

Headquarters Supreme Allied Commander Transformation Norfolk Virginia



REQUEST FOR INFORMATION RFI-ACT-SACT-21-101

This document contains a Request for Information (RFI) Call for NATO Nations and Industry to provide input to NATO Special Operations Forces Command and Control Communications and Information Systems (SOF C2 CIS), regarding additional transmission means.

Nations and Industry wishing to respond to this RFI should read this document carefully and follow the guidance for responding.

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HQ Supreme Allied Commander Transformation RFI 21-101	
General Information	
Request For Information No.	21-101
Project Title	Request for NATO Nations and Industry to provide input to NATO Special Operations Forces Command and Control Communications and Information Systems (SOF C2 CIS), regarding additional transmission means
Due date for submission of requested information	01 October 2021
Contracting Office Address	NATO, HQ Supreme Allied Commander Transformation (SACT) Purchasing & Contracting Suite 100 7857 Blandy Rd, Norfolk, VA, 23511-2490
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1 INTRODUCTION

1.1 Headquarters Supreme Allied Commander Transformation (HQ SACT) is issuing this Request for Information (RFI) in order to engage with NATO Nations and Industry. The intention is to identify and assess existing solutions to provide NATO Special Operations Forces (SOF) Command and Control (C2) Communications and Information Systems (CIS) a capability with several wireless deployable transmission means in order to enable communications between different CIS nodes.

1.2. This Request for Information (RFI) does not constitute a commitment to issue a future request for proposal (RFP). The purpose of this request is to involve Nations and Industry through collaboration, in an examination of existing and available capabilities related to deployable wireless transmission means with a focus on how they could be incorporated into a PACE plan (PACE stands for Primary, Alternate, Contingency, Emergency).

1.3 HQ SACT has not made a commitment to procure any of the items 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. The costs for responding to this RFI shall be borne solely by the responding party. Not responding to this RFI does not preclude participation in any subsequent RFP if issued in the future.

2 – GENERAL BACKGROUND: ACT Framework for Collaborative Interaction (FFCI)

2.1 ACT 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 HQ SACT gains from such projects, this collaborative effort will provide industry / academia with an improved understanding of NATO's capability requirements and the associated issues and development challenges to be addressed by HQ SACT. 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, studies or more extensive collaboration on research and experimentation.

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

2.3 More extensive 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>.

2.4 No FFCI agreement is required to respond to this RFI.

3 Description

3.1 Background

3.1.1 SOF C2 CIS Capability is to enable NATO SOF deployable headquarters (HQs) to perform efficient multinational command and control in order to deliver the required strategic effects, by using the interconnected NATO Community of Interests tools, through an interoperable, small-footprint and agile platform.

3.1.2 The capability is a network of different CIS nodes, called Deployable Points of Presence (DPoP). The SOF C2 CIS nodes meet different size requirements (large node, around 150 staff / medium node, around 30 staff / small node, around 10 staff / very small node, 1-2 staff).

3.1.3 A Capability Programme Plan (CPP), developed by ACT, defines the overall capability, including the main transmission means (named Primary), but lacks the additional transmission means required to ensure resilience against operational and environmental factors.

3.2 Aim

3.2.1 To finalize a dedicated addendum to the CPP, a Request For Information (RFI) is needed to identify suitable **existing** deployable wireless transmission solutions, services and technologies, already used by NATO armed forces or offered by Industry.

3.2.2 The data collected through the responses will enable ACT to assess the different solutions through an Analysis of Alternatives to inform the CPP.

3.3 Recommendations

3.3.1 ACT is requesting NATO Nations and Industry's response focus on the transmission means to enable communications within a PACE plan (Primary, Alternate, Contingency and Emergency). PACE plan aims to offer, to the deployed nodes, four different transmission means to mitigate any operational or environmental issue restraining the communications.

Remark: the Primary transmission means is already defined as NATO military SATCOM and as such, is out of the scope of this RFI. Answers should focus on Alternate, Contingency and Emergency transmission means. Proposed Alternate should be consistent with the already selected Primary (see more explanations in this document); Nations and Industry should not propose an Alternate based on military SATCOM.

3.3.2 During deployment, technical, operational and/or environmental issues may affect transmission means.

- Technical issues are mitigated through redundancy, excellent Mean Time between Failure (MTBF) subparts and specific technical design, all leading to a better technical availability.
- Operational factors category encompasses many sources, for instance, enemy's direct or indirect actions against our forces, deployability issues, disaster relief.
- Environmental factors are due to geographical constraints (mountains blocking Line of Sight, sand absorbing antenna radiation, etc.), or to inclement weather or atmospheric conditions (solar eruption, daytime/nighttime ionosphere modifications).

3.3.3 This RFI is not about mitigating technical issues, but about mitigating operational and environmental factors.

3.3.4 The identified transmission means should be interchangeable and complementary to provide an optimal solution to mitigate multiple operational and environmental factors. The identified transmission means also need to be independent from each other and shall meet the Information Exchange Requirements (IER) defined

for each category of the PACE. The overall goal is to mitigate as many constraints as possible by combining the pros and cons of each bearer.

3.3.5 Alternate transmission means should be a high-performance solution. It should be very reliable and should not introduce any user experience degradation compared to the Primary transmission means.

3.3.6 Contingency transmission means IERs, when compared to Primary and Alternate IERs, will be reduced in quantity, not in quality (user experience should not be degraded on the remaining IERs). Reduced bandwidth is assumed to be part of this operating environment. Contingency transmission means should be reliable and agile.

3.3.7 Emergency transmission means IERs, when compared to Contingency IERs, will be reduced in quantity. Emergency means should be extremely reliable and mobile, useable on-the-move and offers a friendly user interface (i.e. easy to use under stressful conditions). This device should be man-portable.

3.3.8 The template provided in enclosure should be copy-pasted as many times as needed to provide an answer for each relevant transmission means or switching device nations/companies could provide to NATO SOF.

3.3.9 A few questions only required a Yes or No answer (no need for details). This is specified by (Y/N) by the end of the question.

3.3.10 For some questions, responders may want to include diagrams/figures/pictures to the answer. The diagrams/figures/pictures should be included at the end of enclosure and identified by using the question number.

3.4 Expected benefits to respondents

NATO Nations and Industry will have the opportunity to expose NATO SOF C2 CIS subject matter experts to existing technologies, products and services.

3.5 Expected input from Industry.

Expected input to this RFI is the perspective from Nations and Industry on relevant and existing solutions and approaches responding to NATO requirements.

4 - REQUESTED INFORMATION

4.1 Intent

To support the development of SOF C2 CIS Capability, the Capability Programme Plan needs a robust Analysis of Alternatives, notably from the “Adopt” and “Buy” perspectives. This RFI is intended to offer NATO Nations and Industry the opportunity to provide information that would allow NATO to determine potential benefits it might receive from adopting or buying an existing solution. As part of this process, Nations may rely on information from Industry.

4.2 Answers to the RFI.

The answers to this RFI should be submitted by e-mail to the Points of Contact listed above (please include both contractual and technical POCs), no later than 01 October 2021.

4.3 Follow-on.

4.3.1 The data collected will be used to develop a report to inform the SOF C2 CIS Capability Programme. The data collected will notably be used to provide an assessment to support a decision as to whether NATO should pursue an Adopt/Buy approach to deliver additional transmission means to SOF C2 CIS Capability.

4.3.2 Provision of data, or lack thereof, will not prejudice any respondent in the event that there is a competitive bidding process later as part of NATO Common-Funded Capability Development.

4.4 Handling of Proprietary information. Proprietary information, if any, should be minimized and clearly marked as such. Please be advised that all submissions become HQ SACT property and will not be returned. Entities responding to RFIs are advised HQ SACT may use submitted information in analytical efforts and may, on a case by case basis, furnish the submitted information to other industry actors, other NATO entities, and national organizations (MOD activities, national labs, etc.) in the furtherance of the HQ SACT programme of work. HQ SACT will negotiate and conclude tailored NDA's on a case by case basis, when submitting organizations make such requests. P&C and the Office of the Legal Advisor will collaborate to ensure applicable NDA's are concluded to protect submitted proprietary information.

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

4.6 Response Date. 01 October 2021

4.7 Summary. **This is a RFI only and the purpose of this RFI is to involve Nations and Industry, through collaboration,** in an examination of existing deployable wireless transmission means, relevant for NATO SOF C2 CIS Capability. HQ SACT has not made a commitment to procure any of the items described herein, and release of this RFI shall not be construed as such a commitment, nor as authorization to incur cost for which reimbursement will be required or sought. It is emphasised that this is a RFI, and not a RFP of any kind.

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ENCLOSURE TO
RFI-ACT-SACT-21-101

NATION or COMPANY	
Directorate/Department	
Solution's full name (version if any)	
Point of contact	

Foreseen Category: Alternate Contingency Emergency

Type of node: Large Medium Small Very small

1. QUESTIONS RELATED TO CAPABILITY REQUIREMENTS

- a. The below table contains high-level capability requirements for Alternate, Contingency and Emergency transmission means. Depending on Alternate, Contingency, Emergency category the proposed solution belongs to, responders are required to fill in the correct cell with an "X" and are encouraged to provide any relevant clarification.
- b. For criteria such as latency and Recovery Time Objective, exact definition is not finalized yet. ACT requests Nations and Industry to evaluate their solution against latency and Recovery Time Objective (RTO) currently regarded as Industry standard values. Responders are requested to provide both the values they consider as Industry standard and their solution's values in the Remarks/Clarification cells.

Table 1: Bandwidth requirements (in Mbps)

	ALTERNATE	CONTINGENCY	EMERGENCY ¹
Large node	50	25	//
Medium node	10	5	//
Small node	2	1	//
Very small node	0.5	0.25	//

Table 2: Questions related to Capability requirements

Requirements	Meet or exceed	Meet partially	Does not meet	Remarks/ Clarification
Alternate transmission means shall provide better than the typical Industry standard for latency to ensure communication services				

¹ for Emergency, bandwidth is driven by the technical solution proposed, and the high level of availability required.

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Alternate transmission means shall provide better than the typical Industry standard for latency to ensure command and control services				
Alternate transmission means shall provide at least the requested bandwidth (see table 1) to ensure communication services				
Alternate transmission means shall provide at least the requested bandwidth (see table 1) to ensure command and control services				
Alternate transmission means shall provide better than 99% availability to ensure communication services				
Alternate transmission means shall provide better than 99% availability to ensure command and control services				
Contingency transmission means shall provide near the typical Industry standard for latency to ensure communication services				
Contingency transmission means shall provide near the typical Industry standard for latency to ensure command and control services				
Contingency transmission means shall provide at least the requested bandwidth (see table 1) to ensure communication services				
Contingency transmission means shall provide better than 95% availability to ensure communication services				
Emergency transmission means shall provide 24/7 availability for emergency transmissions.				
Emergency transmission means shall provide Industry standard performance to allow for voice communication services.				
Emergency transmission means shall provide Industry standard performance to allow for text communication services.				
The transmission capability shall allow for switching within the different Primary, Alternate and Contingency (Emergency is excluded).				
The transmission capability shall allow for Automated switching for simultaneously available Primary, Alternate and Contingency means and sequenced as Primary, Alternate and Contingency.				

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The transmission capability shall allow for Automatic transition between Primary and Alternate transmission means with the best Industry standard Recovery Time Objective (RTO).				
The transmission capability shall allow for Automatic transition from Primary or Alternate to Contingency transmission means with an average (not the best) Industry standard Recovery Time Objective (RTO).				
The transmission capability shall allow for Manual switching between Primary, Alternate and Contingency (Emergency is excluded).				
System administrators should be able to verify which channel is used.				
System administrators should be able to observe the traffic load individually per channel.				

2. ADDITIONAL QUESTIONS, NOT RELATED TO CAPABILITY REQUIREMENTS

- a. To Industry: does your company already provide deployable transmission means to NATO or armed forces of NATO Alliance members? If yes, please list the nations.
- b. Please provide in table 3 (below) detailed information about your proposed solution for a wireless deployable transmission means, meeting the capability requirements for Alternate, Contingency or Emergency category.

Table 3: Detailed description of proposed solution

3.1	Commercial name:
3.2	Type (high level description, e.g. portable commercial SATCOM):
3.3	Operational name (if any, for instance given by armed forces to this product):
3.4	For which category (Alternate, Contingency or Emergency) would you recommend this solution? Any other reason we may have not captured within the requirements?
3.5	Equipment type (handset or portable, standalone system or mounted on a vehicle, vehicle on the move, maritime or airborne versions, etc.):
3.6	Communication protocols:
3.7	Bandwidth:
3.8	Practical range of transmission (in kilometers):

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3.9	Guaranteed technical availability:
3.10	Ruggedized system (Y/N):
3.11	Militarized solution (Y/N):
3.12	Anti-Jamming capability (Y/N):
3.13	Approximate volume/weight in transport mode (cubic meters and kilograms):
3.14	Approximate volume/area while in use (cubic meters and square meters):
3.15	Approximate power requirement:
3.16	Approximate in-use weather limitations (maximum and minimum temperatures, waterproof or water resistant, sand/dust resistant, etc...):
3.17	Approximate time for set-up (starting from transport mode unpacking to ready mode):
3.18	Approximate time to re-pack (starting from shut-down to ready-to-load for transport):
3.19	Known operational/environmental advantages, based on design and experimentation your armed forces/your company (or your customers) may have conducted:
3.20	Known operational/environmental limitations, based on design and experimentation your armed forces/your company (or your customers) may have conducted:
3.21	By design, how many operators are needed to operate this system when forward deployed?
3.22	Is there any need for a central service management/monitoring? How many staff support the solution remotely when theatre assets are deployed?
3.23	To Nations: Are your armed forces contracting the industry for support and maintenance of this system? (Y/N)
3.23	To Industry: is your company in contract with NATO armed forces for support and maintenance of this system? (Y/N)
3.24	To Nations: within your armed forces, what is the required training to operate and/or support the system?
3.24	To Industry: is your company (or a sub-contracting company) able to provide training to customers' operators? (Y/N)
3.25	From your experience, do you know if your solution is interoperable with some other Nations/Companies' solutions (if the same cryptographic fills are used), based on use of same protocols or through field experimentation? If Yes, please provide a list of known interoperable solutions:
3.26	To Nations: if this solution fully owned by your national armed forces? Would your nation be willing to provide it to NATO (in an "Adopt" approach)?
3.26	To Industry: are you aware of any legal constraint which could prevent NATO and/or any NATO nation from buying your solution (Y/N)

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3.27	To Industry: how many years of follow-on support your company can provide to the product (spare parts, software & hardware upgrades)?
3.28	Do the in-use communication security and transmission security algorithms have a NATO approval certification? Up to what level of NATO information are they validated?
3.29	Are there alternate backup means for power supply? (solar panels-batteries, hand power generator, car battery adapter, etc.)
3.30	Are there any dedicated hardware solutions for your product? (specific laptop, key generator, power generator, other device)?
3.31	Can you provide ACT with a relevant POC for further questions?

3. AUTOMATIC PROGRAMMABLE SWITCHING SOLUTION

- a. SOF C2 CIS Capability requires an automatic programmable switching solution between the Primary, Alternate and Contingency transmission means (Emergency is not part of this requirement). Does your Nation/ your company (or a subcontracting company) provide this kind of equipment? If Yes, please proceed with the following questions:

Table 4: detailed description of Automatic switching solution

4.1	Commercial name:
4.2	Type:
4.3	Operational name (if any, for instance given by armed forces to this product):
4.4	Communication protocols:
4.5	Available plugs/slots:
4.6	Bandwidth:
4.7	Procedures for switching between the different transmission means (manual switching procedure, rules for automatic switching and how to define them):
4.8	Best Recovery time Objective (RTO):
4.9	Guaranteed Recovery time Objective (RTO):
4.10	Ruggedized system (Y/N):
4.11	Militarized solution (Y/N):
4.12	Approximate volume/weight:
4.13	Approximate power requirement:

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4.14	Approximate in-use weather limitations (maximum and minimum temperatures, waterproof or water resistant, sand/dust resistant, etc...):
4.15	Approximate time for set-up (starting from transport mode unpacking to ready mode):
4.16	Approximate time to re-pack (starting from shut-down to ready-to-load for transport):
4.17	By design, how many dedicated operators are needed to operate this system (if any)?
4.18	By design, how many dedicated operators are needed to support this system (if any)?
4.19	To Nations: Are your armed forces contracting the industry for support and maintenance of this system? (Y/N)
4.19	To Industry: is your company in contract with NATO armed forces for support and maintenance of this system? (Y/N)
4.20	To Nations: within your armed forces, what is the required training to operate and/or support the system?
4.20	To Industry: is your company (or a sub-contracting company) able to provide training to customers' operators? (Y/N)
4.21	To Industry: are you aware of any legal constraint which could prevent NATO and/or any NATO nation from buying your solution? (Y/N)
4.22	Can you provide ACT with a relevant POC for further questions?