(h)   Name, Address, Fax and Telephone No. of Reference:

(i)   Indicate Whether Reference Acted as Prime or Sub-contractor:

(j)   Comments regarding compliance with contract terms and conditions:

(k)   Complete Contact Information for client:

(l)   Permission to contact client for reference: Yes/No

(m)   Name/Signature of Authorized Company Official

This Enclosure is designed to assist the respective company provide HQ SACT with all necessary documents/information required. For clarification, please refer to Bidding instructions in part 1 of subject solicitation.

Enclosure 3

SEALED BID PRICE PROPOSAL

SUBJECT: IFIB-ACT-SACT-23-62
The categories below are "representative" of skills required to provide deliverables at each level and proposed rates will be used to support the Basis of estimate.

Proposed rates must be fully "loaded" [G&A, O/H etc.]; however they must not include per diem (meals & lodging) and travel. Travel (and related expenses) will not be covered under this contract, but handled separately in accordance with the ACT Financial Manual.

Please find on behalf of **Insert: Company Name** to provide HQ SACT with services (collectively referred as "ITEMS"), subject to the provisions, terms and conditions stated in IFIB ACT-SACT-23-62 and the "**Insert : Company Name** Technical proposal", submitted in accordance with solicitation provisions.

Deliverable Pricing Chart

Deliverables (Refer to Annex A for further scope of each deliverable)	
Work Package WP (1) Deliverables: • Simulation Environment Requirements Specification	$
Work Package WP (2) Deliverables: • Simulation Capabilities • Scenario Modules • Scenario Development Expertise	$
Work Package WP (3) Deliverables: • Testing and Evaluation	$
Work Package WP (4) Deliverables: • Simulation inputs to Wargame Agenda • Simulation inputs to Player Materials • Execution Support	$

• Simulation Outputs in Support of Adjudication	
Work Package WP (5) Deliverables: • Data Stores, Analysis Applications, Analytical Products • Simulation inputs to Reports and Briefing Materials	
Work Package WP (6) Deliverables: • [See deliverables for Activities 4.2, 5.1]	
Work Package WP (7) Deliverables: • Invites and Read-aheads • Meeting Minutes • Purpose and Objectives Statement • Analytical Plan • Wargame Structure • Wargame Support Plan • Conceptual Scenario • Planning and Collaboration Applications	
Work Package WP (8) Deliverables: • Simulation Environment Requirements Specification • Data collection and analysis plan (DCAP) • Simulation inputs to Adjudication Plan • Simulation inputs to Facilitation Plan	
Work Package WP (9) Deliverables: • Simulation data exchange model (SDEM) • Architecture Specifications • Interface Design Descriptions	
Work Package WP (10) Deliverables: • Simulation Capabilities • Enabling Tools for Execution	
Work Package WP (11) Deliverables: • Scenario Modules • Scenario Development Applications • Scenario Development Training	

Work Package WP (12) Deliverables: • Plan of Action and Milestones • Software Management Application • Software Implementation, Database Implementation, Test Reports • Software Interfaces and Middleware • Simulation Environment	
Work Package WP (13) Deliverables: • Virtualized Simulation Environment • Force Structure Datasets • Testing and Evaluation • Execution Training	
Work Package WP (14) Deliverables: • Simulation inputs to Wargame Agenda • Player Materials • Execution Support • Simulation Outputs in Support of Adjudication • Multi-sided Common Operational Picture	
Work Package WP (15) Deliverables: • Data stores, Analysis Applications, Analytical Products • Simulation inputs to Reports and Briefing Materials • Surveys, Data Collection Forms	
Work Package WP (16) Deliverables: • Same deliverables as Activities 14.2, 14.4, 15.1	
Work Package WP (17) Deliverables: • Technical Support • Simulation Support • Managerial Support • Periodic Reports	

Please verify and acknowledge propriety of above, by duly completing signatures below.

Authorizing Company Official:
Printed Name: _____
Position: _____
Title: _____

Authorizing Company (Signature): _____,
Date: _____

Company name Witness Official:
Printed Name: _____
Position: _____
Title: _____

Witness Signature: _____
Date: _____

Annex A

Headquarters Supreme Allied Commander Transformation

STATEMENT OF WORK

FOR

NEXGEN M&S WARGAME PROOF OF CONCEPT SUPPORT

1.   **Introduction**

Allied Command Transformation, NATO's Warfare Development Command, leads and drives the continuous military adaptation and transformation of the Alliance to shape and contest the environment and to keep the edge over adversaries and competitors, now and in the future.

The main objectives of ACT are: providing appropriate support to NATO missions and operations; leading NATO military transformation; and improving relationships, interaction and practical cooperation with partners, nations and international organisations. ACT therefore leads Alliance Warfare Development through undertaking concept development, capability development, training and lessons learned initiatives and provides unfettered military advice to policy development within NATO. Deputy Chief of Staff Joint Force Development (DCOS JFD) is an essential directorate dealing with the warfare development agenda.

2.   **Background**

In July 2021, the Military Committee (MC) tasked the Strategic Commands (SC), with ACT in the lead, to present plans to develop the NATO Next Generation Modelling and Simulation (NexGen M&S) Capability Program.

NATO recognized the value of M&S informed analytical studies in the Bi-SC work strands and subsequent tasking of the Broader Russian Missile Challenge (BRMC) program of work. The lack of an appropriate in-house simulation capability, resulted in simulation work being outsourced to a Nation. In these cases, a complete set of simulation output is also not available. NATO acknowledged the critical nature of the results and that access to a comparable capability was essential to provide more effective, efficient operational and strategic studies. An improved M&S capability would also provide cross-functional, cross-domain benefits in supporting M&S potential areas of application

2.1 Vision

Next Generation Modelling and Simulation (NexGen M&S) addresses current shortcomings in modelling and simulation across the NATO enterprise. In certain application areas, current M&S capabilities have a singular purpose, are time consuming to configure for each use, and are limited in their ability to represent complex operational environments.

NexGen M&S envisions a data centric, web based, single digital environment that supports collaborative exercise planning and execution. The environment's modular, open systems design allows for rapid response to new requirements, model updates, and improved interoperability, in addition to correlation and alignment between planning data, and the executing simulation(s). The next generation tools need to support geographically separated commands/Nations and the complexity of NATO operations that are focused on the strategic and operational levels of war and other NATO missions.

NexGen M&S envisions an data-centric architecture that considers data as a core asset of the enterprise. Data will be seen as its own tier, independent, common across a broad range of applications, and loosely-coupled from any single application. NexGen M&S will strive for common and agreed-upon datasets to support several application areas (e.g. exercises, analytical studies, and wargaming). NexGen places a strong emphasis on accessing, exchanging, processing, and managing data.

NexGen M&S envisions web-enabled, on-demand access to tools and services for distributed users across several application areas to collaboratively plan and execute simulation. NexGen M&S envisions a Modular Open Systems Approach (MOSA), consisting of loosely-coupled and composable modules provided separately by a marketplace of independent vendors, and implemented according to widely accepted standards.

NexGen M&S envision a single digital environment, consisting of a collection of integrated and user-friendly tools and applications presented to users as a single pane of glass, and supported by workflows to assists users with discovering, configuring, and executing simulation.

2.2 Programme Status

The common funded capability delivery governance model aims to speed the delivery of capabilities required by NATO commanders and the NATO Enterprise. It consists of six life cycle stages, four NATO Governance level decision points, or Gates, and two optional decision Gates. The NexGen M&S programme recently completed stage 2 (Requirements Development) of the common funded capability delivery governance model

During stage 2, a CRB is developed to identify the specific Capability Requirements (CRs), to identify potential courses of action (COAs) and to examine and confirm the COAs that are best suited to deliver the Capability within scope, cost and schedule. Potential COAs identified may be a combination of materiel and non-materiel solutions from multiple Nations, Industry and/or Academic sources. The CRB is intended to determine their viability to address the approved ORs, including

consideration of the possibility of "Adopt"-ing (an existing solution already in-service by Nations, Industry and Academia), "Buy"-ing (acquiring a solution from industry), or "Create"-ing (developing a solution bespoke to NATO). In the second quarter of 2022, HQ SACT issued an RFI to determine relevant materiel and non-materiel solutions that may exist or could be created within Nations, Industry or Academia (as part of the consideration of "Adopt, "Buy or Create").

Following the approval of the CRB, stage 3a (Capability Programme Planning) creates a comprehensive programme design, decomposed into outlined projects, addressing all DOTMLPFI aspects of the required capability change. The output of this work is a CPP which includes detailed scope, risks, through-life costs, and an analysis of alternatives to determine the acquisition strategy / strategies. During this stage, based on the chosen CoA from stage 2, a second RFI is issued for the purposes of identifying alternatives. Alternatives consist of detailed DOTMLPFI, architectural descriptions, and solution elements that support chosen COA, which may consists of combination of Adopt/Buy/Create options.

2.3 Proof of Concept

During stage 3a, the NexGen M&S programme will conduct a proof of concept involving solution(s) from Nations, Industry, or Academia to demonstrate the art of the possible, evaluate NexGen M&S concepts, and inform NexGen M&S procurement.

The proof of concept aims to achieve the following objectives:

- Apply modelling and simulation in support of a wargame

- Address a limited set of wargaming or analytical study capability requirements that support wargame teams and analysts

- Demonstrate a cross-sectional slice of features across a limited set of NexGen's capability requirements (see Annex B)

- Provide solutions and simulation support to integrate with wargame processes to plan, conduct, and analyse the results of a dedicated wargame event

- Apply NexGen solutions (e.g. simulations, collaborative planning tools, enabling tools/utilities) to facilitate the simulation-related activities of a wargame process

- Include new features and functionality not previously used for wargames or analytical studies

- Use a relevant operational scenario that involves multiple domains and levels of war and requires force-on-force adjudication

- Demonstrate a reusable and enduring simulation environment, composed of data, systems, and hardware profiles that can be archived, reused and extended by simulation users from other application areas

- Evaluate the degree to which solutions satisfy NexGen M&S Capability Requirements, Desired Effects and Expected Benefits

3. Type of Contract and Period of Performance

Type of Contract: Deliverable-type Contract
Period of Performance:
- Phase 1: Initial Concept (Part 1) - September 2023 - December 2023

- Phase 1: Initial Concept (Part 2) - January 2024 – March 2024

- Phase 2: Improved Concept - March 2024 - December 2024

4. Tasking, Deliverables and Schedule

The proof of concept will include two (2) phases. Phase 1 will deliver a simulation environment and simulation support to a Future Operating Environment wargame. A scenario for this event has been provided with this IFIB. Phase 2 will deliver a simulation environment and simulation support to a more complex military-oriented multi-domain operations wargame.

PHASE 1: INITIAL CONCEPT (SUPPORT TO FOE)

Working Package 1 (WP 1). Develop Simulation Requirements
Activity 1.1. Develop Simulation Requirements
- Collaborate with existing wargame personnel involved in the FOE wargame planning   - Participate in ongoing wargame planning schedules   - Recommend innovative ways to apply simulation to exploit automation and improve the effectiveness of wargames without negatively impacting playability   - Determine and document simulation environment requirements and suitable M&S methods, considering the audience, scenario, facilitation plan, level of abstraction, and development timeline.   - Select suitable simulation capabilities and supportive tools   - Inform the wargame team of the capabilities and limitations of simulations, and their ability to represent the scenario and simulate potential player actions. It is desired for the simulation to simulate as many player actions as possible.   - Inform the wargame team of the possibilities and limitations of the simulation's ability to represent the scenario and simulate potential player actions. It is desired for the simulation to simulate the majority of player actions. Determine

the level of modifications to candidate simulations and tools that are necessary .
• Document all requirements for the simulation environment
Deliverables
• **Simulation Environment Requirements Specification**: Record requirements using a Simulation Requirements Specification document detailing all software requirement relevant to simulation support including but not limited to software, execution management, hardware and networking, security, data, analysis and visualization, data exchange
Working Package 2 (WP 2). Provide Simulation Capabilities
Activity 2.1. Provide Simulations Capabilities
• Provide simulation capability to satisfy the simulation requirements
Deliverables
• **Simulation Capabilities**
Activity 2.2. Develop Scenario Modules
• Develop and provide data needed to populate simulations and represent the simulation requirements • Provide M&S expertise to develop scenario modules and execution information. Identify and implement any required vignettes, narrative drivers or pre-scripted events to facilitate the scenario
Deliverables
• **Scenario Modules:** Produce scenario modules and datasets similar to those described in NATO Bi-Strategic Collective Training and Exercise Directive 075-003, that are necessary to initialize the simulation and represent the desired scenario guided by the simulation requirements. Datasets can include but are not limited to force structure and personnel, weapons, equipment, terrain, geographical data, map data, civilian and infrastructure data, or non-state actor information. • **Scenario Development Expertise:** M&S expertise to develop scenario modules and execution information
Working Package 3 (WP 3). Wargame / Simulation Environment Rehearsal
Activity 3.1. Wargame / Simulation Environment Rehearsal
• Provide simulation support to wargame rehearsal activities • Develop checklists to ensure proper execution
Deliverables
• **Testing and Evaluation:** Demonstrate a working simulation environment and deliver test reports proving proper execution and fulfilment of simulation requirements
Working Package 4 (WP 4). Wargame / Simulation Environment Execution
Activity 4.1. Pre-Wargame Preparation
• Provide simulation inputs to the wargame agenda • Provide simulation inputs to any player materials

Deliverables
• **Simulation inputs to Wargame Agenda**: Information that describes the potential role of simulation to the following: Turns and game play, sessions designed to inform all players on certain key aspects of the game, challenge outcomes, questions, out-briefs, wargame controllers and support personnel meetings • **Simulation input to Player Materials**: Information that describes the following: Materials that provide common, understanding of the starting conditions for the wargame, background material so that all players start with a common reference point, any materials that support injects, posters and signage, read ahead materials, maps or other graphic aids, materials for distribution during the wargame
Activity 4.2. Execution
• Provide simulation support and simulation control during the execution phase of the wargame. The manner in which simulation is executed and the timeliness of delivering quantitative data will depend on the style of the analytical wargame and degree of human participation • Depending on the facilitation plan, collect, translate, and sequence player turns and actions into simulation orders or provide an interface for wargamers to conduct these activities themselves. Archive player turns and actions to support post-game simulation and analysis
Deliverables
• **Execution Support:** Provide technical expertise to operate the simulation capability and its enabling tools
Activity 4.3. Adjudication
• Calculate, collect, present visualizations and results to support adjudication methods chosen during wargame design • Provide simulations and systems capable of supporting the chosen adjudication method • Provide simulations capability of adjudicating outcomes from the chosen scenario and player actions • Provide visual or data-driven methods for presenting and interrogating simulation results • Provide simulations capable of scenario replay from specified times within the time constraints of the wargame agenda and facilitation plan
Deliverables
• **Simulation Outputs in Support of Adjudication:** Provide suitable evidence to support adjudication in the form of data, side perspectives, modelling confidence, history and precedence, visual analysis graphics, or scenario playbacks with visual renderings at the desired level of resolution
Working Package 5 (WP 5). Assessment
Activity 5.1. Data Analysis
• Provide capabilities to collect, process, and visualize simulation outputs

• Provide capabilities to store and access simulation data in open and non-proprietary formats. Enable the ability for analysts to query data using their own tools • Provide expertise in pre-processing data (e.g. merging, transforming, reconstructing, etc.) in preparation for analysis. Review data for completeness and possible errors • Provide capability to analyse and visualize simulation results
Deliverables
• **Data stores, Analysis Applications, Analytical Products**: Provide data stores to persist simulation output data for analysis. Provide analysis applications and runtimes to extract, transform, and curate data. Provide analysis applications to render data into information in the form of tables, graphics, or reports as required by the Analytical Plan
Activity 5.2. Sponsor Meetings and Findings
• Participate in hot-washes, after action reviews, and meetings with sponsors to discuss findings. Provide information such as analyst notes, work products, individual participant input, surveys (if used) • Provide simulation inputs to reports and briefing materials
Deliverables
• **Simulation inputs to Reports and Briefing Materials**: Provide simulation inputs to reports, papers and/or briefing slides as required, describing information including but not limited to: Findings, wargame results, achievement of wargame objectives, lessons identified and learned throughout the wargame lifecycle, summary of work products development throughout the wargame lifecycle
Working Package 6 (WP 6). Pre / Post-Wargame Simulation
Activity 6.1. Pre / Post-Wargame Simulation
• Provide the ability for analysts to conduct pre-wargame simulation and experimentation and understand limits, constraints, and pre-determine outcomes. Provide M&S support to these activities • Provide data, capabilities, and M&S support to analysts to conduct post-wargame simulation to explore alternative decisions and outcomes
Deliverables
• **Same deliverables as Activities 4.2, 5.1**

PHASE 2: INPROVED CONCEPT (SUPPORT TO MDO)

Working Package 7 (WP 7). Wargame Planning
Activity 7.1. Specify aim, objectives, questions
• Assist with defining problem to be wargamed • Organize and facilitate scoping meetings and planning conferences. • Identify and analyse sponsor needs and wargame goals

- Determine and document wargame planning information such as the wargame topic, geostrategic situation, wargame objectives, research questions that need answered

Deliverables

- **Meeting invites and Read-Aheads:** Invites to physical of virtual collaboration space. Agenda and/or read-aheads sent one week prior to the meeting
- **Meeting Minutes:** Document listing attendees and a reasonable degree of discussion content
- **Purpose and Objectives Statement:** Document that describes, at a minimum: Clear description of the issue to be addressed by the wargame, short statement summarizing the purpose of the wargame and why the wargame is being conducted, series of objective statements that support the purpose, series of research or study questions intended to identify facts or information needed to accomplish objectives

Activity 7.2. Design Wargame

- Develop Analytical Plan. Determine what information will be collected. Determine how information is collected before, during, or after the wargame, and how it will be analysed. Describe the interaction between players and player actions needed to gather information.
- Design Wargame Structure. Determine how to structure the wargame to support the analytical plan, objectives, and research questions

Deliverables

- **Analytical Plan:** Simulation inputs to planning document that describes: Outputs. data collection and examination, desired effects and exercise activities, actions to generate effects or data, sources of information players need to make decisions, SMEs to examine data, examination (adjudication) process
- **Wargame Structure**: Simulation inputs to document that describes: The number, purpose, and composition of control and player cells, method of adjudication, turn and time details, level of scenario development, injects required

Activity 7.3. Develop Support Plan

- Plans the support necessary to ensure the wargame is properly executed. Consider administration, facilities, information technology, and equipment support

Deliverables

- **Wargame Support Plan**: Document that contains a checklist including but not limited to the following: Schedule the facilities, development of support material, procuring equipment and supplies, managing the participants, coordinating security requirements, coordinate information technology support, planning wargame rehearsal, setting up the wargame, post wargame actions

Activity 7.4. Develop Conceptual Scenario
• Participate in developing the immersive environment where all game play takes place
Deliverables
• **Conceptual Scenario:** Document that describes: Generic description of the geographic and strategic situation designed to provide all the conditions required to support the wargame, types and numbers of major entities that must be represented within the environment, required fidelity, level of focus, degree of opponent representation, desired level of abstraction vs realism, key events, and environmental conditions that must be represented in the scenario
Activity 7.5. Provide Planning Capabilities
• Provide planning tools that can enable distributed and collaborative planning activities
Deliverables
• **Planning and Collaboration Applications:** Provide communication and collaboration web applications that enable users to effectively support the sharing of information and knowledge between users across geographic locations. Applications should facilitate an efficient and effective environment for coordination and cooperation between those users in achieving some determined and meaningful outcome to shared activities. Planning tools should be capable of facilitating wargame design and development workflows.

Working Package 8 (WP 8). Wargame / Simulation Environment Design

Activity 8.1. Develop Simulation Requirements
- Recommend innovative ways to apply simulation to exploit automation and improve the effectiveness of wargames without negatively impacting playability   - Determine and document simulation environment requirements and suitable M&S methods, considering the audience, scenario, facilitation plan, level of abstraction, and development timeline.   - Select suitable simulation capabilities and supportive tools   - Inform the wargame team of the capabilities and limitations of simulations and their ability to represent the scenario and simulate potential player actions. It is desired for the simulation to simulate as many player actions as possible.   - Inform the wargame team of the possibilities and limitations of the simulation's ability to represent the scenario and simulate potential player actions. It is desired for the simulation to simulate the majority of player actions. Determine the level of modifications to candidate simulations and tools that are necessary .   - Document all requirements for the simulation environment   - Analyse cost, schedule, and technical impacts, communicate to the wargame team, and reach agreement.
Deliverables
• **Simulation Environment Requirements Specification**: Record requirements using a Simulation Requirements Specification document detailing all software

requirement relevant to simulation support including but not limited to software, execution management, hardware and networking, security, data, analysis and visualization, data exchange
Activity 8.2. Develop Data Collection Requirements
• Determine analysis and data collection requirements. Provide inputs to a Data Collection and Analysis Plan (DCAP).
Deliverables
• **Data collection and analysis plan (DCAP):** Document describing: Type of data collected, source, media, collection mechanism, instrumentation, survey, observation, storage, raw data processing technique, analysis techniques, traceability to elements of the Analytical Plan
Activity 8.3. Inputs to Wargame Plans
• Design M&S to support wargame desired adjudication plans. Contribute to the development of adjudication plans   • Design M&S to support wargame desired facilitation plans. Contribute to the development of facilitation plans
Deliverables
• **Simulation inputs to Adjudication Plan**: Document that describes the potential role of simulation to the following: Evaluation of player actions and decisions, determine outcomes of player decisions, providing results of player actions, adjudication type (e.g. free, semi-rigid, rigid), player stimulation, injections, and intervention, information flow   • **Simulation inputs to Facilitation Plan:** Document that describes the potential role of simulation to the following: Ground rules for player interaction and discussion, player stimulation, injections, and intervention, information flow
Working Package 9 (WP 9). Document Simulation Environment Architecture
Activity 9.1. Simulation Environment Architecture
• Propose and document an M&S architecture. Determine the simulation environment architecture to support the wargame event.   • Develop architecture that realizes the M&S Enabling and M&S Service categories (Architecture Building Blocks) described by the Modelling and Simulation as a Service (MSaaS) Technical Reference Architecture and the sub-set of capability requirements described in Annex C - Capability Requirements   • Identify and document the simulation environment design that best addresses stated requirements. Develop system and operational architecture of the simulation environment including but not limited to simulation applications, services, databases, bridging technologies, infrastructure, APIs, and standards.   • If required, develop simulation data exchange models and implement interfaces to enable interoperability with between required systems   • Research and apply relevant and provided NATO modelling and simulation STANAGs and STANRECs or architecture   • Develop plans to utilize NATO-provided facilities and infrastructure to host required IT equipment, systems, and data repositories

- Develop architecture documentation
- Model interfaces between systems
- Communicate architecture to affected parties

Deliverables

- **(If required) Simulation data exchange model (SDEM):** A specification defining the information exchanged at runtime to achieve a given set of simulation objectives. This includes class relationships, data structures, parameters, and other relevant information.
- **Architecture Specifications**: Architecture specification describing: Viewpoints that capture the information required by DoDAF Systems, Services, Data and Information, and Standards viewpoints of the latest DoDAF specification, graphical representations describing the layout and topology of systems, services, and infrastructure, identification of systems, system interfaces, and their interconnections, description of resource flows exchanged between systems, data models, schemas, and information exchange descriptions, listing of standards that apply to solution elements. Other architecture frameworks or modelling languages such as UML, or NAF v4 are also sufficient. Architecture artefacts could be modelled using modelling applications and exported to office products, using office products directly, or other readable formats.
- **Interface Design Descriptions:** Document APIs between systems and describe the format, protocol, and format of data exchanges using appropriate UML, DoDAF models, or a custom Interface Design Description format.

Working Package 10 (WP 10). Provide Simulation Capabilities

Activity 10.1. Provide Simulations Capabilities

- Provide simulation capability(ies) to represent the domains and behaviours of the scenario at the appropriate levels of resolution, required geospatial data, and friendly and opposing forces
- Provide simulations and enabling tools capable of supporting the chosen wargame agenda, turn cycles, and campaign timeline

Deliverables

- **Simulation Capabilities**
- **Execution Management Tools**

Working Package 11 (WP 11). Develop Simulation Data

Activity 11.1. Develop Scenario Modules

- Develop and provide data needed to populate simulations and represent the operational environment, entities and behaviours of the scenario.
- Provide capabilities that enable the collaborative development of simulation scenario modules. User applications and tools that deployable or remotely accessible from any connected computer are desired.
- Determine the degree to which members of the wargame team can develop and edit scenario modules.
- Provide capabilities that enables members of the wargame team to conduct scenario development tasks without significant supervision. It is desired to use

applications are tools that are available within business or operational time constraints and over the web

- Train wargame team members on suitable scenario development tasks.
- Provide M&S expertise to develop scenario modules and execution information. Identify and implement any required vignettes, narrative drivers or pre-scripted events to facilitate the scenario

Deliverables

- **Scenario Modules:** Produce scenario modules and datasets similar to those described in NATO Bi-Strategic Collective Training and Exercise Directive 075-003, that are necessary to initialize the simulation and represent the desired scenario guided by the simulation requirements. Datasets can include but are not limited to force structure and personnel, weapons, equipment, terrain, geographical data, map data, civilian and infrastructure data, or non-state actor information. Describe the format and structure of datasets using schemas.
- **Scenario Development Applications:** Provide web applications that distributed users to view and edit simulation parameters and scenario modules (e.g. force laydowns, events, incidents, and injects)
- **Scenario Development Training**: Provide 1-2 days training sessions on suitable scenario development tasks for designated users
- Scenario Development Expertise

Working Package 12 (WP 12). Software Implementation

Activity 12.1. Management of Software Development

- Develop plans for development and execution, testing, integration, validation. Develop plans for configuration management of software and data.
- Employ collaboration and management tools to facilitate planning, scenario development, and technical and managerial reviews

Deliverables

- **Plan of Action and Milestones:** Develop a Plan of Action and Milestones document that identifies tasks needing to be accomplished and details resources required to accomplish the elements of the plan, any milestones in meeting the tasks and scheduled completion dates for the milestones, as defined by NIST
- **Software Management Application:** Employ work management solutions that enable collaboration, tracking, and awareness of software development for customers throughout software development

Activity 12.2. Software Development

- Implement necessary internal modifications to simulation applications or databases, based on M&S requirements, to represent the objects and behaviours described in the scenario
- Implement data exchange requirements and integrate simulation environment systems. Develop required interfaces needed to communicate between systems. Develop data exchanges between systems and describe them with schemas

• Deliver a simulation environment that fulfils the architecture and M&S requirements

Deliverables
• **Software Implementation, Database Implementation, Test Reports:** Deliver software units and databases. Demonstrate working prototypes given the objectives of the development period. Execute levelled tests according to internal test plans and generate test reports detailing results. • **Software Interfaces and Middleware**: Deliver software interfaces and procure any required runtime infrastructure or middleware (if required) • **Simulation Environment:** Deliver solutions and implementations to realize the M&S requirements for the wargame and relevant elements of the M&S Enabling and M&S Service categories (Architecture Building Blocks) described by the Modelling and Simulation as a Service (MSaaS) Technical Reference Architecture and the sub-set of capability requirements described in Annex C - Capability Requirements

Working Package 13 (WP 13). Wargame / Simulation Environment Rehearsal
Activity 13.1. Wargame / Simulation Environment Rehearsal
• Provide support to wargame rehearsal activities • Collaborate with facility and infrastructure providers to install and deploy systems and simulations. Perform required system administration functions. Confirm that systems adhere to security plans. Document the architecture of the final deployment environment. Support the wargame team by collaborating with facility providers and scheduling plenary rooms, breakout rooms, etc. • Provide a simulation environment that is deployable agnostic of the host environment • Deliver datasets that represent simulation output in open database or file formats. Collaborate with HQ SACT to arrange the delivery of datasets used to develop the scenario, such as source datasets and modified datasets for force structure, terrain, parametric data, etc. If certain final datasets were formatted in standardized terrain or ORBAT (e.g. MSDL) formats, collaborate with HQ SACT to arrange the delivery of the datasets • Develop checklists for testing applications, integration, interoperability, data, etc. to ensure proper execution, and document execution information • Identify to what degree members of the wargame team and audience will interact with the simulation or enabling tools during execution. Allow non-M&S experts to successfully interact with the simulation and enabling tools throughout execution when desired • If desired, train operators, facilitators, analysts, and/or players to operate the simulation or enabling tools given their expected usage • Deliver any modifications to descriptions of the deployment architecture, including physical resource, virtual resources, and network configurations)
Deliverables
• **Virtualized Simulation Environment:** Deliver the simulation environment in the form of virtualized resources to enable deployment into a cloud

environment, and any blueprints and scripts for deploying, configuring, and networking virtual resources

- **Force Structure Datasets**: Deliver datasets files or virtualized storage resources, as well as schemas representing force structure data used to initialize simulation
- **Testing and Evaluation:** Demonstrate a working simulation environment and deliver test reports proving integration and acceptance
- **Execution Training:** Provide 1-2 days training sessions on suitable simulation execution tasks for designated users

Working Package 14 (WP 14). Wargame / Simulation Environment Execution

Activity 14.1. Pre-Wargame Preparation

- Provide simulation inputs to the wargame agenda
- Provide simulation inputs to any player materials

Deliverables

- **Simulation inputs to Wargame Agenda**: Document that describes the potential role of simulation to the following: Turns and game play, sessions designed to inform all players on certain key aspects of the game, challenge outcomes, questions, out-briefs, wargame controllers and support personnel meetings
- **Player Materials**: Document that describes the following: Material that provide common, understanding of the starting conditions for the wargame, background material so that all players start with a common reference point, any materials that support injects, posters and signage, read ahead materials, maps or other graphic aids, materials for distribution during the wargame

Activity 14.2. Execution

- Provide simulation support and simulation control during the execution phase of the wargame. The manner in which simulation is executed and the timeliness of delivering quantitative data will depend on the style of the analytical wargame and degree of human participation
- Depending on the facilitation plan, collect, translate, and sequence player turns and actions into simulation orders or provide an interface for wargamers to conduct these activities themselves. Archive player turns and actions to support post-game simulation and analysis
- Collect, translate, and sequence player turns and actions into simulation orders. Archive player turns and actions to support post-game simulation and analysis
- Provide simulations capable of flexibility and changes to the scenario without significant time and resources expenditures
- Provide simulations capable of updating the game space based on actions or outcomes that may not be simulated (e.g. magic moves, effects). Provide simulations capable of supporting the chosen wargame agenda, turn cycles, and campaign timeline.
- Implement modifications to the scenario to introduce new information into game play. Execute pre-scripted events, injections and information flows as required

- Provide collaboration capabilities to allow control staff to receive and process requests from players and the audience
- Document detected problems during execution

Deliverables

- **Execution Support:** Provide technical expertise to operate the simulation capability and its enabling tools

Activity 14.3. Adjudication

- Calculate, collect, present visualizations and results to support adjudication methods chosen during wargame design.
- Provide simulations and systems capable of supporting the chosen adjudication method
- Execute Analytical Plan
- Provide simulations capability of adjudicating outcomes from the chosen scenario and player actions
- Provide visual or data-driven methods for presenting and interrogating simulation results
- Provide simulations capable of scenario replay from specified times within the time constraints of the wargame agenda and facilitation plan

Deliverables

- **Simulation Outputs in Support of Adjudication:** Provide suitable evidence to support adjudication in the form of data, side perspectives, modelling confidence, history and precedence, visual analysis graphics, or scenario playbacks with visual renderings at the desired level of resolution

Activity 14.4. Situational Awareness / COP / Monitoring

- Calculate, collect, present visualizations and results to support Present the game space and provide situational awareness for players throughout the wargame
- Provide tactical level visualization of the executing scenario
- Provide capabilities that enable distributed gameplay and communication among players
- Provide multiple viewpoints for distributed players to explore the game space and strategize
- If desired, allow playerd to interact with the game space, gather information, and explore potential actions as a decision-aid
- Present updated elements of the game space (geo layers, targets, ORBAT layouts, etc.) to players to serve as the game board.
- Provide both ground truth and perceived truth viewpoints for sides
- Provide collaboration capabilities to allow control staff to receive and process requests from players and the audience.

Deliverables

- **Multi-sided Common Operational Picture:** Provide a multi-sided Common Operational Picture, viewable by distrusted users, with functionality that allows users to provide inputs is desired.

Working Package 15 (WP 15). Assessment
Activity 15.1. Data Analysis
- Execute Analytical Plan   - Provide capabilities to collect, process, and visualize simulation outputs   - Provide capabilities to store and access simulation data in open and non-proprietary formats. Enable the ability for analysts to query data using their own tools   - Provide expertise in pre-processing data (e.g. merging, transforming, reconstructing, etc.) in preparation for analysis. Review data for completeness and possible errors   - Provide capability to analyse and visualize simulation results
Deliverables
Data stores, Analysis Applications, Analytical Products: Provide data stores to persist simulation output data for analysis. Provide analysis applications and runtimes to extract, transform, and curate data. Provide analysis applications to render data into information in the form of tables, graphics, or reports as required by the Analytical Plan
Activity 15.2. Sponsor Meetings and Findings
- Participate in hot-washes, after action reviews, and meetings with sponsors to discuss findings. Provide information such as analyst notes, work products, individual participant input, surveys (if used)   - Provide simulation inputs to reports and briefing materials
Deliverables
Simulation inputs to Reports and Briefing Materials: Provide simulation inputs to reports, papers and/or briefing slides as required, describing information including but not limited to: Findings, wargame results, achievement of wargame objectives, lessons identified and learned throughout the wargame lifecycle, summary of work products development throughout the wargame lifecycle
Activity 15.3. NexGen M&S Evaluation
Design data collection forms and surveys, collect data, facilitate surveys regarding the degree to which capabilities satisfy NexGen M&S desired effects and expected benefits. The measures, required data, data sources, and expected media (surveys, data collection forms) will be provided later. It is expected that data will be collected during the development, execution, and assessment phases.
Deliverables
Surveys, Data Collection Forms: Design, administer, and collect surveys (hardcopy or online) from wargame participants capturing the following information: Degree to which NexGen capability requirements were satisfied (based on capability acceptance criteria provided by the NexGen M&S programme), degree to which Expected Benefits were realized
Working Package 16 (WP 16). Pre / Post-Wargame Simulation
Activity 16.1. Pre / Post-Wargame Simulation

- Provide the ability for analysts to conduct pre-wargame simulation and experimentation and understand limits, constraints, and pre-determine outcomes. Provide M&S support to these activities
- Provide data, capabilities, and M&S support to analysts to conduct post-wargame simulation to explore alternative decisions and outcomes

Deliverables

- **Same deliverables as Activities 14.2, 14.4, 15.1**

Working Package 17 (WP 17). Technical and Managerial Support

Activity 17.1. Technical Support

- Provide and operate an agile engineering and collaboration environment. Provide an environment that follows software factory concepts and enables continuous integration and delivery based of stakeholder-defined inputs. Define and facilitate sprint cycles that implement subsets of requirements and iteratively enhance an evolving baseline until a full capability is completed. During each iteration, execute recurring cycles of requirements analysis, design modifications, the delivery of demonstrable work products, and stakeholder feedback on a monthly schedule that involves the wargame team and sponsors. Demonstrate a scalable development environment capable of accommodating and synchronizing several lines of development.
- Employ collaboration and management tools to facilitate planning, scenario development, and managerial reviews.
- Provide general technical support throughout all phases of the contact. Facilitate the general systems engineering and configuration management processes, including but limited to requirements management, system/sub-system design, implementation, integration, testing, and validation, data management, quality assurance, software transition / deployment, operations support, and configuration management

Deliverables

- **Technical Support -** Deliver initial drafts and updates to other Working Package deliverables as required on a monthly basis.

Activity 17.2. Simulation Support

- Provide simulation support and expertise throughout wargame design

Deliverables

- **Simulation Support**

Activity 17.3. Managerial Support

- Provide general managerial support throughout all phases of the contact. Manage the general systems engineering and configuration management processes, including but limited to requirements management, system/sub-system design, implementation, integration, testing, and validation, data management, quality assurance, software transition / deployment, operations support, and configuration management
- Organize and facilitate recurring technical and management meetings, milestone reviews, and planning conferences

Deliverables
• **Managerial Support**
• **Periodic Reports:** Minutes, actions, engineering plans: plans for development, testing, integration, and validation. Develop plans for configuration management of software and data.

5. Schedule of Delivery

# Working Package	Completion Date
WP 1	29 Sep 2023
WP 2	27 Oct 2023
WP 3	24 Nov 2023
WP 4	26 Jan 2024
WP 5	23 Feb 2024
WP 6	23 Feb 2024
WP 7	26 Apr 2024
WP 8	31 May 2024
WP 9	28 Jun 2024
WP 10	28 Jun 2024
WP 11	26 Jul 2024
WP 12	30 Aug 2024
WP 13	30 Aug 2024
WP 14	25 Oct 2024
WP 15	20 Dec 2024
WP 16	20 Dec 2024
WP 17	Final Friday of each month (Phase 2)

6. Acceptance Criteria

After delivery of each working package, the ACT Project Officer (PO) will get a week to confirm the acceptance of the WP deliverables.

7. Contractor Performance Requirements and Reporting

Each deliverable in the WPs must be demonstrated/reported to the PO in the time specified in the project schedule, section 5.

8. Place of Performance

Work under this contract will primarily be conducted at the contractor's premises, to include

meetings with HQ SACT, Project team, and event locations.

9. **Required Travel for Personnel Services Contracts**

Travel is not required. In the event travel is anticipated it will be authorized separately and handled as a single purchase order.

10. **Physical Security**

There is no envisioned work with sensitive information.

11. **Security Considerations for the Deliverables**

Deliverables will not contain any sensitive information.

12. **Export Control**

NATO nations have regulations and laws applying to the export of defence-related goods/services originating from domestic commercial sources to foreign entities. Usually under those laws and regulations, NATO is considered a foreign entity. The following requirements of this SOW are provided in order to allow the bidder/contractor the opportunity to assess the applicability of their pertinent national laws and regulations and take action, as required.

13. **Intellectual Property**

Aside from commercial licensed products and services, all newly developed services and products developed under this SOW will be delivered for the sole ownership of and the copyright by HQ SACT.

14. **Best Value Grading Matrix to STATEMENT OF WORK**

Contractor technical proposal will be assessed based on criteria mentioned in the table below. (HQ SACT reserves the right to conduct technical discussions with contractor). Ultimately, contractor companies shall clearly demonstrate by providing unequivocal explanation to where and how he/she meet the criteria set forth in this solicitation.   The Contractor must demonstrate their experience and expertise in the subject matter, in which will be graded in accordance with the Grading Matrix, showing the company's proposed plan and solutions, and Capability Matrix identified in section 11d of this document.

Annex B - Best Value Grading Matrix to STATEMENT OF WORK

Compliance Matrix: Bidder's Company

Bidder's Company Name _____

Bidder's Company Score _____

	Item	C/PC/NC[1]
1	Company is headquartered in one of the NATO Countries with proposed candidates that are citizens of and resident in NATO nations. (Nationality must be provided and any secondary or dual citizenships clearly specified).	
2	Have, at the time of bidding, the clearances (including Facility Security Clearance (FSC)) and infrastructure necessary to electronically receive, store, process and distribute documentation up to NATO SECRET.	
5	At least two (2) submissions of past performance experience within the last 7 years	
6	Demonstrated proficiency in English as defined in STANAG 6001 (Standardized Linguistic Profile (SLP) 3333 - Listening, Speaking, Reading and Writing) or equivalent.	

Grading Matrix

#	Item	Range	Score
1	Contractor has described previous experience executing wargaming development processes for NATO or similar customers	MAX Points: 4 0 points - No previous experience 2 points – One to– five relevant events successfully supported 4 points - > 5 relevant events successfully supported	
2	Contractor has described previous experience executing development processes in support of computer-assisted exercises for NATO or similar customers	MAX Points: 4 0 points - No previous experience 2 points - One to five relevant events successfully supported 4 points - > Five relevant events successfully	
3	Contractor proposed solutions capable of satisfying the working packages	MAX Points: 4 0 points - Proposed solutions capable of satisfying less than half of required solutions 2 points - Proposed solutions capable of satisfying the majority of required solutions 4 points - Proposed solutions capable of satisfying all required solutions	

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[1] Compliant (C), Partially Compliant (PC), Non-Compliant (NC). Any partial compliance shall be explained.

4	Contractor described an architecture capable of implementing the expected simulation environment. Proposed architecture realizes relevant portions of the MSaaS Technical Reference Architecture	MAX Points: 4 0 points - Proposed architecture capable of satisfying less than half of requirements 2 points - Proposed architecture capable of satisfying the majority of required requirements 4 points - Proposed architecture capable of satisfying all required requirements	
5	Contractor's proposed solutions have been previously used to support wargames for NATO or similar customers	MAX Points: 10 0 points - No previous experience 5 points – One to three relevant events successfully supported 10 points - > Three or more relevant events successfully supported	
6	Contractor proposed plans to successfully represent the environment, scenario, and potential player actions	MAX Points: 16 0 points - No proposed plans to represent the scenario using simulation 8 points - Some plans to represent the scenario using simulation 16 points - Explicit plans to represent the scenario using simulation	
7	Contractor's proposed solutions have been previously used to support computer-assisted exercises for NATO or similar customers	MAX Points- 6 0 points - No previous experience 3 points – One to five relevant events successfully supported 6 points - > Five or more relevant events successfully supported	
8	Contractor proposed plans to integrate new models or functionality within reasonable timeframes	MAX Points: 4 0 points - No proposed plans to integrate new models or functionality 2 points - Plans proposed to integrate new models or functionality 4 points - Plans proposed to integrate new models or functionality more quickly and efficiently than expected	

9	Contractor proposed plans to procure and process data required for the scenario	MAX Points: 6 0 points - No proposed plans to procure and process required data 3 points - Some plans to procure and process required data 6 points - Explicit plans to procure and process required data	
10	Contractor has experience integrating solutions onto networks own by NATO or similar customers	MAX Points: 4 0 points - No previous experience integrating solutions 2 points - Occasional experience integrating solutions 4 points - Frequent experience integrating solutions	
11	Contractor provided evidence that solutions are capable of deployment onto cloud infrastructure	MAX Points: 4 0 points - Evidence not provided that solutions are capable of deployment onto cloud infrastructure 2 points - Evidence provided that solutions are occasionally deployed onto cloud infrastructure 4 points - Evidence provided that solutions are frequently deployed onto cloud infrastructure	
12	Contractor proposed plans to integrate simulation into the wargame workflow according to requirements	MAX Points: 6 0 points - No proposed ideas for how to integrate simulation into wargame 3 points - Some ideas for how to effectively integrate simulation into a wargame 6 points - Explicit ideas for how to effectively integrate simulation into a wargame	
13	Contractor proposed plans to provide required adjudication throughout the wargame	MAX Points: 6 0 points - No proposed plans for how to use simulation for wargame adjudication 3 points - Some plans for how to successfully use simulation for wargame adjudication 6 points - Explicit plans for how to successfully use simulation for wargame adjudication	

14	Contractor proposed plans for how to present required visualizations throughout the wargame	MAX Points: 4 0 points - No proposed plans for how to provide required visualizations throughout the wargame 2 points - Some plans for how to provide required visualizations throughout the wargame 4 points - Explicit plans for how to successfully provide visualization throughout the wargame	
15	Contractor proposed how data analysis will be conducted to satisfy requirements	MAX Points: 2 0 points - No proposed plans for how data analysis will be conducted 1 points - Some plans for how data analysis will be conducted 2 points - Explicit plans for how data analysis will be conducted.	
16	Contractor proposed plans for how products developed during the duration of the contract can be archived and reused for future use.	MAX Points: 2 0 points - No proposed plans for how to reuse products 2 points - Plans proposed for how to reuse products	
17	Contractor proposes an engineering process and a software development environment capable of supporting requirements	MAX Points: 4 0 points - No capable processes and environments proposed 2 points - Development environment and processes proposed 4 points - Development environment and processes proposed that follow agile and software factory concepts	
18	Contractor has previous experience managing efforts of similar size, scope, and complexity	MAX Points: 10 0 points - No previous experience 5 points - One to three valid previous examples described 10 points - > Three valid previous examples described	

Terms and Conditions
HQ SACT General Terms & Conditions dated 01/26/2022 and HQ SACT Special Terms and Conditions dated 10/08 **apply to this contract and can be reviewed at** www.act.nato.int/contracting **under *Contractor Information.***

Annex C - Capability Requirements

The table below is a sub-set of NexGen M&S capability requirements. It represents a cross-sectional slice of features to be demonstrated.

Tier 1	Tier 2		Requirements Statement
CR 3.0		**Operational Analysis and Strategic Studies**	**NexGen M&S shall provide capabilities to support operational analysis and strategic studies**
	CR 3.2	Data retention	NexGen M&S shall retain results and simulation data of interest to analysts
CR 4.0		**Computer-assisted Wargames**	**NexGen M&S shall provide capabilities to support wargame activities[1] and computer-assisted wargames** 1 - Align with wargaming process defined by Experimentation and Wargaming Branch at HQ SACT and modelled by the NexGen M&S architecture
	CR 4.1	Simulation capability for wargaming	NexGen M&S shall provide a multi-domain simulation capability (per GSR 5.0) to support computer-assisted wargames
	CR 4.2	Planning support	NexGen M&S shall provide capabilities to allow planners to routinely wargame and test concepts, plans, and courses of action
	CR 4.3	Mid-game simulation	NexGen M&S simulations shall adjust and adapt throughout the execution phase of the wargame.
	CR 4.4	Force-on-force adjudication	NexGen M&S shall provide capabilities to perform and report force-on-force calculations in support of wargame adjudication
	CR 4.5	Wargame decisions adjudication	NexGen M&S shall provide capabilities to adjudicate wargaming decisions at the operational and strategic level for analytical and training wargames
	CR 4.6	Post game simulation	NexGen M&S shall capture and provide information to enable post-wargame simulation to explore alternative decisions and outcomes
	CR 4.7	Post game analysis	NexGen M&S shall provide capabilities that enable wargamers to successfully complete post game analysis tasks
	CR 4.8	Visualization	NexGen M&S shall provide visualizations to support wargame adjudication
	CR 4.9	Effective operations (wargaming)	NexGen M&S shall enable wargamers to complete their simulation-related tasks without significant interruptions, such as supervision or workarounds, per NFR 1.0
GSR 1.0		**Integrated Planning and Execution**	**NexGen M&S shall enable integrated planning and simulation capability**
	GSR 1.1	Integrated simulation capability	NexGen M&S shall integrate the activities and functionality of simulation planning and execution phases
	GSR 1.2	Integrated operational processes	NexGen M&S shall integrate with workflows and operational processes described in GSR 2.7
	GSR 1.3	Simulation Planning	NexGen M&S shall enable distributed and collaborative simulation planning

Tier 1	Tier 2		Requirements Statement
GSR 2.0		**Simulation preparation**	**NexGen M&S shall provide capabilities for users to conduct tasks to prepare simulations**
	GSR 2.1	Efficient Order of Battle (ORBAT) development	NexGen M&S applications shall enable users to develop datasets for simulations with an expected level of resources (e.g. time, procedural steps)
	GSR 2.3	Edit parameters (Effectiveness)	NexGen M&S applications shall allow regular users[1] to conduct simulation tasks, e.g. to create, inspect, edit, duplicate simulation parameters, without significant supervision. 1 - Non-specialists. No requirement for special skillsets (e.g. database engineers, geo)
	GSR 2.7	Workflow	NexGen M&S should guide users using workflows aligned with stakeholder's recurring operational processes[456] 3- Non-specialists. No requirement for special skillsets (e.g. database engineers, geo) 4 - Recurring processes performed in JWC and JFTC and described in documentation such as the Bi-Sc CT&E Directive 075-003, JWC SOP 800 Exercise Planning 5 - Aligned with wargaming process defined by Experimentation and Wargaming Branch at HQ SACT and modelled by the NexGen M&S architecture 6 - Aligned with processes for strategic studies, operational analysis, and operational planning
GSR 3.0		**Simulation execution**	**NexGen M&S shall provide capabilities for users to control and execute simulation**
	GSR 3.1	Execute	NexGen M&S shall allow regular users[1] to control simulation execution 1 - Non-specialists. No requirement for special skillsets (e.g. database engineers, geo)
	GSR 3.3	Execution rates	NexGen M&S simulation capabilities shall execute at rates[2] faster than real time as required for the event 2 - Minimum speed of 6x; Typical speed of 100x - 200x; Desired speed at fastest possible rate for experimentation
	GSR 3.4	M&S Enabling Services	NexGen M&S should provide or enable the inclusion of M&S Enabling Services[3] as described in the MSaaS Technical Reference Architecture to assist users in executing simulation 3 - e.g. Simulation Control Services
GSR 4.0		**Process simulation outputs**	**NexGen M&S shall provide capabilities to collect, process, and visualize simulation outputs during and after execution**
	GSR 4.1	Data collection	NexGen M&S shall record simulation data of interest to enable after action review and analysis
	GSR 4.3	Standards format	NexGen M&S should store data using non-proprietary formats
	GSR 4.4	Persist	NexGen M&S shall store data as directed to appropriate external data store(s)
	GSR 4.6	Monitor simulation	NexGen M&S shall provide the ability to remotely monitor simulation execution
	GSR 4.7	Enable post analysis	NexGen M&S shall provide analysis of collected data
	GSR 4.9	Visualize analysis results	NexGen M&S shall provide visualisation capabilities

Tier 1	Tier 2		Requirements Statement
	GSR 4.11	Third-party analysis	NexGen M&S shall enable data analysis by third-party capabilities
	GSR 4.12	Reporting and presentation	NexGen M&S shall provide information to support after action reporting activities
	GSR 4.13	Replay	NexGen M&S shall support scenario replay from specified times
	GSR 4.14	Save analyses outputs	NexGen M&S shall save analyses results as directed
	GSR 4.15	Archive exercise package, lessons learned	NexGen M&S should enable analysts to compile and archive packages of relevant information regarding the planning, execution, and analyses of a simulation-supported event
GSR 5.0		**Simulation Capability**	**NexGen M&S shall provide simulation capability(ies) that can support several application areas[1]** **1 - strategic studies, wargaming, operational analysis, operational planning**
	GSR 5.1	Mission Level Model	NexGen M&S shall provide mission-level modelling as commonly understood by the military model hierarchy
	GSR 5.2	Campaign Level Model	NexGen M&S shall provide campaign-level modelling as commonly understood by the military model hierarchy
	GSR 5.4	Operational domains	NexGen M&S shall represent multiple operational domains[3] 3 - Air, Land, Maritime, Cyberspace, Space
	GSR 5.8	CIMIC	NexGen M&S should represent the human environment in simulation in order to understand the impact of NATO and military operations on the human environment
	GSR 5.9	PMESII	NexGen M&S should enable the inclusion of capabilities that can represent Political, Military, Economic, Societal, Information and Infrastructure (PMESII) state changes caused by the effects of actions
	GSR 5.10	Represent Effects of DIMEFIL actions	NexGen M&S should represent the effects of Diplomatic, Information, Military, Economic, Financial, Intelligence, Law Enforcement (DIMEFIL) actions
	GSR 5.11	Inclusion	NexGen M&S shall enable the inclusion of new models as needed to represent the operational environment per NFR 3.0
	GSR 5.13	Games engines	NexGen M&S should support rendering by independent game engines
GSR 6.0		**Data**	**NexGen M&S shall enable the ability to import, process, and make data available for simulation and analysis**
	GSR 6.17	Common baseline of data	NexGen M&S shall provide common and agreed-upon datasets (e.g. ORBAT, terrain)
PIR 1.0		**Programme interoperability**	**NexGen M&S capabilities shall be interoperable with other related NATO capability programmes**
	PIR 1.1	ETEE FS	NexGen M&S capabilities shall be interoperable with capabilities from the Education, Training, Exercises and Evaluation (ETEE) Functional Services (FS)capability programme
NFR 1.0		**Usability**	
	NFR 1.1	Effective operation	NexGen M&S applications shall enable regular users to complete their simulation-related activities without significant interruptions such as supervision or workarounds.

Tier 1	Tier 2		Requirements Statement
	NFR 1.2	User satisfaction	Regular users do not experience a significant number of issues while using NexGen M&S applications that would result in negative user satisfaction.
NFR 3.0		**Modularity**	
	NFR 3.1	Modular Open Architecture	NexGen M&S should enable severable functionality and system components to be developed added, removed, or replaced separately and independently via a modular architecture
	NFR 3.2	Inclusion of new capabilities	NexGen M&S shall enable the rapid inclusion of new components, user applications and technical services with an expected level of resources (e.g. time, procedural steps)
	NFR 3.5	APIs and interfaces	NexGen M&S should enable the coupling of applications and services via standardized interfaces
NFR 5.0		**Accessibility**	
	NFR 5.1	Web-enabled	NexGen M&S applications shall be mainly web-enabled and remotely accessible from any NATO computer
	NFR 5.2	Availability	NexGen M&S capabilities should be available within operational time constraints
NFR 6.0		**Compliance**	
	NFR 6.3	STANAGs, STANRECs	NexGen M&S should be compliant with relevant modeling and simulation STANAGs and STANRECs
NFR 7.0		**Efficiency**	
	NFR 7.1	Efficient operations	NexGen M&S applications shall enable regular users to complete their simulation-related activities with an expected level of resources (e.g. time, procedural steps)