HQ Supreme Allied Commander Transformation
Division of Capabilities
Norfolk, Virginia | USA

ACT/CAPDEV/CAP/TT-8199/SER:NU2115

TO: See Distribution

SUBJECT: **NATO SPACE DOMAIN REQUEST FOR INFORMATION**

DATE: 15 February 2024

REFERENCES:

A. PO(2022)0005, Overarching Space Policy, dated 17 January 2022.

B. PO(2022)0200, NATO Strategic Concept, dated 28 June 2022.

C. PO(2018)0259 The Common Funded Capability Delivery Governance Model, dated 5 June 2018.

1. Since the declaration of Space as an operational domain in December 2019[1], NATO has been developing Space capabilities to enhance NATO's and Allies' abilities to anticipate threats and respond to crises with greater speed, effectiveness and precision (Reference A). In particular, increasing support to NATO's effective deterrence and defence through the secure use of, and unfettered access to Space (Reference B).

2. Therefore, based on Space operational, and associated capability, requirements, NATO is enhancing its ability to operate effectively in Space to prevent, detect, counter and respond to the full spectrum of threats using all available tools necessary. Through a Space Domain capability development programme (Reference C), NATO is exploring various Space capabilities to gain a better understanding of possible solutions that NATO could potentially use to adopt, acquire (buy), and/or create Space solutions that meet the capability requirements.

a. "Adopt" a solution (from Nations);

b. "Buy" (acquiring a solution from Industry);

c. "Create" (developing a solution bespoke to NATO); or

d. Hybrid of the above.

3. NATO HQ Supreme Allied Commander Transformation (SACT) is responsible for leading the initiation, and supporting the delivery, of capability development programmes (i.e. deriving capability requirements, defining capability architectures, developing designs concepts, exploring solution alternatives, planning capability lifecycle delivery and recommending strategic investments). The identification and evaluation of solution alternatives and source options is an

[1] NATO Leaders Meeting, London Declaration, 2019.
https://www.nato.int/cps/en/natohq/official_texts_171584.htm

independent process - NATO Analysis of Alternatives (AOA), Reference D, that ensures all possible solution options are recognised, considered and measured with respect to NATO Space capability requirements.

4. To explore Space capabilities and the supply chain network supporting the innovation, development, production and sustainment of solutions (i.e. Data, Products and Services (DPSs)) across the defence, intelligence, civil and commercial space sectors, NATO HQ SACT is issuing a Request for Information (RFI). The RFI allows Industry and Academia to offer potential Space capabilities that provide alternative solutions for consideration to meet the operational requirements for NATO's Space Domain Capability Programme.

5. In this context, HQ SACT invites Nations to encourage their Industry and Academia to respond to the RFI-ACT-SACT-24-12. This RFI is also posted on HQ SACT's contracting website[2]. The full RFI is detailed in the Annex A of this document. It is expected that answers to this RFI will be provided no later than Eastern Daylight Time (EST) 09.00 (9.00 am) 22 March 2024. Industry and Academia are kindly requested to provide their responses to all Points of Contact listed below.

6. Points of contact for this survey are:

(a) Col Christophe GRANDCLEMENT, NATO Space Domain Capability Monitor, HQ SACT CAPDEV CAP Space Branch Head, NU/NS email: christophe.grandclement@act.nato.int.

(b) Mr. Robert KROEGER, NATO Space Domain Programme Director, HQ SACT CAPDEV CAP Space Branch, NU/NS email: robert.kroeger@act.nato.int.

(c) Dr. Sinan TOPRAK, Requirements Manager, SACT SEE Requirements Forward Branch, NU email: sinan.toprak@shape.nato.int, NS Email: sinan.toprak@sactsee.nato.int

(d) Dr. Kamil AKEL, Programme Analyst, HQ SACT CAPDEV REQS Operational Analysis Branch, NU/NS email: kamil.akel@act.nato.int.

FOR THE SUPREME ALLIED COMMANDER TRANSFORMATION:

Hayrettin KOCA
Major General, TUR F
ACOS Capabilities

[2] NATO Allied Command Transformation, Business Opportunities. https://www.act.nato.int/opportunities/contracting

ANNEX:

A. Request For Information RFI--ACT-SACT-24-12

DISTRIBUTION:

External:

Action:

List III – NLRs
NATO HQ / MC
DGIMS
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EMBASSY OF BELGIUM (BEL)
EMBASSY OF BULGARIA (BGR)
EMBASSY OF CANADA (CAN)
EMBASSY OF CROATIA (HRV)
EMBASSY OF CZECH REPUBLIC (CZE)
EMBASSY OF DENMARK (DNK)
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EMBASSY OF NORTH MACEDONIA (MKD)
EMBASSY OF NORWAY (NOR)
EMBASSY OF POLAND (POL)
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EMBASSY OF THE UNITED KINGDOM (GBR)
US DEPARTMENT OF STATE (USA)
NATIONAL MILITARY REPRESENTATIVES

Information:

List II, X
NATO HQ IS
IS DPP
IS DI
IS NOR
IMS L&R
IMS P&C
IMS JAPSSE
NCIA STAR Branch
JEWCS
NSPA
NIAG
NSHQ
JSEC
ACCI
CFSpCC
NATO Space Centre
NATO Space Centre of Excellence
JAPCC Centre of Excellence

SHAPE:

- COS SHAPE
- DCOS SDP
- DCOS SEM
- DCOS STREN
- COM NCISG
- SDP SDF Space Branch
- All NMRs to SHAPE

Internal:

Information:

HQ SACT:

- SACT
- DSACT
- DCOS CD
- DCOS RM
- DCOS JFD
- DCOS SPP
- ACOS CAP
- ACOS JFD
- ACOS REQ
- SACTREPEUR
- SACT SEE
- CAPDEV CAP Space Branch

ANNEX A TO
ACT/CAPDEV/CAP/TT-8199/
SER:NU2115
DATED: 15 FEB 24

Headquarters Supreme Allied Commander Transformation Norfolk, Virginia

REQUEST FOR INFORMATION

RFI-ACT-SACT-24-12

This document contains a Request for Information (RFI) call for input from Industry and Academia to provide capabilities and solutions applicable to NATO's

Space Domain Capabilities

RFI respondents should carefully read this document in its entirety, and follow the guidance provided.

This RFI is open to Industry and Academia that originate, or are chartered/incorporated, within NATO Nations.

HQ Supreme Allied Commander Transformation RFI 24-12 General Information	
Request For Information No.	24-12
Project Title	Industry and Academia input to NATO's Space Domain Capability
Due date for questions concerning requested information	01 March 2024, 0900 (9:00 am) (EST)
Due date for submission of requested information	22 March 2024, 0900 (9:00 am) (EDT)
Contracting Office Address	NATO, HQ Supreme Allied Commander Transformation (SACT), Purchasing & Contracting Suite, 100 7857 Blandy Rd, Norfolk, VA, 23511-2490
Contracting Points of Contact	• Ms. Magdalena Ornat ○Email: magdalena.ornat@act.nato.int ○Tel: +1-757-747-3150 • Ms. Tonya Bonilla ○Email : tonya.bonilla@act.nato.int ○Tel: +1 757 747 3575 • Ms. Catherine Giglio ○Email : catherine.giglio@act.nato.int ○Tel: +1 757 747 3856
Technical Points of Contact	○ Mr. Robert Kroeger (Programme Director) ○Email: robert.kroeger@act.nato.int ○Tel: +1 757 747 3482 ○ Dr. Sinan Toprak (Requirements Manager) ○Email: sinan.toprak@shape.nato.int ○ Tel: +49 171 127 4765 ○ Dr. Kamil Akel (Operations Research Analyst) ○Email: kamil.akel@act.nato.int ○Tel: +1 757 747 3796
All request for clarifications, questions and responses to this RFI must be sent via email to all Points of Contact listed above.	

1. INTRODUCTION

1.1. Summary: Headquarters Supreme Allied Commander Transformation (HQ SACT) is issuing this Request For Information (RFI) to engage with Industry and Academia on future Space Domain Capabilities. The intention is to evaluate what could be immediately available, the art-of-the-possible and state-of-the-art with respect to systems, products, services, technologies, and methodologies pertaining to Space. This will support NATO Governance decision making on Common Funded Capability Delivery.

1.2. This RFI involves Industry and Academia in an examination of Alliance-wide current and future capabilities related to Space. Future capabilities will be either Nationally-owned or commercially available (procured by a Nation as Host Nation (HN), or by a NATO Agencies). HQ SACT has not made a commitment to procure any of the systems, products, services, or technology described herein, and the release of this RFI shall not be construed as such a commitment, nor as authorization to incur cost for which reimbursement will be required or sought. Further, respondents are advised that HQ SACT will not pay for any information or administrative costs incurred in responding to this RFI. The costs for responding to this RFI shall be borne solely by the responding party. Not responding to this RFI does not preclude participation in any subsequent Request For Proposal (RFP), if issued in the future.

1.3. This in an **RFI ONLY**. This RFI **DOES NOT** constitute a current RFP nor a commitment to issue a future RFP, nor does it constitute the commencement of any other type of procurement process for the Project. Therefore, those choosing to respond to this RFI **will not**, merely by virtue of submitting such a response, be deemed to be “bidders” on the Project in any sense, and **no** such respondent will have any preference, special designation, advantage or disadvantage whatsoever in any subsequent procurement process related to the Project. HQ SACT is not seeking proposals at this time; therefore, HQ SACT will not accept unsolicited proposals in respect to this RFI.

2. GENERAL BACKGROUND

2.1. HQ SACT Framework for Collaborative Interaction (FFCI)

2.1.1. HQ SACT has implemented a Framework of Collaborative Interaction (FFCI) to increase opportunities for Nations, Industry and Academia to contribute to HQ SACT’s capability development efforts through collaborative work. Such collaboration enables HQ SACT, and NATO as a whole, to benefit from National, Industrial and Academic models, advice, capabilities and experience in the course of this work. In addition to the benefits HQ SACT gains from such projects, this collaborative effort will provide Nations, Industry, and Academia with an improved understanding of NATO’s Capability Requirements (CRs) and associated issues and development challenges that need to be addressed by HQ SACT. Potential collaborative projects are on specific topics that are of mutual interest to all parties but shall

be restricted to collaborations in non-procurement areas. Several mechanisms have been developed to support the initiation of collaborative projects between Nations, Industry and Academia and HQ SACT ranging from informal information exchanges, workshops, studies or more extensive collaboration on research and experimentation.

2.1.2. Depending on the level and type of interaction needed for a collaborative project, a specific agreement may be required between parties. The FFCI agreement for any specific project, if required by either party for the project to proceed, will range from “Non-Disclosure Agreements” (NDA) for projects involving exchange of specific information to more extensive “Declaration of Mutual Collaboration” to address intellectual property and other issues.

2.1.3. More extensive information on the HQ SACT FFCI initiative can be found on the ACT website being developed to support FFCI projects at http://www.act.nato.int/ffci. Note that respondents of this RFI are not required to initiate an FFCI agreement to respond to this RFI.

2.2. The Common Funded Capability Delivery Governance Model (CFCDGM)

2.2.1. The CFCDGM aims to accelerate the delivery of capabilities required by NATO commanders and the NATO Enterprise. It consists of six stages across the capability development life cycle, four NATO Governance level decision points, or Gates, and two optional decision Gates.

2.2.2. At the first decision Gate, the Military Committee (MC) approves the Operational Requirements (ORs) and determines if the submission of a Capability Requirements Brief (CRB) is required at the first optional decision Gate. Factors that may lead the MC to require governance approval of this product include; anticipated capability type, the expected level of complexity and/or likely existence of more than one viable alternative for filling the ORs.

2.2.3. During stage 2 (Requirements Development), a CRB is developed to identify the specific CRs and potential courses of action, also to examine and confirm the courses of action that are best suited to deliver the capability within scope, cost and schedule.

2.2.4. During stage 3a (Capability Programme Planning), a Capability Programme Plan (CPP) is created, which includes details about the programme scope, schedule, risks and through-life costs. An Analysis Of Alternatives (AOA) occurs during this stage that involves an analytical comparison of the operational effectiveness, risk and lifecycle cost of alternatives that are under consideration to satisfy ORs as described in the Operational Requirement Statement and CRs articulated in the CRB. Alternatives identified can involve combinations of materiel and non-materiel solutions from multiple Nations, Industry and/or Academic sources. **The**

intent of this RFI is to collect the information required to conduct these stage 3a activities and inform the development of the CPP.

2.2.5. This is not a formal request for submissions and it does not constitute the commencement of any other type of procurement process for the CPP; but rather a general request intended to determine **if any possible solutions exist that should be included in one or many alternatives** during the development of the CPP. Discussions related to the specific CPP requirements and related procurements should not occur during the RFI solicitation to avoid any conflict of interest or unfair competitive advantage.

3. PROGRAMME DESCRIPTION

3.1. Background

3.1.1. In the 2022 Strategic Concept, NATO reaffirmed that strategic competitors and potential adversaries are investing in technologies that could restrict the Alliances: access and freedom to operate in Space; degrade Space capabilities; target civilian and military infrastructure; impair defence; and, harm security.

3.1.2. The Concept also highlighted that NATO's secure use of and unfettered access to Space is key to effective deterrence and defence. NATO should enhance its ability to operate effectively in Space to prevent, detect, counter and respond to the full spectrum of threats using all available tools necessary.

3.1.3. Therefore, NATO must be prepared to operate in a degraded, denied and disrupted Space environment, and be able to respond to such challenges with agile and flexible effects and Space actions to meet NATO's three core tasks of Collective Defence, Crisis Management and Cooperative Security.

3.1.4. NATO's approach to Space intends to fully integrate Space as a routine activity within NATO. This includes, the:

- Integration of Space into all processes, including the Operations Planning Process;
- Integration of Space into all operations, missions and activities;
- Establishment of adequate training, operational advice and risk assessments pertaining to Space;
- The integration of Space capabilities, using applicable systems, to support decision-makers, military commanders, staff and forces across all operational domains with:
    - Accurate assessments on Space threats and its environmental status;
    - Space Data, Products, and Services;
    - Effects and Space actions available to NATO for inclusion in planning and execution of all operations, missions and activities.

3.2. Process

3.2.1. NATO has started developing the capabilities required for Space following the principles and tenets from the existing Overarching Space Policy[1]. The approach focuses on receiving and sharing the required Space data, products, and services with Nations through relevant agreements and will comply with the Doctrine, Organization, Training, Materiel, Leadership, Personnel, Facilities and Interoperability (DOTMLPFI) programmatic approach.

3.2.2. With the development of capabilities enabling the three main Operational Functions - Space Domain Awareness (SDA), Operational Space Support (OSS) and Space Domain Coordination (SDC) - NATO Space implementation efforts will neither supersede any existing NATO processes, nor impact initiatives that are not the responsibility of the NATO Space community. NATO Space efforts will rather support these processes and initiatives where applicable, thus avoiding any duplication of efforts.

3.2.3. The NATO Space Programme is in charge of implementing the new NATO Domain, the Space Domain, in a System of Systems Integration approach, leveraging on Capabilities, Assets and Resources coming from already existing Space-related NATO Programmes and leveraging also on Space Capabilities, Assets and Resources coming from Nations, their Industry and Academia, and finally filling the gaps of missing Capabilities, Assets and Resources needed to achieve the NATO Space MMR (Minimum Military Requirement)

3.2.4. Allied Command Transformation (ACT) is surveying Industry and Academia to understand what solutions may be able to support NATO's Space Domain requirements for all three Operational Functions (SDA, OSS and SDC).

3.2.5. This survey seeks to gather information from Industry and Academia on existing Space business processes and solutions, as well as those in development that could potentially be procured by NATO.

3.3. Space Domain Capability Requirements

3.3.1. NATO's Space Domain Capabilities will provide awareness and coordination means for NATO and multinational actions during peacetime vigilance, crisis and conflict. The Space Domain Capabilities may deliver; a set of reporting business processes and solutions, analysis and visualization processes or systems, data management approaches and collaboration systems to advance the current development efforts for the Space Domain. Space communication and information systems support will enable the following business processes:

3.3.2. Space Domain Awareness (SDA) will:

[1] NATO (17 January 2022). NATOs Approach to Space. NATO's Overarching Space Policy. *https://www.nato.int/cps/en/natohq/official_texts_190862.htm*

- Inform and support operations planners and commanders in distributed headquarters with a coordinated and visualized Recognized Space Picture;
- Collect and fuse data and tools from military and commercial sources, including other domains (as well as multi-domain) common operating pictures to inform strategic level decision making;
- Protect, organize and store data in appropriately secure mediums while allowing both automatic and manual data fusion and analytics;
- Connect Nations through relevant agreements to share Space information and Space DPSs;
- Analyse Space products for releasability.

3.3.3. Operational Space Support (OSS) will:

- Provide an entry point for operational support "pull" requests , and capability for "push" engagement with exercises and operations;
- Offer reception, categorization, assessment, and fulfilment of requests for operational support, including process tracking and analysis;
- Analyse Space information to provide relevant timely support and advice to exercise and operational planners and forces;
- Provide adaptation of Space DPSs into viable NATO processes to be used by all NATO users at all levels.

3.3.4. Space Domain Coordination (SDC) will:

- Provide Space community engagement and coordination information portals and collaborative working areas;
- Coordinate and share the development of the Space Operational Domain and capabilities (across DOTMLPFI lines of effort);
- Provide the ability to engage with Nations, Industry and Academia on Space Domain trends and plans.

4. REQUESTED INFORMATION

4.1. This RFI is interested in information that informs alternatives development. Alternatives are comprised of materiel and non-materiel solutions, and combinations thereof across the DOTMLPFI spectrum that contribute to Space Domain CRs which are explained under Para 3.3. These include but are not limited to:

- Systems, products, services, applications (and their functionality), interfaces, data, and dependencies on hardware, facilities, and infrastructure;
- Processes, personnel, and organizational nodes required to operate the capability;
- Technologies and technical standards (open, proprietary).

4.2. This RFI will herein refer to one or many potential combinations of these as "your capabilities". This information will inform alternatives and will be described using the NATO Architecture Framework, Version 4[2].

[2] NATO (17 August 2022). NATO Architecture Framework, Version 4. *https://www.nato.int/cps/en/natohq/topics_157575.htm*

4.3. This RFI is also interested in information that informs alternatives analysis from various perspectives. HQ SACT is interested in how Nations, Industry and Academia capabilities relate to the functional and non-functional CRs which are explained under Para 3.3 and rephrased as questions in Appendix 1.

4.4. Finally, this RFI is interested in information that informs capability programme planning. This includes the availability, readiness, and feasibility of Industrial and Academic capabilities.

4.5. Eligibility to Respond. Only Industry and Academia that originate or are chartered/incorporated within NATO Nations are eligible to respond to this RFI. Companies from Partner Nations who want to participate are recommended to partner with a primary company headquartered within a NATO Nation.

4.6. Responses to the RFI. The response(s) to this RFI may be submitted by email. Submission is to include all of the Technical and Contracting Points of Contact listed above (page 2).

4.7. Response Date. Responses to this RFI must be received by 09:00 (9:00 am) Eastern Daylight Time (EDT) on 22 March 2024.

4.8. Questions for Industry and Academia. Please see Appendix 1 for questions and provide your answers on the spreadsheet.

NOTE TO RESPONDENTS

In the interest of time and to maximise the number of responses to this RFI, the information provided should not be extremely complicated, overly detailed, or require significant effort to complete. Additionally, responses are not required if it is not applicable to your capabilities. A statement that the question is not applicable (NA) will be sufficient. Finally, in addition to your responses, we encourage you to include any existing materials you may have pertaining to your capabilities (e.g., marketing brochures, pamphlets, flyers, etc.).

4.9. Clarifications and Questions

4.9.1. Inquiries of a technical nature about this RFI shall be submitted by e-mail to the aforementioned points of contacts by 09:00 (9:00 am). Eastern Standard Time (EST) on 01 March 2024. Accordingly, questions in an e- mail shall not contain proprietary and/or classified information. Answers will be posted as soon as possible on the HQ SACT Procurement and Contracting (P&C) website at: https://act.nato.int/contracting.

4.9.2. HQ SACT reserves the right to seek clarification on any submission.

4.10. Intent/Objectives. This RFI is intended to provide Industry and Academia an opportunity to provide data that would allow NATO to determine potential benefits they might receive from a capability.

4.11. Expected Benefits to Respondents. Industry and Academia participants will have the chance to reveal state-of-the-art systems, products, services and technology in the Space Domain area of interest.

4.12. Expected Benefits to NATO. Exposure to, and understanding of, current, emerging and future capabilities in the Space Domain area of interest.

4.13. Expected Input from Industry and Academia. Expected input to this RFI is Industry and Academia perspective on relevant current, emerging and future capabilities in the Space Domain area of interest.

4.14. Classified Information. NATO information that is CLASSIFIED is not included herein but can be passed to authorized Industry and Academia recipients with appropriate clearances and control measures.

4.15. Proprietary Information. Proprietary information, if any, should be minimized and clearly marked as such. HQ SACT will treat proprietary information with the same due care as the command treats its own proprietary information, and will exercise due caution to prevent its unauthorized disclosure. Please be advised that all submissions become HQ SACT property and will not be returned.

4.16. Non-disclosure Principles and/or NDA with Third Party Company.

4.16.1. Please be informed that HQ SACT may contract a company to conduct the Analysis of Alternatives investigation in support of this project. HQ SACT will follow nondisclosure principles and possibly conclude an NDA with that company to protect submitted information from further disclosure. As the third party beneficiary of this nondisclosure, this RFI serves to inform you of how HQ SACT plans to proceed and of HQ SACT's intent to protect information from unauthorized disclosure, requiring the third party company to protect the disclosed information and using the highest degree of care that the company utilizes to protect its own Proprietary Information of a similar nature (and no less than reasonable care). This includes the following responsibilities and obligations:

- The third party company receiving the information shall not, without explicit, written consent of HQ SACT:
  - Discuss, disclose, publish or disseminate any Proprietary Information received or accessed under nondisclosure principles and subject to an NDA, if an NDA is concluded;
  - Use disclosed Proprietary Information in any way except for the purpose for which it was disclosed in furtherance of the goals of the instant project, collaboration, activity or contract; or
  - Mention the other Party or disclose the relationship including, without limitation, in marketing materials, presentations, press releases or interviews
  - Exceptions to Obligations. The third party company receiving the information may disclose, publish, disseminate, and use Proprietary Information:

- To its employees, officers, directors, contractors, and affiliates of the recipient who have a need to know and who have an organizational code of conduct or written agreement with the recipient requiring them to treat the disclosed Proprietary Information in accordance with nondisclosure principles and the NDA (if executed);
- To the extent required by law; however, the company receiving the information will give HQ SACT prompt notice to allow HQ SACT a reasonable opportunity to obtain a protective order or otherwise protect the disclosed information through legal process; or
- That is demonstrated in written record to have been developed independently or already in the possession of the company receiving the information without obligation of confidentiality prior to the date of receipt from HQ SACT; that is disclosed or used with prior written approval from HQ SACT; obtained from a source other than HQ SACT without obligation of confidentiality; or publicly available when received.

4.17. Any response to this RFI is considered to establish consent to this process. A copy of the NDA, if or when concluded, can be provided on request.

4.18. Organizational Conflicts of Interest.

4.18.1. Companies responding to this RFI and companies conducting Analysis of Alternatives are hereby placed on notice responding to this RFI could conceivably be a factor in the creation of an Organizational Conflict of Interest (OCI) on a future procurement, if a future procurement were to occur within the capability development process.

4.18.2. Companies are cautioned to consider OCI when responding to this RFI, and to consider internal mitigation measures that would prevent OCI's from adversely affecting a company's future procurement prospects. OCI's can often be mitigated or prevented with simple, early acquisition analysis and planning and the use of barriers, teaming arrangements, internal corporate nondisclosure policies and firewalls, and similar prophylactic measures.

4.18.3. HQ SACT is not in a position to advise responding companies on the existence of OCI or remedial measures, and encourages responding companies to consult internal or external procurement and legal consultants and in-house counsel.

4.18.4. OCI considerations should not be considered a barrier to responding, only a factor for long range business planning.

4.19. Follow-on:

4.19.1. Any and all information provided as part of the submission in response to this RFI may be considered in developing any future HQ SACT requirements.

4.19.2. The data collected in response to this RFI will be used to develop a report to inform the Space Domain CPP. The report will provide an

assessment to support a decision as to whether NATO should pursue an Adopt, Buy or Create approach to meet Space Domain requirements.

4.19.3. In the event that there is a competitive bidding process later as part of NATO Common Funded Capability Development, the provision of data, or lack of, will not prejudice any respondent.

4.20. Summary. This is an RFI only. The purpose of this RFI is to involve Industry and Academia in an examination of Alliance-wide future capabilities related to the Space Domain with a focus on related systems, products, services, technology, methodologies, and engineering practices. HQ SACT has not made a commitment to procure any capabilities described herein, and release of this RFI shall not be construed as such a commitment, nor as authorization to incur cost for which reimbursement will be required or sought. **It is emphasised that this is an RFI, and not an RFP of any kind.** Thank you in advance for your time and submission to this RFI.

APPENDIX:

1. Survey

Appendix 1 to RFI 24 - 12
Space Domain
Request For Information (RFI) Questionnaire

PURPOSE

NATO HQ Supreme Allied Commander Transformation's (SACT) is conducting a RFI to gain an understanding of Space capabilities and the supply chain network supporting the innovation, development, production and sustainment of Data, Products and Services (DPSs) across the defence, intelligence, civil and commercial space sectors. This RFI allows Industry and Academia to offer potential Space capabilities that provide alternative solutions for consideration to meet the operational requirements for NATO's Space Domain Capability Programme. Through the data collected from this RFI the NATO Space Domain Capability Development Program will be better informed to develop targets planning, acquisition and investment strategies to ensure the ability to support critical NATO defence and civil missions and programs. Also, the information collected from this RFI will be used in support of the Analysis of Alternatives for Space Domain Capability Development Programme that will be conducted by HQ SACT Operational Analysis Branch.

BACKGROUND - VISION

In the 2022 Strategic Concept, NATO reaffirmed that strategic competitors and potential adversaries are investing in technologies that could restrict our access and freedom to operate in Space, degrade our Space capabilities, target our civilian and military infrastructure, impair our defence and harm our security.
The Concept also highlighted that NATO's secure use of unfettered access to Space is key to effective deterrence and defence. NATO is enhance its ability to operate effectively in Space to prevent, detect, counter and respond to a full spectrum of threats, using all available tools necessary. Correspondingly, NATO must be prepared to operate in a degraded, denied and disrupted Space environment, and be able to respond to such challenges with agile and flexible effects and Space actions to meet NATO's three core tasks; of Collective Defence, Crisis Management and Cooperative Security.
NATO's approach to Space aims to fully integrate Space as a routine activity within NATO. This includes, the:

- Integration of Space into all processes, including Operations Planning Process;
- Integration of Space into all operations, missions and activities;
- Establishment of adequate training, operational advice and risk assessment pertaining to Space;
- Integration of Space capabilities, using applicable systems, to support decision-makers, military commanders, staff and forces across all operational domains with:
    - o Accurate assessments on Space threats and environmental status;
    - o Space Data, Products, and Services (DPSs);
    - o Effects and Space actions available to NATO for inclusion in planning and execution of all operations, missions and activities.

AIM

The aim of the AOA for the Space Domain Capability Development Programme is to analyse possible solution alternatives identified through this RFI. It is assumed that there may be several solution alternatives that could meet NATO's Space Domain capability requirements that are listed in this survey. It should be noted that the explanations in the survey may define possible approaches to NATO Space Domain capabilities and operations, however, it is recognized that there may be other concepts which meet the capability requirements. All solution alternatives will be evaluated against the NATO Space Domain Capability Development Program requirements.

Though your solution may not cover all of the requirements, please answer the questions that are applicable to your capabilities/solution/organization.

Not all the statements may be applicable to all participants, therefore, please type "N/A".

Although informative documents such as booklets, brochures and leaflets are welcomed, HQ SACT will not review these documents and extract information to asses if a potential solution meets the requirements. Assessments will be based on the information entered in the RFI.

INSTRUCTIONS

Your organization should complete the survey within this Excel workbook, worksheets 1. Capability Overview, 2. Requirements Assessment and 3. Cost Assessment. Please respond to every questions and complete all yellow cells in the tabs and use the comment boxes to provides any information to supplement responses provided in the survey form, also please expand acronyms. Make sure to record a complete answer in the cell yellow cells provided, even if the cell does not appear to expand to fit all the information.
Survey inputs should be made manually, by typing in responses or by use of a drop-down menu. The use of copy and paste can corrupt the survey template. if your survey responses is corrupted as a result of copy and paste responses, please complete a new survey.
Due to the complementary nature of the document, please check all the tabs and try to provide as much information as possible.

Please do not disclose any classified infomation in this survey form.

Please Email the completed survey to all of these PoCs: magdalena.ornat@act.nato.int, tonya.bonilla@act.nato.int, catherine.giglio@act.nato.int, robert.kroeger@act.nato.int , sinan.toprak@shape.nato.int, and kamil.akel@act.nato.int.

Any questions of a technical nature about this RFI announcement shall be submitted by e-mail solely to the above-mentioned PoCs. Accordingly, questions in an e-mail shall not contain proprietary and/or classified information. Answers will be posted on the HQ SACT P&C website at: www.act.nato.int/contracting.

HQ SACT may contact with some of the participants to clarify the ambiguities about their feedback.

Thank you for your time and effort supporting HQ SACT to develop new capabilities for NATO by providing information through your inputs to this RFI.

Capability Overview

Please review the following list and annotate the capability areas that your system(s), sub-system(s), service(s), or capability(ities) will address:

Space Domain Awareness (SDA) will:
- Inform and support operations planners and commanders in distributed HQs supported by a coordinated and visualized Recognized Space Picture (RSpP);
- Collect and fuse data and tools from military and commercial sources, including strategic level decision-making and other domain (as well as multi-domain) common operating pictures;
- Protect, organize and store data in appropriately secure mediums while allowing both automatic and manual data fusion and analytics;
- Connect with Nations through relevant agreements to share Space information and Space DPSs;
- Analyse Space products for releasability.

Operational Space Support (OSS) will:
- Provide an entry point for "pull" requests for operational support, and promulgation capability for "push" engagement with exercises and operations;
- Reception, categorization, assessment, and fulfilment of requests for operational support, including process tracking and analysis;
- Analyse Space information to provide context-relevant, timely support and advice to exercise and operational planners and forces;
- Provide adaptation of Space DPSs into viable NATO processes to be used by all NATO users at all levels.

Space Domain Coordination (SDC)
- Provide Space community engagement and coordination information portals and collaborative working areas;
- Coordinate and share the development of the Space Operational Domain and capabilities (across DOTMLPFI lines of effort);
- Provide the ability to engage with Nations, industry and academia on Space Domain trends and plans.

No	Request For Information (Questions)	Answers/Comments
1	What is/are the name(s) of your solution(s) to support NATO's Space Domain operational needs (please expand acronyms)?	
2	Please give a brief overview of your solution architecture. If possible, please include a diagram.	
3	Explain your organisation's experience and knowledge with Space related tools and systems.	
4	Does your organisation have any previous experience with NATO, a national Government or military? If yes, please explain.	
5	Please describe your capabilities' major relationships, dependencies, and interfaces with other relevant systems and data pertaining to Space or other supporting operations?	
6	Please provide information on when your proposed solutions could be available (if not currently available)?	
7	What standards/formats do your solution follow(e.g. STANAG, ISO, MIL-STD, etc.)?	
8	What types of standards are your company using for Space related data?	
9	Please describe any legal and commercial considerations (e.g. Intellectual Property Rights (IPR) availability, licensing restrictions, export controls or National regulations) preventing your solutions use by NATO?	
10	What is your organisation's estimated the timeframe (in terms of months or years) for the implementation and sustainment of your capabilities for use by NATO (assuming full implementation)? Please take into account, technology refresh cycles for the expected lifespan of this capability. Range estimates are acceptable. If possible, please describe the decomposition and phased development and delivery of your proposed capabilities.	
11	(FOR INDUSTRY ONLY) Would your company/institution be able and willing to provide your capabilities (current or developed) as a turnkey solution for NATO, delivered, managed and maintained by yourselves?	
12	(FOR INDUSTRY ONLY) What are the most suitable types of contract for working with your company and how is it best to establish them? Please provide diagrams and overviews.	
13	For your solution, are there any production or delivery considerations for your solution?	
14	What is the average lifecycle of your system? Please explain providing detailed information.	
15	Please explain your licensing policy. Do you have an enterprise licensing policy? Do you provide different tiers of license with different functionalities? Do these have different license costs?	
16	Explain which non-CIS support equipment (e.g. power, transportation, force protection etc.) your solution includes.	
17	Explain which non-CIS support equipment (e.g. power, transportation, force protection etc.) your solution requires but is not provided in your solution.	
18	If your solution is in service, where is it used and what types of support does your organisation currently provide for such a capability?	
19	Please describe the operational context of how your capability is used (e.g. employment scenarios, workflows, use cases, vignettes, or procedures).	
20	Please describe the types of users, personnel, and organisational framework required to operate the capability.	
21	Please also describe any required skills and training.	
22	What type of products and services can you deliver once a request is processed?	
23	Are there any additional materials that you would like to add (such as portfolio, visuals, examples, etc.) relevant for this RFI?	
24	If we have follow on questions, whom do we direct them to? Please provide emails and telephone numbers?	

Requirement Assessment				
Category	**No**	**Request For Information (Questions)**	**Answer** **(Please use drop-down menus for answers, use comments column on the right for additional info)**	**Comments**
GENERAL CONSIDERATIONS	1	What is the Technology Readiness Level (TRL) of your solution? (*Based on EU TRL Definitions*)		
	2	Is your proposed solution currently in active service as a commercial-of-the-shelf (COTS) solution or is it still in development?		
	3	How long has your organization been in the business of Space related tools and systems.		
	4	Are you aware of the NATO Enterprise architecture?		
	5	Is your solution NATO interoperable? If so, what NATO standards does your solution comply with? If not, please state in the comment column, what other standards your solution complies with, i.e. industry standards ?		
	6	Do you foresee any problems with your solution being owned and operated by NATO? If yes, what type of problems do you foresee (please explain briefly in the comment column)?		
SPACE DOMAIN AWARENESS (SDA) CONSIDERATIONS	7	Do you have key relationships with data suppliers (or data vendor or data provider)? If other please state in the comments column.		
	8	What type of relationship do you have with those data suppliers? *Transactional - short term/price focused* *Collaborative - long-term/mutual benefit/cost saving/joint improvement initiatives* *Strategic - deep partnership/critical to success/collaborative innovation/joint development/risk sharing*		
	9	Can your solution process incoming data?		
	10	Does your solution distribute data to essential users? If there are any conditions, please state in the comments column.		
	11	Does your solution provide a synthesized visualisation of data for decision-makers and users? If yes, please describe the tools in the comments column, and provide architecture diagrams if feasible.		
	12	Does your solution provide visualization of multiple functional areas such as Satellite Communications (SATCOM), Space Situational Awareness (SSA), Intelligence Surveillance and Reconnaissance (ISR), Shared Early Warning (SEW), Positioning Navigation and Timing (PNT), Meteorology and oceanography (METOC), and Space Security. If yes, please explain what type of visualization can be provided for each functional area in the comments column.		Add glossary
	13	For real-time data feeds, what is the latency of your solution?		
	14	For the ease of understanding, does your solution use dashboards to generate views of the Space Domain for the ease of understanding? If yes, please explain briefly in the comments column.		
	15	Does your solution filter information before presenting it to the users? If yes, please provide some information about the rules and protocols in the comments column.		
OPERATIONAL SPACE SUPPORT (OSS) CONSIDERATIONS	16	Do you ensure the quality assurance of your Space DPSs? If yes, please briefly describe the process in the comments column.		
	17	What type of data do you use for OSS e.g. Commercial, Military?		
	18	Do you have a structure and associated process to link operational need with required data? If yes, please briefly explain the process in the comments column.		
	19	Do you have a data quality assessment process? If yes, please briefly explain the process in the comments column.		
	20	Does your solution provide intelligence assessment? If yes, please explain in the comments column, what types of data assessments support the intelligence.		
	21	Does your solution provide commercial analytics? If yes, please state what type of commercial analytics are included in your assessments in the comments column.		
SPACE DOMAIN COORDINATION (SDC)	22	Does your solution categorize Space DPSs and identify space information critical to Space operations?		
	23	Does your solution prioritize user requests? If yes, please explain briefly in the comments column.		
	24	Does your solution turn complex data into simple visualizations? If yes, please explain briefly by providing some examples in the comments column.		
	25	Does your solution follow any standards for visualizations? If yes, please explain briefly by providing some examples in the comments column.		
	26	Does your solution generate proposals, recommendations, reports, new data feeds for users (decision-makers and operators)? If yes, please provide diagram based on use-cases and reference it in the comments column.		
	27	Do your data reports and associated assessments follow specific principles and/or standards?		
BUSINESS PROCESSES	28	Does your solution exchange data with different systems? If yes, please explain briefly in the comments column.		
	29	Do you have agreements in place with specific companies on DPSs exchanges? If yes, please provide some information about the scope of those agreements in the comments column.		
	30	Do you procure and/or integrate other services to deliver your Space services? If yes, please explain which services you purchase and how do you benefit from them in the comments column.		
	31	Is the security classification of your data sources limiting the DPSs you provide? If yes, please explain how this affects the quality and availability of DPSs in the comments column.		
	32	Are there any limitations on the number of sources that your solution can exploit information from? If yes, what is the maximum number and please explain if there are other concerns in the comments column.		
	33	Does your solution have a capability to do automated risk assessments? If yes, please explain briefly in the comments column.		
	34	Does your solution store data and information? If yes, please provide more information about the storage service in the comments column.		
	35	Does your solution deliver 24/7 services? If there are concerns please explain in the comments column.		
	36	Do you have a naming and display policy?		
ETEE	37	Does your solution have a training mode and/or run simulations to educate and train operators? If yes, please explain briefly if they are provided as a part of the service in the comments column.		
	38	Do you have war gaming tools or decision-making simulation and assessment tools? If yes, please explain whether these tools are able to simulate real life scenarios, also please provide a diagram of the tools architecture and reference it in the comments column.		
	39	Do you have any lessons learned tools for exercises? If yes, please briefly explain how you assess and provide identified lessons and recommendations from those tools in the comments column.		
RESILIENCE AND PERSISTANCE	40	Is the provision of data, products and services in your solution automated or manual (human resourced)?		
	41	Are your tools capable of fusing information in different formats? If yes, please provide a data management flow or architecture diagram and reference it in the comments column.		
VISUALISATION AND RECOGNIZED SPACE PICTURE	42	Does your solution provide a space picture based on prioritisation and associated protocols? If yes, please explain briefly in the comments column.		
	43	Does your solution's space visualisation tool interface with other tools? If yes, please explain briefly in the comments column.		
EMERGING DISRUPTIVE TECHNOLOGIES	44	Do you assess and integrate data from new technologies? If yes, please briefly explain the process in the comments column.		
LOGISTICS / LEGAL / CONTROL CONSIDERATIONS	45	Does your solution include an Integrated Logistics Support Plan? If yes, please explain providing detailed information in the comments column.		
	46	Is your solution compliant with NATO'S Federated Mission Networking? If no, please state the reasons in the comments column.		
	47	Is your solution compliant with NATO Security Directives? If not, please state what level of effort would be required to make your solution compliant with NATO Security Directives in the comments column.		

Cost Assessment				
Category	**No**	**Request For Information (Questions)**	**Answer (No drop-down menus here, please type your answer below, use the comments column for additional info)**	**Comments**
COST	1	What is the investment and O&M cost per year for your solution architecture?		
	2	How many years would be required to design, develop, implement, and sustain your solution architecture?		
	3	What are the life cycle costs assuming 50, 100, 200, and 500 users?		
	4	What cost, technical, schedule, and programmatic risk areas do you foresee in your solution architecture?		
	5	What space related services costs do you anticipate for your solution architecture? Please identify the name and scope of the service and its associated unit cost annually?		
	6	What would be the annual interoperability costs (the costs to make the system exchange information between stakeholders) for 10, 25, 50, and 75 interdependent programmes?		
	7	What infrastructure is required for your solution? Is it in place? Can it be leased?		
	8	What is the breakdown between software licencing and any software development for your solution?		
	9	Will there be training development?		
	10	What is the investment and O&M cost breakdown between SSA, OSS, and SDC?		
	11	What software development methodology will your solution architecture implement (i.e., agile, waterfall, hybrid, DevOps, Scrum)?		

GLOSSARY	
Term	**Definition**
Federated Mission Networking (FMN)	The Alliance's approach to unifying coalition networks to provide information exchange services, enable information sharing among mission partners, and guide the establishment of mission network relationships between NATO, NATO nations, and non-NATO entities in which to conduct the full range of operational activities within NATO-led operations.
Meteorological, and Oceanographic (METOC)	Military Meteorology is the science concerned with the collection and analysis of information that results in the understanding of the physical characteristics of the past, current and predicted states of the atmosphere, including Space weather and the ability to exploit this information for the planning and conduct of military activities.
Intelligence, Surveillance, and Reconnaissance (ISR)	Space-based ISR provides information about activities and resources of friendly forces and adversaries, and the characteristics of a particular area of interest.
Interoperability	The ability to act together coherently, effectively and efficiently to achieved Allied tactical, operational and strategic objectives.
NATO Operational Domains	Land, Air, Maritime, Cyberspace, Space.
NATO's Level of Ambition	A term that refers to the number, scale and nature of the operations the Alliance should be able to conduct in the future.
Operational Space Support (OSS)	OSS is the provision of Space DPS in support of NATO activities, missions, and operations.
Space Data	Space Data is the information acquired, produced, or provided by Space systems.
Space Domain Awareness (SDA)	SDA is the common understanding, comprehension, and perception of all aspects associated with the Space Domain, to include capabilities, limitations, vulnerabilities, and threats.
Space Domain Coordination (SDC)	SDC is the facilitation,integration, and synchronization of effects and actions relating to the Space Domain that support the full spectrum operating environment for NATO's activities, missions, and operations.
Space Products	Space products are processed, exploited, and distributed Space data.
Space Security	Space Security is the measures taken to protect the Alliance's freedom of action and freedom of manoeuvre within Space and the utilization of Space systems and capabilities.
Space Services	Space services are capabilities or information delivered by or through Space systems to the users.
Space Situational Awareness (SSA)	SSA is the detection, identification, tracking, understanding and characterization of Space objects and their operational environment.
Commercial Off-The-Shelf (COTS)	Pertaining to a commercially marketed product which is readily available for procurement and normally used without modification.
NATO Enterprise Architecture Framework	https://www.nato.int/nato_static_fl2014/assets/pdf/2021/1/pdf/NAFv4_2020.09.pdf
Integrated Logistics Support	Integrated Logistic Support is the management and technical process through which supportability and logistics support considerations of systems/equipments are integrated from the early phases of, and throughout the life cycle of, the project, and by which all elements of logistic support are planned, acquired, tested and provided in a timely and cost-effective manner.
NATO'S Federated Mission Networking (FMN)	A governed conceptual framework consisting of people, processes and technology to plan, prepare, establish, use and terminate Mission networks in support of federated operations.
Recognized Space Picture (RSpP)	Recognized Space Picture is a tool that provides situational awareness and decision support for military personnel.
Standardization Agreement (STANAG)	A Standardization Agreement is a NATO standardization document that specifies the agreement of member countries to implement a standard.

ACRONYMS	
Acronym	**Definition**
AOA	Analysis of Alternatives
CIS	Communication and Information Systems
COTS	Commercial-Off-The-Shelf
DPS	Data Product and Services
HQ SACT	Headquarter of Supreme Allied Commander Transformation
IPR	Intellectual Property Rights
ISO	International Organization for Standardization
ISR	Intelligence, Surveillance, and Reconnaissance
METOC	Meteorology and Oceanography
MIL-STD	Military Standard
N/A	Not Applicable
O&M	Operation and Maintenance
OSS	Operational Space Support
PNT	Positioning, Navigation and Timing
PoC	Point of Contact
RFI	Request for Information
RSpP	Recognized Space Picture
SACT	Supreme Allied Commander Transformation
SATCOM	Satellite Communications
SDA	Space Domain Awareness
SDC	Space Domain Coordination
SEW	Shared Early Warning
SSA	Space Situational Awareness
STANAG	Standardization Agreement
TRL	Technology Readiness Level