

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



## **REQUEST FOR INFORMATION RFI-ACT-SACT-19-26**

This document contains a Request for Information (RFI) Call for Industry and Academia collaboration regarding the Innovation Challenge 2019/Spring (IC-19/Spring) calling for solutions (applications, systems, tools, concepts etc.) that can support solution development for NATO. Industry and Academia wishing to respond to this RFI should read this document carefully and follow the guidance for responding.

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General Information	
Request For Information No.	19-26
Project Title	Innovation Challenge 2019/Spring - Solutions to address the effects of <u>Electromagnetic Pulse</u> , natural or human-made, of large or localized scale.
Due date for submission of requested information	<b>24 April 2019</b>
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## SECTION I - INTRODUCTION

1.1 **Summary.** HQ SACT is issuing this Request for Information (RFI) 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 RFI is to request representatives from industry and academia to submit solutions (either existing and/or under development) to the scenario presented at Annex I (preventing damage caused by Electromagnetic Pulses) to participate in NATO Innovation Challenge 2019/Spring. Submissions must conform to this RFI.

A Selection Committee composed of representatives from NATO HQ SACT and representatives from the IC-19/Spring Partners<sup>[1]</sup> will select 10 solutions amongst the responses submitted by industry, academia, or by individuals (participating under separate Terms of Participation). The 10 selected solutions will be invited to participate in the IC-19/Spring *Pitch Day* on May 30, 2019, in Brno, Czech Republic. Participation in the *Pitch Day* can be onsite or online. An Advisory Panel will be composed of representatives from NATO HQ SACT and from the IC-19/Spring Partners. The Advisory Panel will assist in assessing which solution(s) respond best to the scenario. The final selection of the IC-19/Spring winners will be performed by three separate Boards, each composed entirely by representatives of that respective organiser (HQ SACT; Old Dominion University; and DefSec).

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-19/Spring is described in Section III. It will take place between March and 30 May 2019, with the IC-19/Spring *Pitch Day* taking place in Brno, Czech Republic on 30 May 2019. Exact location will be posted on the Innovation Challenge webpage.

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

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

<sup>[1]</sup> Old Dominion University (USA), VTU (Military Technical Institute, Brno, Czech Republic), Afwerx (US Air Force Innovation Hub), and Def Sec (Rep Czech Innovation Hub)

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HQ SACT has not made a commitment to procure any of the products/solutions 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. Further, respondents are advised that HQ SACT will not pay for any information or administrative costs incurred in *responding* to this RFI, nor will HQ SACT pay costs associated with participating in the IC-19/Spring. The costs for responding to this RFI and participating in the IC-19/Spring shall be borne solely by the responding party. Not responding to this RFI 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

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collaborative interaction sought for the IC-19/Spring is focused on presenting and demonstrating solutions to address the effects of Electromagnetic Pulse, natural or man-made, of large or limited (localized) scale (see scenarios at Annex I). RFI respondents should be willing to share their knowledge, expertise, and products/solutions with NATO and national representatives participating in the IC-19/Spring.

2.1.5 IC-19/Spring winner for HQ SACT will be selected by a Board of HQ SACT representatives and announced as part of the *Pitch Day* programme. Two other winners will be selected, one selected by a Board comprised of representatives from Old Dominion University and one selected by a Board representing DefSec. In responding to this RFI, industry and academia can elect to participate in one, some or all the selections; this should be clearly stated in the submission. However, information contained in the submission will be made available to the Selection Committee and to the Advisory Panel.

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-19/Spring *Pitch Day*, both the Selection Committee and the Advisory Panel will be comprised of representatives from NATO HQ SACT as well as representatives from the IC-19/Spring Partners.

## **SECTION III - DESCRIPTION OF THE IC-19/Spring**

### **3.1 Background.**

The HQ SACT Innovation Hub is the main organizer of the IC-19/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 RFI is to invite industry and academia to participate in IC-19/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-19/Spring will consist of:

- a. Initial Selection Phase: The selection will be announced 5 weeks 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-19/Spring webpage. The selected submissions will be invited to be presented live online or onsite on the *Pitch Day*. Any cost associated with presenting online or onsite remains the sole responsibility of the industry/academia providing the submission.
- b. Final selection phase: On the *Pitch Day*, the winner of the IC-19/Spring will be selected by a Board of HQ SACT representatives and announced as part of the *Pitch Day* programme. Additionally, two winners will be selected, one will be selected by a Board comprised of representatives from Old Dominion University and one will be selected by a Board representing DefSec.

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 with the IC-19/Spring Partners 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.

## SECTION IV - REQUESTED INFORMATION

4.1 **Intent.** The intent of this RFI 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

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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**: prevention of damage caused to assets and vehicles of first responders and military personnel; mitigation of effects of the event on critical infrastructure and capabilities; rapid recovery of capabilities lost as a result of such an event. The inherent discovery nature of the IC-19/Spring allows also for novel approaches to these challenges.

#### 4.2 Responses to the RFI.

**In response to the RFI, please submit a three page abstract (4500 characters maximum) describing the solution idea. Based on this submission, an IC-19/Spring Selection Committee will select and invite up to 10 abstracts to be presented at the Innovation Challenge *Pitch Day*.**

The response to this RFI should be submitted through the webform at <https://innovationhub-act.org/eform/submit/nato-innovation-challenge-2019-1> 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
- max 5 graphics, pictures or slides
- max 4 min video/audio file

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

#### 4.3 Evaluation of Solutions and Selection Process. A Selection Committee will be convened to analyse and evaluate the responses to the RFI and select which

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submissions will be presented/demonstrated at IC-19/Spring. The Selection Committee will assess each response according to the following criteria:

- 4.3.1 *Eligibility*: The response to this RFI should reflect a solution that addresses at least one of the areas of interest presented at paragraph 4.1. Submissions will specifically be scored against:
- **Usefulness**: Understood as the potential impact of proposed solution on challenge topic.
  - **Innovativeness**: Understood as if it is a genuinely new idea or an already existing solution adapted for this Challenge.
  - **Feasibility**: Understood as if the solution is cost-effective and easy to develop and implement.
- 4.3.2 *Priority*: the Selection Committee retains the right to prioritize the answers to RFI 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-19/Spring.
- 4.4 Terms applicable to this RFI: The participating industry and academia agree that the IC-19/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-19/Spring, HQ SACT, and any associated programs. Further, the participant grants HQ SACT and the IC-19/Spring the right to take photographs and videos of the submission in connection with the challenge and grant the right to the IC-19/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-19/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-19/Spring and subsequent events organized by HQ SACT.

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- 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-19/Spring (and thus HQ SACT), a non-exclusive, use of the submission as necessary to conduct the IC-19/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-19/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), participating industry and

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academia consent to terms governing utilization of any information or content published on [InnovationHub-act.org](http://InnovationHub-act.org).

- e. By responding to this RFI and participating in the IC-19/Spring the participating industry and academia acknowledge and agree that the IC-19/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 RFI the participating industry and academia waive any and all past, present or future claims against HQ SACT and the IC-19/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-19/Spring be liable for incidental, exemplary or punitive damages arising out of or in connection with the IC-19/Spring, industry and academia participation, or the submission. If a participant has a dispute with any participant in the IC-19/Spring or any other third party, the participating industry and academia release HQ SACT and the IC-19/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 RFI and participating in the IC-19/Spring, industry and academia agree, on behalf of that participant and the heirs, executors and administrators, to release and hold harmless the IC-19/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-19/Spring. This includes any entry (submission) submitted by the participating industry and academia.

**4.5 Communication and Follow-on.** The answers to RFI should be submitted through the Innovation Hub webform at <https://innovationhub-act.org/eform/submit/nato-innovation-challenge-2019-1> . Post-submission, RFI respondents may be contacted to provide additional information on their proposals/response. The results of the selection process will be posted on the HQ SACT P&C website at: <http://www.act.nato.int/contracting>, and on the Innovation Hub webpage: <https://innovationhub-act.org/nato-innovation-challenge>

**4.6 Questions.** Questions of a technical nature about this RFI announcement shall be

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submitted solely to the <https://innovationhub-act.org/forum/innovation-challenge-20191-innovation-active-projects/innovation-challenge-2019-spring> Accordingly, questions shall not contain proprietary and/or classified information

4.7 **Deadline for responding to this RFI.** April 24, 2019

4.9 **Summary.** This is an RFI only. The purpose of this RFI 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 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 again reemphasised that this document is a RFI, and not a RFP of any kind.

For more information on the Innovation Challenge IC-19/Spring, please visit <https://innovationhub-act.org/nato-innovation-challenge>

**ANNEX I - SCENARIO**

**Background**

Electromagnetic Pulses (EMP) pose a real and critical danger to the life and infrastructure of the world. These radio bursts can be either natural – as in the case of some solar flares, or human-made – as in the case of the detonation of nuclear weapons, or discharge of other human-made devices.

There have been multiple occurrences of large-scale solar storms throughout modern history. Nuclear weapons exist throughout the world. EMP generating devices may be manufactured or purchased. With the increasing reliance of the modern world on electronic and electrically-based technologies, the potential socioeconomic impact of these types of events has grown.

To frame the challenge we provide two possible scenarios.

**Scenario #1**

A massive solar event has occurred, destroying or disabling, the majority of the electrical-based systems throughout the world. While European and US space agencies were able to provide a warning that an event was about to occur, the severity of the event was beyond that of anything previously recorded.

Government agencies, particularly the militaries, were able to shut down critical systems, saving about half of them. Operators of power grids were able to shut down some systems, but still suffered extensive losses in power generation, control and transmission capabilities. Globally, the remaining civilian agencies, commercial enterprises, and non-profits have fared worse, with almost total loss of any electrical-based systems and electronics which were powered on at the time of the event.

All satellite systems were disabled by the event, leading to a loss of global positioning and communications transmission capability.

**Scenario #2**

Human-made EMP events have simultaneously occurred in three medium-sized cities, located across Europe. The effective radius of the events were 100 miles from the center of each city. A message was posted in social media saying there would be more attacks, but not providing any reasons or demands.

No systems were shut down in anticipation of EMP, leading to massive loss of all electronics and power delivery systems within the affected areas.

Other critical infrastructure elements such as

- communication,
- water and food,
- and fuel delivery are out of commission.

Approximately 75% of vehicles in the affected area are now inoperable.