

HQ Supreme Allied Commander Transformation

RFIP-ACT-SACT-23-23

# **Headquarters Supreme Allied Commander Transformation Norfolk Virginia**



## **REQUEST FOR INNOVATIVE PARTICIPATION (RFIP) RFIP-ACT-SACT-23-23**

This document contains a Request for Innovative Participation (RFIP) Call for Industry and Academia collaboration regarding the Innovation Challenge 2023/Spring (IC-23/Spring) calling for solutions (applications, systems, tools, concepts etc.) that can support solution development for NATO. Industry and Academia wishing to respond to this RFIP should read this document carefully and follow the guidance for responding.

General Information	
Request For Information No.	RFIP-ACT-SACT-23-23
Project Title	Innovation Challenge 2023/Spring: Monitoring the Arctic: from space to seabed
Due date for submission of requested information	<b>14 MAY 2023</b>
Contracting Office Address	NATO, HQ Supreme Allied Commander Transformation (HQ SACT) Purchasing & Contracting Suite 100 7857 Blandy Rd, Norfolk, VA, 23511-2490
Contracting Points of Contact	Mrs. Tonya Bonilla e-mail : <a href="mailto:tonya.bonilla@act.nato.int">tonya.bonilla@act.nato.int</a> Tel : +1 (757) 747-3575  Mrs. Catherine Giglio e-mail : <a href="mailto:catherine.giglio@act.nato.int">catherine.giglio@act.nato.int</a> Tel : +1 (757) 747-3856  Ms. Magdalena Ornat E-mail: <a href="mailto:Magdalena.ornat@act.nato.int">Magdalena.ornat@act.nato.int</a> Tel.: +1-757-747-3150
Technical Points of Contact	Ms. LT Melodie Gallant e-mail: <a href="mailto:melodie.gallant@act.nato.int">melodie.gallant@act.nato.int</a> Tel: +1 (757) 747-3840  Mr. Serge Da Deppo e-mail: <a href="mailto:serge.dadeppo@act.nato.int">serge.dadeppo@act.nato.int</a> Tel: +1 (757) 747-3747  Mr. Andrei Mititelu e-mail: <a href="mailto:Andrei.mititelu@act.nato.int">Andrei.mititelu@act.nato.int</a> Tel: +1 757-747-3425

## SECTION I - INTRODUCTION

1.1 **Summary.** HQ SACT is issuing this Request for Innovative Participation (RFIP) announcement in order to facilitate collaboration between NATO HQ SACT Innovation Hub and industry and academia regarding solutions<sup>1</sup>. The purpose of this RFIP is to request representatives from industry and academia to submit solutions (either existing and/or under development) to the scenario presented at Annex I to participate in NATO Innovation Challenge 2023/Spring. Submissions must conform to this RFIP.

A Selection Committee composed of representatives from NATO HQ SACT, advisors from the IC-23/Spring Partners<sup>2</sup> and other relevant experts invited by NATO HQ SACT will select up to 10 solutions amongst the responses submitted by industry or academia. The selected solutions will be invited to participate in the IC-23/Spring *Pitch Day* on June 22, 2023. Participation in the *Pitch Day* will be held both onsite and online. An Advisory Panel will be composed of representatives from NATO HQ SACT, the IC-23/Spring Partners and other relevant experts invited by NATO HQ SACT. The Advisory Panel will assist in assessing which solution(s) respond best to the scenario. The final selection of the IC-23/Spring winners will be performed by a Board, composed by representatives of HQ SACT, NATO and other relevant experts.

The nature of this event will be *discovery* only and will not be intended to solicit contracts. However, relevant solutions could potentially support development of future concepts, doctrine, STANAGs, user requirements, capability development, etc.

1.2 **Dates.** The events and timelines of IC-23/Spring is described in Section III. It will take place between 20 March and 22 June 2023, with the IC-23/Spring *Pitch Day* taking place both onsite and online on June 22 2023. Details will be posted on the Innovation Challenge webpage (<https://www.innovationhub-act.org>) and on the following link: <https://cvent.me/ORD30z>

1.3 **Disclaimer.** **This is a Request for Innovative Participation (RFIP) only, and in no way constitutes a current Request for Proposal (RFP) or a commitment to issue a future RFP.**

HQ SACT has not made a commitment to procure any of the products/solutions described herein, and release of this RFIP shall not be construed as such a commitment, nor as authorization to incur cost for which reimbursement will be

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<sup>1</sup> In this RFIP, the term “solutions” refers to applications, tools, systems concepts or devices.

<sup>2</sup> Old Dominion University (USA), Ministry of Defense of Denmark, NATO. Also contributing to this challenge is the Open Seas Technology Innovation Hub (ODU), supported by the US Department of Energy.

required or sought. Further, respondents are advised that HQ SACT will not pay for any information or administrative costs incurred in *responding* to this RFIP, nor will HQ SACT pay costs associated with participating in the IC-23/Spring. The costs for responding to this RFIP and participating in the IC-23/Spring shall be borne solely by the responding party. Not responding to this RFIP does not preclude participation in any subsequent RFP if issued in the future.

## **SECTION II –BACKGROUND**

### **2.1 ACT Framework for collaborative Interaction (FFCI).**

2.1.1 HQ SACT has implemented a Framework for Collaborative Interaction (FFCI) to increase opportunities for industry and academia to contribute to ACT capability development efforts through collaborative work. Such collaboration enables HQ SACT, and NATO as a whole, to benefit from industry/academia models, advice, capabilities and experience in the course of this work. In addition to the benefits ACT gains from such projects, this collaborative effort will provide industry/academia with an improved understanding of NATO's capability requirements and associated issues and development challenges to be addressed by ACT. Potential collaborative projects are on specific topics that are of mutual interest to both parties but shall be restricted to collaborations in non-procurement areas. Several mechanisms have been already developed to support the initiation of collaborative projects between industry/academia and ACT ranging from informal information exchanges, workshops and studies, to more extensive collaboration on research and experimentation.

More detailed information on the ACT FFCI initiative can be found on the ACT web site being developed to support FFCI projects at <http://www.act.nato.int/ffci>.

2.1.4 HQ SACT has since 2017 conducted Innovation Challenges; these are informative and exploratory events focused mainly at the application of new technologies. The collaborative interaction sought for the IC-23/Spring is focused on Surveillance of the Arctic: from Space to Seabed (see scenarios at Annex I). RFIP respondents should be willing to share their knowledge, expertise, and products/solutions with NATO and national representatives participating in the IC-23/Spring.

2.1.5 IC-23/Spring winners for HQ SACT will be selected by a Board of HQ SACT representatives and its partners and announced as part of the *Pitch Day* program.

All information provided in response (abstracts, supporting materials, and, if selected

for *Pitch Day*, in the presentations) must be releasable to the public. While the abstracts only will be provided in the public domain if selected for presentation at IC-23/Spring *Pitch Day*, both the Selection Committee and the Advisory Panel will be comprised of representatives from NATO HQ SACT and other relevant experts invited by NATO HQ SACT.

## **SECTION III - DESCRIPTION OF THE IC-23/Spring**

### **3.1 Background.**

The HQ SACT Innovation Hub is the main organizer of the IC-23/Spring. The HQ SACT Innovation Hub also coordinates the NATO Innovation Network, federating national entities in order to leverage open innovation. For more information on the HQ SACT Innovation Hub, please visit <https://innovationhub-act.org/>.

### **3.2 Objectives.**

The objectives of this RFIP is to invite eligible industry and academia to participate in IC-23/Spring through submission of abstracts in response to the scenario at Annex I, identifying and exploring existing and emerging technologies that could address current and foreseeable challenges to an effective and efficient approach.

### **3.3 Planned activities.** The IC-23/Spring will consist of:

- a. Initial Selection Phase: The selection will be announced 21 days prior to the *Pitch Day*, allowing further development of the presentation. Finalists will be contacted directly by email by the Innovation Hub team and the announcement will be made on the IC-23/Spring webpage and on this link: <https://cvent.me/ORD30z>.

The selected submissions will be invited to be presented live online or onsite on the *Pitch Day*. Any cost associated with presenting online remains the sole responsibility of the industry/academia providing the submission.

- b. Final selection phase: On the *Pitch Day*, the winners of the IC-23/Spring will be selected by a Board of HQ SACT representatives and its partners and announced as part of the *Pitch Day* program.

### **3.4 Expected input from industry/academia.** See below in Section IV.

### **3.5 Expected benefits to industry.** Through this collaboration, HQ SACT offers industry / academia an opportunity to gain awareness about the particularities of the innovation challenges in NATO and Nations. It will be an opportunity to engage with HQ SACT

Innovation Hub and other participants within a framework of a community of interest focused on the development of innovative solutions based on new technologies in support of the NATO Innovation Process.

### 3.6 Monetary Awards

3.6.1 HQ SACT presents three levels of monetary awards for the top three winners of the IC-23/Spring: a. first place: \$5,000 USD, b. second place: \$2,500 USD, c. third place: \$1,000 USD.

3.6.2 The monetary award is presented to the (1st/2nd/3rd) place recipients in the HQ SACT Innovation Challenge 2023/Spring. The presentation of the award does not alter the relationship between HQ SACT and the recipient and is only presented to eligible industry or academia entries, who have complied with the terms and conditions defined for the Challenge. The recipient is responsible for the proper recording and reporting of the monetary award to the appropriate tax authorities and the payment of any associated taxes.

3.6.3 Monetary awards will be paid to the recipient with an Electronic Funds Transfer.

3.6.4 HQ SACT and its partners may offer additional recognition as part of the Innovation Challenge winning package (on-stage events, etc.).

## SECTION IV - REQUESTED INFORMATION

4.1 **Intent.** The intent of this RFIP is to call for formal collaboration with industry and academia in order to present solutions based on new technologies that can support the improvement of NATO Innovation process. These solutions should be applicable in a federated information environment and should be interoperable by design. Additionally, they should be intuitive, requiring none or very limited training at the end-user level. Solutions are sought at different levels of development, from the “advanced concept development stage” through “customizable applications” available “commercial off-the-shelf”. Solutions may address some of the challenges described in the scenario presented in Annex 1, associated to one or more of the following **areas of interest**:

- Communications: to provide reliable communications systems, with continuous coverage, which will be able to tie together sensors and operations in real time from orbit, all the way to the sea floor.
- Situational Awareness: to conduct operations in the Arctic, develop and maintain a

picture of current and probable future conditions.

- Search and Rescue: to execute search and rescue operations in a difficult environment.
- Sub Surface Navigation: to allow rapid and accurate determination of position on the surface, sea floor bottom, below the water surface, and below the ice.

The inherent discovery nature of the IC-23/Spring allows also for novel approaches to these challenges.

#### 4.2 Responses to the RFIP.

**In response to the RFIP, please submit an abstract (4500 characters maximum, space non-included) describing the solution idea. Based on this submission, an IC-23/Spring Selection Committee will select and invite up to 10 abstracts to be presented at the Innovation Challenge *Pitch Day*.**

The response to this RFIP should be submitted through the webform at <http://www.cvent.com/c/abstracts/39abae6c-9659-4f5c-9847-de2fae74d896>

It must contain:

- 1) The name of the participant (Industry/academia)
- 2) The name of the proposed solution and which area(s) of interest it addresses;
- 3) Name(s) of participant's representative(s) (new representatives cannot be appointed after pre-selection)

The abstract can include:

- up to 4500 characters max text document, space on including
- max 5 graphics, pictures or slides

Note that all information provided in response to this RFIP has to be releasable to the public.

**4.3 Evaluation of Solutions and Selection Process.** A Selection Committee will be convened to analyze and evaluate the responses to the RFIP and select which submissions will be presented/demonstrated at IC-23/Spring. The Selection Committee will assess each response according to the following criteria:

**4.3.1 Eligibility.** The response to this RFIP should reflect a solution that addresses at least one of the areas of interest presented at paragraph 4.1 and detailed in Annex 1.

Submissions will specifically be scored against:

- **Relevance:** Understood as if the solution addresses all aspects of the challenge in both military and civilian / commercial settings.
- **Innovativeness:** Understood as if the Solution is new and does not operationally exist.
- **Value:** Understood as if the solution is a game changer for both military and civilian / commercial domains
- **Investment viability:** Understood as if the solution requires limited resources and is of high value

4.3.2 *Priority:* the Selection Committee retains the right to prioritize the answers to RFIP based on the relevance and diversity of the solutions, on the proposed *demonstration* method, and the complexity of the challenges addressed. Additionally, ensuring a balanced representation of both industry and academia will be part of the prioritization process.

**4.3.3 Status: Only submissions by industry and academia headquartered or located in NATO member countries will be considered for IC-23/Spring.**

4.4 Terms applicable to this RFIP: The participating industry and academia agree that the IC-23/Spring, without any limitation or further compensation, may use the participant's name as well as voice and/or likeness of its representative(s) in any and all media for the purpose of advertising and promoting the IC-23/Spring HQ SACT, and any associated programs. Further, the participant grants HQ SACT and the IC-23/Spring the right to take photographs and videos of the submission in connection with the challenge and grant the right to the IC-23/Spring to use, and to publish the photographs and videos with or without the participant's name and for any lawful purpose, including but not limited to, publicity, illustration, advertising, and internet and social media content. Additionally, the participants agree that the IC-23/Spring and thus HQ SACT may demonstrate the operation and functionality of the submission (but may not modify or publicize the source code) in connection with advertising and promoting the IC-23/Spring and subsequent events organized by HQ SACT.

a. The participating industry and academia represent and warrant that there are no contractual or other obligations that would:

- (i) prevent the participant from granting the right of use provided here and/or



- (ii) prevent the participant from claiming Intellectual Property ownership rights in materials or inventions created by the participant and incorporated into the submission.
- b. Representation and Warranties: The participating industry and academia represent and warrant that:
  - (i) the participant is the original author of the contributions to the submission;
  - (ii) to the participant's knowledge, the submission will not infringe on any third party's copyright, patent, trademark, trade secret, right of publicity or property or any other right;
  - (iii) the submission is not the subject of any actual or threatened litigation or claim;
  - (iv) the submission will not be obscene, offensive, libelous, pornographic, threatening, abusive, or otherwise objectionable; and
  - (v) the submission will not contain any content that is illegal, would constitute or encourage a criminal offense, or would otherwise give rise to liability or violate any law.
- c. The participating industry and academia agrees to grant to the IC-23/Spring (and thus HQ SACT), a non-exclusive, use of the submission as necessary to conduct the IC-23/Spring and for internal evaluation purposes by HQ SACT:
  - (i) in any Intellectual Property incorporated into the submission;
  - (ii) in Intellectual Property that is needed to operate or use the submission;
  - (iii) in Intellectual Property covering other materials or inventions that are incorporated into the submission, and/or
  - (iv) in Intellectual Property that is needed to operate or use the submission.
- d. Further, participants acknowledge and agree that the submission is submitted on a non-confidential basis, and that the IC-23/Spring (and thus HQ SACT) shall have no obligation to prevent the disclosure or otherwise treat as confidential such submission. Also, to the extent that the submission includes publication of information or content on [innovationhub-act.org](http://innovationhub-act.org) and [CVENT.com](http://CVENT.com), participating industry and academia consent to terms governing utilization of any information or content published on [innovationhub-act.org](http://innovationhub-act.org) and [CVENT.com](http://CVENT.com).

- e. By responding to this RFIP and participating in the IC-23/Spring the participating industry and academia acknowledge and agree that the IC-23/Spring may receive many entries and submissions in connection with this and/or other participants, and that such entries and submissions may be similar or identical in theme, idea, format, or other respects to the submission. By responding to this RFIP the participating industry and academia waive any and all past, present or future claims against HQ SACT and the IC-23/Spring relating to such similarities, or asserting that any compensation is due in connection with the submission.
- f. **Limitation of Liability:** In no event shall the HQ SACT or the IC-23/Spring be liable for incidental, exemplary or punitive damages arising out of or in connection with the IC-23/Spring, industry and academia participation, or the submission. If a participant has a dispute with any participant in the IC-23/Spring or any other third party, the participating industry and academia release HQ SACT and the IC-23/Spring from any and all claims, demands and damages, (actual and consequential) of every kind and nature arising out of or in any way connected with such disputes.
- g. **Release and Indemnification:** By responding to this RFIP and participating in the IC-23/Spring, industry and academia agree, on behalf of that participant and the heirs, executors and administrators, to release and hold harmless the IC-23/Spring (and thus HQ SACT) from any claim, liability, damage, litigation, illness, injury or death that may occur, directly or indirectly, whether caused by negligence or not, from participating in the IC-23/Spring. This includes any entry (submission) submitted by the participating industry and academia.
- **4.5 Communication and Follow-on.** The answers to RFIP should be submitted through the webform at <https://cvent.me/ORD30z>. Post-submission, RFIP respondents may be contacted to provide additional information on their proposals/response. The results of the selection process will be posted on the Innovation Hub webpage: <https://innovationhub-act.org/challenge-intro> and at <https://cvent.me/ORD30z>

4.6 **Questions.** Questions of a technical nature about this RFIP announcement shall be submitted solely to the Innovation Challenge Forum:

<https://www.innovationhub-act.org/forums/innovation-challenge>

Accordingly, questions shall not contain proprietary and/or classified information

4.9 **Summary.** This is an RFIP only. The purpose of this RFIP is to request both industry and academia to present and demonstrate solutions (either existing and/or under development) based on new technologies that may support the improvement of NATO Innovation Process. HQ SACT has not made a commitment to procure any of the products/solutions described herein, and release of this RFIP shall not be construed as such a commitment, nor as authorization to incur cost for which reimbursement will be required or sought. It is again reemphasized that this document is a RFIP, and not a RFP of any kind.

For more information on the Innovation Challenge IC-23/Spring, please visit <https://innovationhub-act.org/nato-innovation-challenge>

## ANNEX I – SCENARIO AND QUESTIONS

### Introduction

The Arctic region is changing at a rapid pace. Due to the warming climate, the sea ice cover is thinning in some areas, and disappearing in others, for significant parts of the year. This opens new economic opportunities in areas such as transportation, resource harvesting, and tourism. It also creates potential for geopolitical conflict, as nations try to position themselves to control the area, its resources and activities.

While the climate driven changes are significant, some basic characteristics of the Arctic continue to make surface and subsurface operations in the area challenging. There is poor GPS coverage, limiting the ability to accurately determine position on the surface and much of the area is still covered by ice. Moreover, the nature of the earth's ionosphere in the Arctic can be highly disruptive to radio transmission and radar. Satellite coverage is less than other parts of the globe. Additionally, should conflict break out, technologies such as radar and communications jamming, can add additional issues in an already difficult environment.

Five of the eight Arctic nations are currently members of NATO. NATO has an interest in helping ensure the peace, well-being of the region and preserves its incredible resources. In this more dangerous and competitive world, NATO is increasing its presence and vigilance across the Alliance, including in the High North. This NATO Innovation Challenge aims at collecting solutions that will ensure effective operations in the Arctic from Space to the Seabed, taking into account its geographical particularities and the context of a NATO joint operation.

By bringing innovative solutions from Academia and Industry, the NATO Innovation Challenge helps resolve operational problems for NATO, its member Nations, and peaceful users of the region. **This NATO Innovation Challenge edition is co-organized by NATO Allied Command Transformation, the NATO Communications and Information Agency and hosted by the Joint Arctic Command of Denmark. Contributing to this challenge is the Open Seas Technology Innovation Hub, supported by the US Department of Energy.**

### Scenario

A set of outposts maintained by one of the NATO Arctic States have suffered a significant coordinated drone and communications denial attack from a yet to be determined adversary. In response to this event, NATO forces have been deployed to conduct a joint operation covering space, air, land, sea, cyber and cognitive domains, to protect military assets and civilian infrastructures. The purpose of the mission is to secure and monitor national territories and international arctic areas while the source of the aggression is investigated and de-escalation measures are implemented.

The technologies and innovations sought to support the NATO mission will also be of use to civil governments, commercial entities, and individuals of the Arctic region.

### Challenge

The aim of this challenge is to receive new and innovative proposals to support Arctic operations from Space to Seabed. Particularly, NATO is interested in having proposals addressing the following sub-topics:

## **1) Communications**

The Arctic presents multiple communication challenges. Problems on the surface and in the air include issues such as: intermittent satellite coverage, ionospheric interference with radio signals, reduced visibility due to weather, and proven capabilities of adversaries to jam signals. Below the surface, communications are hampered by limited visibility, signal penetration, and the effects of water salinity and density on propagation.

**This subtopic is looking for ways to develop reliable communications systems, with continuous coverage, which will be able to tie together sensors and operations in real time from orbit, all the way to the sea floor.**

## **2) Situational Awareness**

A key part to conducting operations in the Arctic is developing and maintaining a picture of current and probable future conditions. In the case of military operations, this may include the ability to detect potential adversaries across a challenging environment. In the case of commercial operations, it may include the monitoring of subsea and surface assets, such as transmission cables or wind turbines, which may be impacted by natural causes, accidental mishaps, or purposeful sabotage. It also includes the capability of knowing and predicting conditions such as ice and weather. From an environmental standpoint, it may include detecting and monitoring drones, buoys, plastic waste, icebergs and other objects, already present in large numbers in the Arctic.

**This sub-topic calls for such innovations as improvements in sensor technology, and/or the analytics that are enabled by sensor data.**

## **3) Search and Rescue:**

As the Arctic becomes more accessible, there will be an increased need to execute search and rescue operations in this difficult environment. The failure of aircraft or other modes of transportation may lead to potential stranding of crew members in highly dangerous situations, which may also include injury.

**This sub-topic looking for innovations which can provide assistance (medical and supplies) to a five-person crew at a range of 1000km (approx. 620 miles).**

## **4) Sub Surface Navigation**

The Arctic has challenged navigators since the first expeditions were undertaken. Early explorers traveling from Greenland to the Pole did not require high-frequency, precise location data. Modern NATO and commercial operations now rely on this technology. This is difficult to accomplish in an environment with intermittent or denied GPS coverage, and potential problems with radio transmission.

**This subtopic is looking for innovations that will allow for rapid and accurate determination of position on the surface, sea floor bottom, below the water surface, and below the ice.**

**All of these topics are seeking to find solutions that provide real-time, pervasive coverage and capabilities to the Arctic region. Solutions can address one or several of the above subtopics.**