



NORTH ATLANTIC COUNCIL

CONSEIL DE L'ATLANTIQUE NORD

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05 January 2021

NOTICE
NIAG-N(2021)0002

NATO INDUSTRIAL ADVISORY GROUP (NIAG)

NIAG study on NATO GeoSpatial Data Infrastructure (SDI) Architecture and Implementation Plan

Exploratory Group meeting to be held virtually on 02 February 2021 starting at 14:30 and estimated to conclude by 16:30

Calling notice

1. A NIAG Exploratory Group meeting to address NATO GeoSpatial Data Infrastructure (SDI) Architecture and Implementation Plan will be held on 02 February 2021. In light of the continued COVID-19 crisis, this meeting will be held virtually (more information to follow), starting at 14:30 and estimated to conclude by 16:30.
2. An agenda for the meeting is available at Annex 1.
3. The administrative arrangements for the meeting are set out below; the information describing the aim and the objectives of the study is available in Annex 2 (Step 1).

REGISTRATION FOR THE MEETING

4. Industry representatives willing to take part in this study (further called Participants) are invited to contact their NIAG delegation prior to registering for this study.
5. Participants (even if unable to connect to the meeting) are invited to complete two registration processes:
 - 5.1. A registration for the meeting, via the DI portal at <https://diweb.hq.nato.int/>
 - a) Once on the DI Portal, please go to NIAG, then “events registration” located underneath the NIAG logo in the centre of the screen. This will point you to a page listing upcoming events. Click on the event you wish to register for – open the terms and conditions and complete the questionnaire.
 - b) **Please ensure that you complete the registration for the meeting by 26 January 2021.**

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-1-



5.2. A registration to the NIAG Portal, for the newcomers (not being in possession of credentials to NIAG portal), in order to be granted access to the documents prepared for this study.

- a) This registration requires you to fill in the form that opens at <https://diweb.hq.nato.int/> on the top-right hand side of the page, **Register yourself**. Make sure you **select NIAG as community of interest** (a field towards the end of the registration form).
- b) After you click the 'Submit' button at the end of the registration form, a notification will be sent automatically to our office. The NIAG staff will then approve your access in the following days.
- c) This registration shall also be finalised by 26 January 2021 the latest, in order to allow us time to approve your access to the documentation, in order for you to prepare for the meeting. Please note that the first registration (paragraph 5.1.) does not automatically grant you access to documentation.

SECURITY CLEARANCE

6. The Exploratory Group meeting will be held virtually at unclassified level.
7. The study will be open to industries from NATO and Partner nations within the Interoperability Platform (IP) format, and conducted at 'NATO Unclassified releasable to IP' level.

USEFUL INFORMATION FOR THE VIRTUAL MEETING

8. Documents/presentations will be posted on the Defence Investment Portal. **Participants need to ensure that they have access to this website prior to the meeting.** (see the registration process described in paragraph 5.2.)
9. All participants having registered for this study will receive in due time:
 - 9.1. Connection details for this meeting (landline number to dial in Belgium, the costs for the phone call being borne by participants);
 - 9.2. A link to the collaboration site created for this study where the documentation to be used during the teleconference will be posted;
 - 9.3. A link to an electronic survey that will present the volunteers for the study Management Team and be used to vote.

STUDY ORGANISATION

10. Industry representatives are invited to consider volunteering for Chairman, Vice-Chairman and Rapporteur roles, which represent the Management Team of the Study Group, and communicate their option to the NIAG Secretary prior to the meeting. A brief description of the management team's role and of the Quick Reaction Team role is available at Annex 3.

11. An election for the Management Team will be held under agenda item 5. Only industry participants are entitled to vote, by following the rule of one vote per company and per country.

(signed) Nathalie Van Donghen

AGENDA for the VIRTUAL Exploratory Group meeting on NATO GeoSpatial Data Infrastructure (SDI) Architecture and Implementation Plan

*(all items in italic will be considered as consulted by participants **prior** to the teleconference – only questions and clarifications regarding these will be taken at the meeting, as necessary)*

1. OPENING REMARKS AND INTRODUCTION

NIAG Vice-Chairman, and Chairman of the meeting: Mr. Pablo Gonzalez (Indra, Spain)

2. INTRODUCTION TO NIAG STUDY PROCEDURES

(presentation to be posted on the NIAG portal, to be consulted by participants prior to the meeting)

3. BACKGROUND AND OBJECTIVES OF PROPOSED STUDY

Briefing by the Sponsor, ACT – CDR Ronan Le Roy
(the briefing will be available on the NIAG portal, to be consulted by participants prior to the meeting. However, the sponsor will brief during the teleconference)

4. REVIEW OF DOCUMENTATION REQUIRED FOR THE STUDY

Document to be discussed during the meeting, defining the study objectives. This document will be amended during the meeting to include industry views and reactions to the ‘sponsor’ briefing, and when agreed, will represent the basis for CNAD approval of the study. *The initial draft will be uploaded on the collaboration site.*

NIAG Coordinating Officer, Mr. Jean-Sébastien Vautier

Participants are invited to read this document prior to the meeting to come ready to discuss and exchange under this agenda item.

5. NIAG STUDY GROUP MANAGEMENT – ROLES AND RESPONSIBILITIES

(presentation to be posted on the NIAG portal, to be consulted by all participants prior to the meeting)

6. **ELECTION OF STUDY CHAIR, DEPUTY CHAIR AND RAPPORTEUR**

(the list of participants will be uploaded, with the volunteers for management positions highlighted in yellow)

Voting will be done electronically during the meeting, only by those being connected at the link to be provided prior to the meeting:

- Participants are allowed to vote only once
- Only one vote per company per nation

7. **STUDY CONTRACTING ARRANGEMENTS, BUDGET & ADMINISTRATION –**

(presentation to be posted on the NIAG portal, to be consulted by participants prior to the meeting)

8. **STUDY REPORTING REQUIREMENTS**

(presentation to be posted on the NIAG portal, to be consulted by participants prior to the meeting)

9. **DATE OF KICK-OFF MEETING OF STUDY GROUP**

STUDY REQUEST – STEP 1

1. Title of Proposed Study:

NATO GeoSpatial Data Infrastructure (SDI) Architecture and Implementation Plan

2. Brief Description of Proposed Study:

NATO seeks industry participation and advice for the development and implementation of a NATO GeoSpatial Data Infrastructure (SDI).

The study will be based on the scope and objectives of the NATO Vision and Strategy for Geographic Information Systems (GIS).

The following aspects are the primary focus of the study:

- Define and evaluate alternatives of architectures for the NATO SDI :
 - Include both static and deployed environments/scenarios.
 - Consider all the levels of Commands (Strategic, Operational and Tactical).
 - Assess the required governance, doctrine and policies, technology and material, standards, services and human resources (DOTMLPFI) to enhance interoperability of the military forces.
 - Propose effective, sustainable and maintainable solutions.
- Main lines of efforts for the NATO Command Structure and for nations to transition to the SDI (identification of specific challenges, constraints, dependencies and how to address them);
- Realistic timeline for SDI implementation and the factors that influence them.

3. Background:

The aim of the NATO geospatial policy (reference **Error! Reference source not found.**) is to “*operate off the same map*”. It is essential that every participant to a NATO activity and operation, from the strategic to the tactical level, share and use the same geographic (geospatial) information¹ at all time, in order to enhance Intelligence, Surveillance, Reconnaissance & Targeting and achieve a constant level of readiness, e.g. for the NATO Response Force. The ‘Operating off the same map’ principle avoids misunderstanding of the situation, bad situational awareness that could lead to wrong decision and even friendly fire incidents

¹ Facts about the earth referenced by geographic position and arranged in a coherent structure. This includes data, information, publications and materials topographic, aeronautical, hydrographic, planimetric, relief, thematic, geodetic, geo-referenced imagery, geophysical products. These will be available in either analogue or digital formats (*GI – NATO Term record 30418*).

4. Objectives of the Study:

Define and evaluate different architectures for the NATO SDI considering:

- The **static and deployed environments**; as well as reproducible at a tactical level on mission networks, to provide the right data, at the right location, at the right moment, to the right user. The primary purpose of the NATO SDI is to easily, swiftly and efficiently share the same GI between all participants to a NATO operation. An SDI/deployed SDI mirror capability should be considered; a top-down (from static to deployed level) and bottom-up (from deployed to static level) mechanism to ensure sharing of the Designated GI at all levels.
- **all levels of Commands** (Strategic, Operational and Tactical);
- The complex **NATO CIS architecture**, with its different levels of classifications, its multiple domains, its vision and concepts (NATO C&I Enterprise Vision and the NATO data-centric-security concepts);
- The specific **requirements of the Air, Maritime, Land and Cyberspace domain and full C4ISTAR** (Command, Control, Communications, Computers, Intelligence, Surveillance, Targeting and Reconnaissance) spectrum for military operations.
- The **requirements of different Communities of Interest (COIs)**: the geospatial experts, the consumers of GI (GEOINT is a major one), the operational commanders; the architecture should support all these actors to access, manipulate, download geospatial information and geospatial data services. The architecture should illustrate/formalise the interaction between the SDI and the different actors.
- The **system view** including the data, service and application layers with the required services and functionality (e.g. push, pull and publish/subscribe mechanisms, etc.) as well as data management (synchronisation, replication, labelling, identification, etc.).
- the required **GIS technology and components** such as:
 - Cloud-based GIS.
 - GIS As a Service.
 - Servers, Databases, Portals (federated distributed portals or a centralized managed portal?), etc.
- The **non-functional requirements** views including Security (in compliance with reference **Error! Reference source not found.**), RMA (Reliability, Maintainability, Availability, Human aspects, etc.
- The **'Adopt, Buy or Create (ABC)' principle** as per Alliance C3 Policy (Reference **Error! Reference source not found.**).
- **synergies with other SDI projects** in order to avoid "reinventing the wheel", accelerate the pace of the NATO SDI creation, limit the costs and reduce the burden for the participants;

Required governance and policies, technology and material, standards, services and human resources (DOTMLPFI).

- Emphasis should be put on evaluating reuse of already successfully used governance and policy models as well as best practises.
- Any new standard will be more pragmatic, employable and will facilitate quicker more cost-efficient system evolution in line with the '*Adopt, Buy or Create (ABC) principle*' of Alliance C3 Policy.
- Consider what part of the SDI (if any) can only be achieved through the NDPP process, i.e. according to a repartition of the effort over each nation; what are the required tasks that the nations would need to commit to e.g. provisioning of metadata catalogues, creation of web services and national portals within the SDI

Implementation plan to build the NATO SDI:

- Work package break down.
- Challenges – Risks.
- Timelines.
- Cost Estimate.

The results of this study are to be captured in a report.

The study should also consider:

- The 3 main standards developed in NATO as foundation for the future NATO SDI:
 - STANAG 2592 for data specifications
 - STANAG 2586 for metadata specification;
 - STANAG 6523 for Web Services.
- FMN Spiral 4 roadmap and related Service Instruction for Geospatial Information and a Procedural Instruction for the REP (cf. reference **Error! Reference source not found.**);
- The NATO common-funded GIS capability (*CoreGIS* (cf. NATO CoreGIS Increment 3 specifications as per reference **Error! Reference source not found.**);
- The activities performed by NATO nations and the NCS during CWIX events to test the interoperability of Geographic Information Systems like Core GIS.

The study should also consider the state of the art possible achievements outside NATO.

- The already existing SDIs to share GI: regional, national, , international at global level;
- the EU INSPIRE directive;
- the availability of tools and technology (COTS, GOTS, Open Source software)
- National GI portals.
- Related civil and international standards (ISO, IEC, OGC, W3C, OASIS, NIST, etc.).

5. Please indicate whether you would like to be presented with alternative solution options, taking into consideration that exploring various options may reduce the depth of the study scope:

Yes, if the alternatives might present more advantages. The study might consider the whole spectrum of innovation that shape the GIS landscape, most of which are detailed in the paragraph 3 of the document in reference **Error! Reference source not found.** XaaS and Cloud-based GIS are part of the main study, but other innovations such as Deep Learning applied to GI, Geospatial Analysis, Geospatial Big Data, volunteered geographic information might be other enhancers to a NATO SDI.

6. NATO Priority:

NATO SDI supported by a fully integrated GIS will allow for harmonizing geospatial datasets from various sources through a cloud approach, in order to seamlessly share geospatial information (GI), products and services within the Alliance in the most effective and efficient way.

7. Intended Follow on to the Study:

The result of the study will help ACT to develop an implementation plan for the GIS Vision and Strategy.

8. Other NATO Bodies Involved in the Related Area of Work:

Several NATO and Partner nations are involved in interoperability testing of geospatial information and services through ACT-sponsored TIDE and CWIX events.

The FMN Capability Planning Working Group (CPWG) and especially the GEOMETOC syndicate is performing work related to this project, since the FMN roadmap and its implementation in Services Instructions for GI aim at building a “deployable SDI” by identifying the architecture, the services and standards for Coalition-wide GI sharing.

The CIS Branch is involved as the IT enabler of the SDI on NATO networks and Domains. The SDI cannot be achieved without the involvement of the nations.

Several nations have developed and are implementing SDIs independently.

9. Current Industrial Involvement with the Sponsor Group:

As far as ACT knows, none

10. Proposed Start Date: Spring or Summer 2021

11. Desired Completion Date: December 2021

12. Study Classification: NATO Unclassified

13. Study Open to Partner industries: Yes

14. Final report releasable to: Interoperability Platform (IP), ACT JISR-JE Branch

15. Sponsoring Group Point and IS Point of Contact:

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SHORT DESCRIPTION OF THE NIAG STUDY GROUP MANAGEMENT TEAM ROLES

1. The **Study Group Chairman** is responsible for the carrying out of the study by the Study Group on behalf of the NIAG and for the presentation of the final report. He/she will formulate and direct the study work plan and oversee the administration of the study. The Study Group Chair may call on the NIAG Vice-Chairman, the NIAG Head of Delegation for his nation and the IS NIAG Coordinating Staff Officer to receive advice and assistance as required.
2. The **Deputy Chairman** will assist the Chairman in the management of the study and provide stand-in for the Chairman when and as required.
3. The **Rapporteur** will act as Secretary to the Study Group, supporting the Chair in the administration of the Study Group activities. Normally this will involve assisting with the meeting arrangements, compiling the records of meetings and disseminating information to the SG members. The Rapporteur will also act as the sole interface for the Study Group members regarding NIAG Study processes and procedures. The rapporteur will further communicate with or escalate any unresolved topic to the NIAG secretary as required.

SHORT DESCRIPTION OF THE QUICK REACTION TEAM'S ROLE

1. The **Quick Reaction Team** is responsible for assisting the NIAG Study Group in the gathering of information, monitoring the study work, in liaising with other NATO bodies or groups who can provide information and assistance.
2. After delivery of the final report, the Quick Reaction Team is responsible for drafting the "Sponsor Assessment Form" to be considered at the first sponsor group meeting following the final report delivery.
3. This form has then to be provided to the NIAG Coordinating Staff Officer, preferably within 3 months of receipt of the study final report.