RFI-ACT-SACT-19-53

Headquarters Supreme Allied Commander Transformation Norfolk Virginia

REQUEST FOR INFORMATION

RFI-ACT-SACT-19-53

This document contains a Request for Information (RFI) Call for Industry and Academia collaboration regarding the Innovation Challenge 2019/Fall (IC-19/Fall) 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.

General Information	
Request For Information No.	RFI-ACT-SACT-19-53
Project Title	Innovation Challenge 2019/Fall - Solutions to prepare first responders and leaders at all levels to operate in a fast-paced environment, understand and decide in unpredicted and complex crises, and manage a very dynamic technology and information environment.
Due date for submission of requested information	**30 September 2019**
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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. [1] 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 (Optimizing Leader Development) to participate in NATO Innovation Challenge 2019/Fall. Submissions must conform to this RFI.

A Selection Committee composed of representatives from NATO HQ SACT and advisors from the IC-19/Fall Partners[1] will select up to 10 solutions amongst the responses submitted by industry, academia, or by individuals (participating under separate Terms of Participation). The selected solutions will be invited to participate in the IC-19/Fall *Pitch Day* on October 29, 2019, in Budapest, Hungary. Participation in the *Pitch Day* can be onsite or online. An Advisory Panel will be composed of representatives from NATO HQ SACT, the IC-19/Fall 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-19/Fall winner will be performed by a Board composed entirely by representatives of HQ SACT.

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/Fall is described in Section III. It will take place between July and 29 October 2019, with the IC-19/Fall *Pitch Day* taking place in Budapest, Hungary on 29 October 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.
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

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[1] In this RFI, the term "solutions" refers to applications, tools, systems concepts or devices.
[1] Old Dominion University (USA) and the Hungarian Ministry of Defence (Budapest, Hungary.

any information or administrative costs incurred in *responding* to this RFI, nor will HQ SACT pay costs associated with participating in the IC-19/Fall. The costs for responding to this RFI and participating in the IC-19/Fall 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 collaborative interaction sought for the IC-19/Fall is focused on presenting and demonstrating solutions to prepare first responders and leaders at all levels to operate in a fast-paced environment, understand and decide in unpredicted and complex crises, and manage a very dynamic technology and information environment (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/Fall.

2.1.5 IC-19/Fall winner for HQ SACT will be selected by a Board of HQ SACT

representatives and announced as part of the *Pitch Day* programme.

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/Fall *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-19/Fall

3.1 **Background.**

The HQ SACT Innovation Hub is the main organizer of the IC-19/Fall. 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 eligible industry and academia to participate in IC-19/Fall 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/Fall will consist of:

a. <u>Initial Selection Phase</u>: The selection will be announced 23 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-19/Fall 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. <u>Final selection phase</u>: On the *Pitch Day*, the winner of the IC-19/Fall will be selected by a Board of HQ SACT representatives and announced as part of the *Pitch Day* programme..

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.

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 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*: preparation of our first responders and leaders at all levels to operate in a fast-paced environment, understand and decide in unpredicted and complex crises, and manage a very dynamic technology and information environment. The inherent discovery nature of the IC-19/Fall 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/Fall 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-2019-2. 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 analyze and evaluate the responses to the RFI and select which submissions will be presented/demonstrated at IC-19/Fall. 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:

o **Usefulness**: Understood as the potential impact of proposed solution on challenge topic.

o **Innovativeness**: Understood as if it is a genuinely new idea or an already existing solution adapted for this Challenge.

o **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/Fall.

4.4 Terms applicable to this RFI: The participating industry and academia agree that the IC-19/Fall, 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/Fall, HQ SACT, and any associated programs. Further, the participant grants HQ SACT and the IC-19/Fall the right to take photographs and videos of the submission in connection with the

challenge and grant the right to the IC-19/Fall 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/Fall 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/Fall 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-19/Fall (and thus HQ SACT), a non-exclusive, use of the submission as necessary to conduct the IC-19/Fall 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/Fall (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, participating industry and academia consent to terms governing utilization of any information or content published on InnovationHub-act.org.

e. By responding to this RFI and participating in the IC-19/Fall the participating industry and academia acknowledge and agree that the IC-19/Fall 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/Fall 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/Fall be liable for incidental, exemplary or punitive damages arising out of or in connection with the IC-19/Fall, industry and academia participation, or the submission. If a participant has a dispute with any participant in the IC-19/Fall or any other third party, the participating industry and academia release HQ SACT and the IC-19/Fall 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/Fall, industry and academia agree, on behalf of that participant and the heirs, executors and administrators, to release and hold harmless the IC-19/Fall (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/Fall. 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-2019-2. 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 Innovation Hub webpage: https://innovationhub-act.org/nato-innovation-challenge

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

https://innovationhub-act.org/forums/innovation-challenge

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

4.7 **Deadline for responding to this RFI**. September 30, 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 reemphasized that this document is a RFI, and not a RFP of any kind.

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

ANNEX I – SCENARIO AND QUESTIONS

OPTIMIZING LEADER DEVELOPMENT

Background

The pace of modern-day life has increased dramatically in recent years. Persistent connection to the internet, plus the amount of data and speed of processing enabled by new technologies have created **information overload** and a tempo of operations that has never been seen before. New technologies are also impacting societies and human behavior, making any crisis or conflict even more **complex**. This has led to a slowing down of decisions due to the amount of information to be considered, plus increased physical and mental fatigue from **cognitive overload**.

In the case of first responders in crisis response and military operations, these issues are compounded by the appearance of technologies that: operate autonomously - taking humans out of the decision loop; process and gain insight from vast quantities of data; and change the way that materiel is developed and produced. These capabilities, along with others, will enable new strategies and tactics that have yet to be discovered.

While technologies continue to develop at an increasing rate, the **ability of humans to operate in this new environment** is a topic that deserves more attention. Addressing this situation and preparing leaders to thrive in this "brave new world" is the subject of this challenge.

The Challenge

You are a member of the elite group of problem solvers, technologists, and experts in human capability development. We are looking for your help in preparing our first responders and leaders at all levels to operate in a fast-paced environment, understand and decide in unpredicted and complex crises, and manage a very dynamic technology and information environment.

What we are looking for:

- **LEADERSHIP SKILLS**
- **DECISION MAKING SOLUTIONS**
- **HUMAN-MACHINE OPTIMIZATION**
- **MENTAL RESILIENCE**

LEADERSHIP SKILLS

Modern technology enables and calls for a better way to manage responsibilities, tasking and interactions during operations.

This future leadership paradigm should transform decision-making into a collaborative and agile process, and empower leaders at the top to delegate intent co-creation authorities to the lowest levels.

Junior leaders will take increased and independent responsibility. They need to be agile, autonomous and creative.

- We are looking for solutions to prepare leaders at all level for this **mindset change** and provide them with the needed **skills to lead and operate within the new paradigm**.
- We are also looking for software and hardware solution to increase individual cognitive competency development; namely, learning to implement technologies that will augment a leader's Situational Awareness and decision-making as well as **enhance cognitive performance under extreme pressure** with neuroscience technology solutions (including EEG based mental training, serious games re-wiring the neural network for decentralized collaborative operations, or special training and education solutions aiming to enhance the personal mental or team coherence
- We need to **teach** the needed skills in ways that are **faster**, provide **better** retention, and are cost efficient when scaled.
- We also need to continuously measure the impact of training solutions and encourage continuous improvement.

Combinations of advanced scientific solutions in neuroscience, psychology and technology is what we are looking for. Conceptual solutions are also welcome.

DECISION MAKING SOLUTIONS

We are looking for solutions on how to prepare leaders at all levels to make decisions in complex environments by leveraging advanced technologies and learning to trust their capabilities and understand their limitations; and for solutions that assist in developing and evaluating decision making skills in the training and pre-deployment phase.

- We want to optimize
  - **decision making skills testing and evaluation**
  - **Understanding** perspectives - Balance Military and Political objectives
  - **Critical thinking** - Understand/overcome decision making bias (including individual/team/organizational/technological)
  - **Innovative thinking** – ability to see beyond our own horizons
  - **Strategic thinking** - understand the impact of local decisions in a wider space/time and societal context.
- We need solutions to
  - **Learn** from failure and success
  - **Experiment** in a safe environment
  - **Simulate** courses of action
  - Provide support for change and adaptation
  - Recognize when change is needed or not

HUMAN-MACHINE OPTIMIZATION

We are looking for solutions to optimize how human leverage and interact with novel technologies and machines, in particular Artificial Intelligence.

Issues of interest include:

- What is the appropriate level of **trust in machines** and how to achieve it?
- What **mindset** is needed and how to train it?
- How to assess and manage **information shortcomings**
- Understanding the **strengths and weaknesses** of the human-machine team
- Understanding the **capabilities/limitations of the machine**

MENTAL RESILIENCE

We are looking for solutions on how to prepare individuals to be better able to maintain or even increase their effectiveness in critical situations (for example, through energy regulation, motivation and re-motivation, accelerated adaptation to a new stressful situation, optimized physical and mental recovery, and improved team cohesion).

We are seeking to develop a toolbox in which the NATO nations can find the elements that will constitute, or contribute to their national programs. This toolbox must be interoperable in order to allow deployment in operations of common capabilities, but also adaptable to the cultural and social particularities of the different Alliance nations.

All the tools and techniques that could increase the field of mental resiliency, including those using the latest technology, may potentially be included in this program

We are looking for solutions to:

- **Prepare individuals**
- Maintain and **increase effectiveness** in critical situations (energy regulation, motivation and Re-motivation, accelerate adaptation to new stressful situation)
- Optimize **physical and mental recovery**
- Improve **team cohesion** by fostering interpersonal relationships.