Office of Acquisition
CO-423333-AirC2@ncia.nato.int

NCIA/ACQ/2025/06605
28 February 2025

Market Survey - Request for Information

DARS and QRP Capability Upgrade

NCI Agency Reference: MS-CO-423333-AirC2

The NATO Communications and Information Agency (NCIA) is seeking inputs from Nations and their Industry regarding the Development of **DARS and QRP Capability Upgrade.**

Market Survey Point of Contact (POC):
Ms. Elif Bailey
E-mail: CO-423333-AirC2@ncia.nato.int

To : See Distribution List

Subject : Request for Vendors for NCI Agency DARS and QRP Capability Upgrade.

1. The NATO Communications and Information Agency (NCIA) is seeking inputs from NATO Nations and their Industry regarding the provision of the Next Generation Deployable Air Command and Control System that will replace the current system and will enhance the current capability with additional functionality[1]. The technical overview of this emerging requirement is set forth in the Annex A attached hereto.
2. The aim of this Market Survey is to determine the feasibility to procure Off-The-Shelf (Commercial or Government) products, to identify potential solutions and possible suppliers providing the complete capability, or products delivering a subset of the capability that could be integrated into a larger modularized System of Systems architecture.
3. Respondents are requested to reply via the Questionnaire at Annex B. Supplementary information and documentation (technical data sheets, product pricing, marketing brochures, descriptions of existing installations, etc.) are welcome.
4. Responses to this request, and any information provided within the context of this survey, including but not limited to pricing, quantities, capabilities, functionalities and requirements will be considered as indicative and informational only and will not be construed as binding on NATO for any future acquisition. Respondents are responsible for adequately marking proprietary or competition sensitive information contained in their response.

[1] - C2 application software is outside the scope of this acquisition

NATO Communications and Information Agency
Boulevard Leopold III
1110 Brussels
Belgium
www.ncia.nato.int

5. Responses shall in all cases include the name of the firm, telephone number, e-mail address, designated Point of Contact, and a NATO UNCLASSIFIED description of the capability available and its functionalities. This shall include any restrictions (e.g. export controls) for direct procurement of the various capabilities by NCI Agency. Non-binding pricing information is also requested as called out in Annex B.

6. The NCI Agency reference for this Market Survey Request is **MS-CO-423333-AirC2**, and all correspondence and submissions concerning this matter must reference this number within the documentation and email subject line.

7. Responses are due to NCI Agency no later than **31 March 2025** and may be issued to NCI Agency directly from Nations or from their Industry.

8. Please send all responses via email to the following NCI Agency POC:

   For Attention of:

   Ms. Elif Bailey

   Senior Contracting Officer

   Email: CO-423333-AirC2@ncia.nato.int

9. Technical discussions and/or demonstrations may take place following the submission of responses, with the purpose of clarifying or further augmenting those responses where required. Respondents are requested to await further instructions after their submissions and are requested not to contact any NCI Agency staff directly other than the POC identified at paragraph 8 above .

8. Any response to this request including follow-on technical discussions and/or demonstrations shall be provided on a cost-free and voluntary basis. Negative responses shall not prejudice or cause the exclusion of companies from any future procurement that may arise from this Market Survey.

9. The NCI Agency is not liable for any expenses incurred by firms in conjunction with their responses to this Market Survey and this Survey shall not be regarded as a commitment of any kind concerning future procurement of the items described.

10. Your assistance/participation in this Market Survey request is appreciated.

FOR THE CHIEF OF ACQUISITION:

Digitally signed by Elif Bailey
Date: 2025.02.28 15:22:02 +01'00'

Elif Bailey
Senior Contracting Officer

Annexes:

A. Technical Overview

B. Questionnaire

C. Distribution List

ANNEX A TECHNICAL OVERVIEW

Next Generation Deployable Air Command and Control

1. This document supplements the market survey for the Next Generation Deployable Air C2 Capability by providing technical context. The technical overview put forth in this annex reflects the current approach and is not imperative, it is subject to further operational analysis with respect to possible changes in NATO operational needs and evolution to concept of employment.
2. Deployable Air C2 is NATO's deployable air surveillance and control capability, providing several functions including control of air missions, air traffic management and control, area air surveillance and production of a recognized air picture. When deployed it is integrated into the existing NATO Air Command and Control structure.
3. Next Generation Deployable Air C2 system will replace the current system, will address obsolescence and will enhance the capability with additional functionality.
4. The Deployable Air C2 capability is composed of multiple system elements integrated in deployable military shelters. There are mainly two types of shelters:
    a. Links Support Shelters (LSS) hosting CIS infrastructure in standard 19 inch racks.
    b. Operator Shelters, hosting operator work positions.
5. A sheltered Deployable Air C2 entity is based on 20 feet containers and it is typically composed by a number of Link Support Shelters and Operator Shelters hosting a number of dual screen work positions.
6. The low foot print tactical Deployable Air C2 entity is a reduced capacity sheltered Deployable Air C2 entity, packed in transportable boxes that can be very quickly deployed as an advanced early capability on site.
7. Deployable Air C2 is deploying to the area of interest together with other deployable components tailored for the mission. Supporting deployable components will include:
    a. Ground-Air-Ground terminals;
    b. Ground Maritime terminals;
    c. Deployable Radars;
    d. Passive Sensors;
    e. Transportable Satellite Ground Stations and other communications bearers;
    f. Other support shelter and deployable command post;
8. Deployable Air C2 entities are required to be capable of being transported by land, by sea, and by air.
9. While deployed the Deployable Air C2 entity is providing the following applications and services:
    a. Ground-Air-Ground UHF voice communication services, either directly or through GAG terminals;

NATO Communications and Information Agency
Boulevard Leopold III
1110 Brussels
Belgium
www.ncia.nato.int

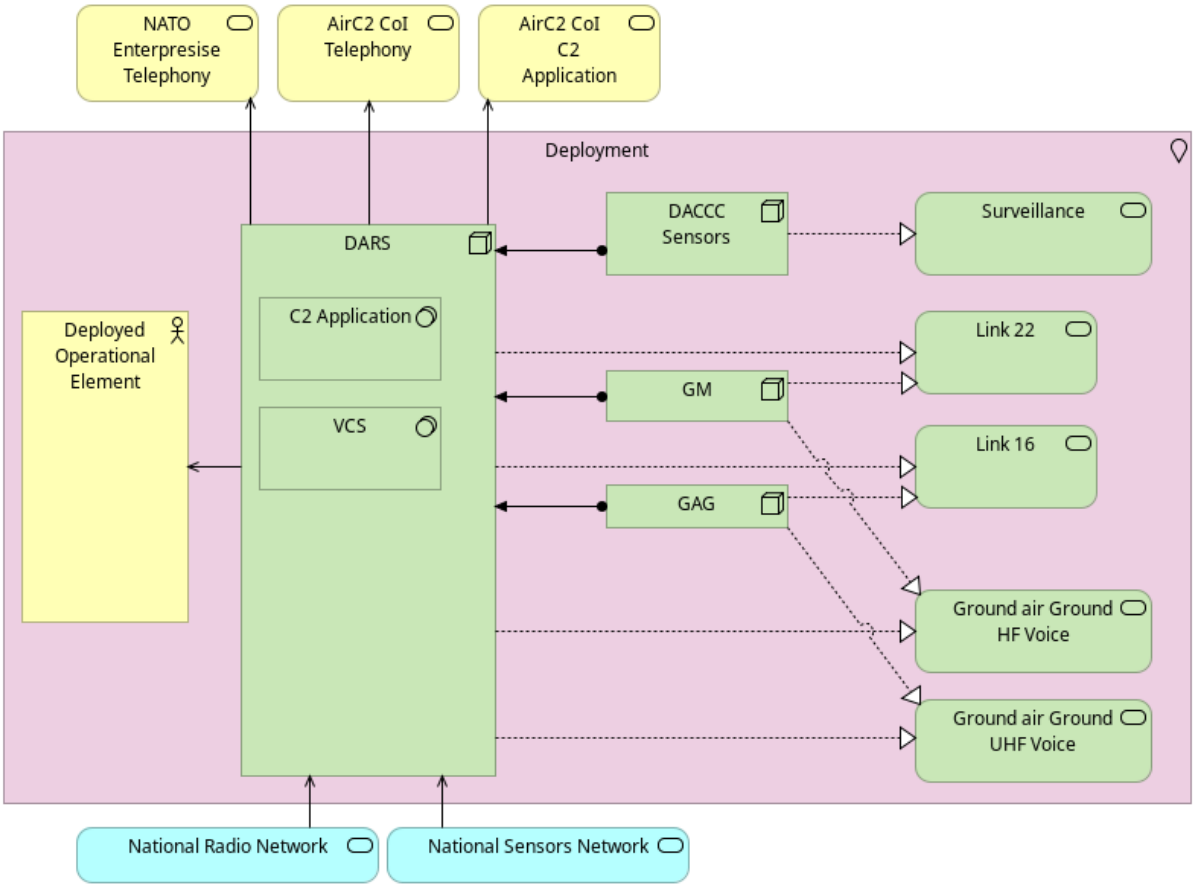
b. Ground-Air-Ground HF voice communication either directly or through GM terminals;

c. Ground-Maritime HF voice communication either directly or through GM terminals;

d. Link 22 coverage in order to communicate with maritime assets and certain airborne platforms;

e. Link 16 coverage in order to communicate with air assets such as fighter planes and certain weapon systems;

f. Air surveillance using sensors;



10. When deployed Deployable Air C2 entity will need to integrate with NATO communications backbone, including AirC2 community of interest and NATO enterprise data and voice services. Additionally Deployable Air C2 entity will integrate with national radio and sensor networks.

11. Deployable Air C2 entity is a System of Systems (SoS) composed of multiple systems providing the unique capabilities necessary to fulfill its mission. The main systems and subsystems include:

    a. C2 application software (outside the scope of this acquisition);

    b. Compute subsystem, providing Infrastructure as a Service (IaaS), that will host the C2 application and other data services;

c. Voice Communication Systems (VCS) providing ground-air-ground and ground-ground voice communication;

d. Tactical Data Link (TDL) subsystems (Link 22 and Link 16);

e. Radio Communications Subsystem;

f. Network subsystems (LAN & WAN);

g. Cryptographic elements (Data and Voice);

h. Boundary Protection Device (BPD) subsystem for integration with radars and flight plan data;

i. Monitoring and Control subsystems;

j. Spectrum monitoring subsystem;

12. It is highly desirable that the Deployable Air C2 entity is built on a modular and open architecture from the very start, and maximize the use of open standards, protocols and interfaces. Deployable Air C2 entity shall also rely, as much as possible, on Commercial-off-the-Shelf (COTS) components and avoid proprietary and custom developed products;
13. NATO is looking for an experienced main integrator delivering a number of Deployable Air C2 entities, plus the additional tactical Deployable Air C2 solution, and performing the necessary system and network integration with external deployable elements.
14. C2 application and application level architecture is outside of the scope of the activity, however the main integrator will deliver the C2 computing infrastructure providing private virtual cloud services up to hypervisor and network function virtualization level.
15. Infrastructure as Code (IaC) and automation/orchestration should be provided to ease deployment of software and updates to the environment.
16. As the infrastructure will be enclosed in deployable shelters, the main integrator will need to optimize the system and architecture to take into account the inherent constraints of power, cooling, weight and physical size of the equipment. This is even more important in the case of the tactical unit where the footprint is further reduced.
17. The shelter solution shall be Chemically and Biologically (CB) protected and provide TEMPEST protection at the shelter level.
18. The provided solution shall be compliant with applicable NATO standards, especially with regards NATO standards for deployable systems, and policies such as NATO security policies.
19. In order to get a better overview on the high-level functions, interfaces and features of the system, refer to the Market Survey Questionnaire.

ANNEX B
QUESTIONNAIRE FOR DEPLOYABLE AIRC2 ENTITY

Organisation Name:
_____

Contact Name & Details:
_____

Guidance Notes

- Please **DO NOT** alter the questions as included herein. Should you believe additional or differing data be of interest to NATO, please add such information on a continuation sheet.
- Please **DO NOT** enter any company marketing or sales material as part of your answers within this market survey. Please submit such material as enclosures with the appropriate references within your replies. If you need additional space, please use a continuation sheet.
- Please **DO** try and answer the relevant questions as comprehensively as possible.
- All questions apply to Commercial or Government respondents as appropriate.
- Cost details required in the questions refer to Rough Order of Magnitude (ROM)
- Procurement & Life Cycle cost, including all assumptions the estimate is based upon:
    - Advantages & disadvantages of your product/solution/organisation,
    - Any other supporting information you may deem necessary including any assumptions relied upon.

A. Response categories:

1. **Company Overview**

   Company details and track record in providing solutions and services in the area of large integrated military systems. Particular interest goes out to AirC2 deployable systems and solutions and experience providing them to NATO military forces.

2. **Deployable military shelter infrastructure**

   Company details and track record in providing shelter based, deployable military systems.

3. **Compute Infrastructure**

   Company details and track record in providing on premises cloud infrastructure solutions. Particular interest goes to deployable edge solutions integrated into transportable shelters.

4. **Network Infrastructure**

   Company details and track record in implementing network infrastructure including WAN and LAN in a deployable military environment.

NATO Communications and Information Agency
Boulevard Leopold III
1110 Brussels
Belgium
www.ncia.nato.int

5. **Tactical Data Links**

   Company details and track record in the integration of Tactical Data Links. Tactical Data Links suites are expected to be provided as Purchaser Furnished Equipment (PFE) by NATO.

6. **Radio**

   Company details and track record in the integration of ground-air-ground and ground-maritime radio communications in a military context.

7. **Voice Communication System**

   Company details and track record in the integration of ground-air-ground and ground-ground military Voice Communication Systems.

8. **Monitoring and Control**

   Company details and track record in the integration of monitoring and control system for deployable military systems.

9. **Tactical edge deployable solutions**

   Company details and track record in providing tactical lightweight, boxed deployable military systems, with a focus on CIS products.

10. **Support and Maintenance**

    Company details and track record in the support of military deployable systems, including Technical Documentation, Training, Contractor Logistics Support and Field Support.

11. **Case studies and roadmap for future evolutions**

    Company case studies for the implementation of similar systems and roadmap for the development of future product improvements and evolutions.

12. **Timeline estimations**

    Rough timeline estimation for the delivery of the capability.

13. **Cost estimations**

    Rough cost estimation for the delivery of the capability.

14. **Risks**

    Company assessment on potential risks for the implementation of such project.

Note: The Respondents are encouraged to propose new innovative solutions in the areas mentioned above.

B. RFI Response Category Breakdown

1. Company overview

a. Please briefly describe your experience in providing deployable solutions and services for armed forces.

b. Please briefly describe your experience with the integration of large System of Systems employed in military applications.

c. Please briefly describe your experience as a prime integrator for large military projects, including management of multiple subcontractors.

d. Do you have manufacturing capabilities accredited at a NATO S*E*C*R*E*T level?

e. Do you have engineering personnel holding NATO or national S*E*C*R*E*T security clearances?

f. Please confirm whether your solution/offer is based on company proprietary intellectual property.

2. Deployable military shelter infrastructure

a. Do you have experience in deployable military shelters? If so, please provide a brief description of your products in the area of deployable military shelters, with special focus on 20 foot standard containers and expandable shelters.

b. Do you have experience in military ruggedized shelters? If so, please provide a brief description of your experience in providing military ruggedized shelters, using light weight construction for the purpose of transportability by air (plane, and helicopter), land (truck) and sea (stackable).

c. Do you have experience in Chemical and Biological (CB) protection systems for shelters? If so, please provide a brief description of your experience in providing CB protected shelter solutions.

d. Do you have experience in TEMPEST protecting shelters? If so, please provide a brief description of experience in providing TEMPEST protected shelter solutions.

e. Do you have experience in deployable operator shelters? If so, please provide a brief description of your experience in implementing operator shelters, with a focus on expandable shelters with integrated console work positions using large screens for C2 applications.

3. Compute Infrastructure

a. Do you have experience in implementing cloud infrastructure? If so, please provide a brief description of your experience in implementing cloud-computing infrastructure with a focus on edge computing and on-premise infrastructure.

b. Do you have experience in implementing Infrastructure as a Service? If so, please provide a brief description of your experience in implementing Infrastructure as a Service solution up to hypervisor level.

c. Do you have experience in implementing hyper-converged infrastructure? If so, please provide a brief description of your experience in implementing hyper-converged computing infrastructure using COTS products.

d. Do you have experience in implementing cloud automation and orchestration? If so, please provide a brief description of your experience in implementing automation and orchestration solutions for private cloud infrastructure.

a. Do you have experience in implementing deployable compute infrastructure? If so, please provide a brief description of your experience in implementing compute infrastructure in space/power/weight constrained environments such as deployable and tactical military systems.

b. Do you have experience in using COTS or open source to implement cloud infrastructure? If so, please provide a brief description of your experience in implementing COTS or open source solutions (such as OpenStack or VMware) for building and managing cloud infrastructure.

4. Network Infrastructure

a. Do you have experience in resilient Wide Area Networks? If so, please provide a brief description of your experience in implementing highly resilient Wide Area Networks (WAN) in the context of deployable military systems, including a wide array of transport bearers such as SATCOM, Troposcatter and Direct Line of Sight (DLoS).

b. Do you have experience in implementing Eurocae compliant networks? If so, please provide a brief description of your experience in implementing Eurocae ED-138 compliant networks, including Quality of Service (QoS) and Traffic Engineering mechanisms.

c. Do you have experience in Network Function Virtualization? If so, please provide a brief description of your experience in implementing Network Function Virtualization in a cloud-computing context including automation and orchestration.

d. Do you have experience in securing classified networks? If so, please provide a brief description of your experience in securing classified networks in a military or governmental context.

e. Do you have experience in network integration with NATO digital backbone?

f. Do you have experience configuring and integrating IP cryptographic equipment (IP cryptos are expected to be provided as PFE by NATO)?

Note: The Responder is free to propose as well different communication bearers such as SATCOM man packs, Troposcatter and DLOS terminals. If so, please provide technical specifications and rough order of magnitude costing.

5. Tactical Data Links

a. Do you have experience with the integration of Link 16 suites?

b. Do you have experience with the integration of Link 22 suites?

Note: The main integrator is expected to perform physical, radio, voice and network integration of Link 16 and Link 22 suites (PFE). However, the Responder is free to propose as well Link 16 and Link 22 equipment suites. If so, please provide technical specifications and rough order of magnitude costing.

6. Radio

a. Do you have experience in integrating military radios? If so, please provide a brief description of your experience in integrating military ground-air-ground and ground-maritime radios in both VHF/UHF and HF frequencies.

b. Do you have experience with secure radio waveforms? If so, please provide a brief description of your experience with secure radio waveforms in a military context with a focus on ground-air-ground communication (e.g. STANAG 4372).

c. Do you have experience in integrating high power radio amplifiers? If so, please provide a brief description of your experience in integrating high power amplifiers in both HF and UHF frequencies.

d. Do you have experience in the integration of TACSAT radios for voice and data communication?

Note: The Responder is free to propose as well VHF/UHF and HF radios, including the option for STANAG 4372 and Link 22 support. If so, please provide technical specifications and rough order of magnitude costing.

7. Voice Communications System (VCS)

a. Do you have experience in integrating military and Eurocae VCS? If so, please provide a brief description of your experience in integrating military Eurocae compliant ground-air-ground and ground-ground military VCS for the AirC2 domain, including separation between secure and non-secure communications.

b. Do you have a product for military VCS that has been already implemented in a NATO nation?

c. Have you implemented the above described VCS in a deployable military asset?

8. Monitoring and Control

a. Do you have experience in deploying and integrating monitoring and control systems? If so, please provide a brief description of your experience in deploying and integrating Monitoring and Control system for complex CIS and non-CIS infrastructure.

b. Have you deployed a monitoring and control system in a military context for a NATO nation?

c. Do you have experience in implementing spectrum monitoring solutions? Emphasis is put on small scale Software Defined Radio implementations.

9. Tactical edge deployable solutions

a. Do you have experience in developing and integrating tactical edge compute solutions that are modular and can be transported in Pelican type boxes?

10. Support and Maintenance

a. Do you have experience in providing support and maintenance for military deployable systems? If so, please provide a brief description of your experience in providing technical documentation, training, support and maintenance of deployable military systems through their entire lifecycle, including obsolescence management and field support.

11. Case studies and roadmap for future evolutions

a. Could you share any relevant case studies and details of recent implementation of relevant systems?

b. Would you be available to hold a presentation or a workshop with NATO, demonstrating features and functionalities of your products?

12. Timeline estimations

Please provide the following rough order timeline estimates, from contract award, for:

a. Completion of design and prototyping activities;

b. Delivery of the tactical edge deployable solution;

c. Delivery of first Deployable AirC2 entity;

d. Delivery of second Deployable AirC2 entity;

e. Delivery of third Deployable AirC2 entity.

Note: The tactical edge deployable solution will be the first item to be delivered. It will be followed by the first Deployable AirC2 entity which will validate the design and integration (first article) followed by two other Deployable AirC2 entities.

13. Cost estimations

Please provide Rough Order of Magnitude (ROM) costs for the following items, please state your assumptions:

a. Shelter infrastructure

(1) Standard 20-foot military shelter, CB protected, TEMPEST compliant, hosting CIS infrastructure in standard 19" racks. The cost needs to include power infrastructure, UPS, HVAC, CB protection, physical installation of equipment, cabling and integration effort. Power infrastructure needs to provide at least 25KW available to CIS infrastructure.

(2) Dual side expandable 20-foot shelter, CB protected TEMPEST compliant, hosting 2x32 screen Operator Work Position with integrated VCS console. The cost needs to include: power infrastructure, integrated work-position consoles, UPS, HVAC, CB protection, physical installation of equipment, cabling and integration effort. Power infrastructure needs to provide at least 10KW available to CIS infrastructure.

b. Compute infrastructure

(1) Deployable hyper converged edge cloud infrastructure as described above providing compute resources of a minimum of 600 x86 CPU cores, 6 TB of RAM and 500TB of NVMe storage. The cost needs to include cloud orchestration framework up to hypervisor level, datacentre switching infrastructure plus design and integration costs. The solution needs to fit a deployable shelter and constrained to a maximum of 10KW of power and less than 20 rack units with no more than 100cm deep.

(2) Operator's workstations with at least 16 CPU cores and 32GB of RAM and 4TB local NVMe storage, plus associated network access infrastructure.

(3) Licensing costs where applicable.

c. Network infrastructure

(1) High capacity network infrastructure inside the shelters.

(2) WAN network implementation between AirC2 deployable entity and DACCC elements using bearers provided as PFE.

(3) Network integration with NATO digital backbone, including AirC2 community of interest and NATO enterprise services.

d. VCS and Radio infrastructure

(1) A EUROCAE compliant RED and BLACK VCS system with 24 operator work positions to be integrated each AirC2 deployable entity. The VCS shall include Voice Recording and Replay (VRR) and Monitoring and Control (M&C) functions in accordance with Vienna architecture.

(2) A EUROCAE compliant RED and BLACK VCS system with 12 operator work positions to be integrated in the tactical edge deployable system. The VCS shall include VRR and M&C functions, in accordance with Vienna architecture.

(3) Physical, network, RF/IF and VCS integration for HF and VHF/UHF radios for one entity. It is expected that one entity will contain approximately 10-12 VHF/UHF radios and 3-4 HF radios. The costs shall also include pneumatic masts, VHF/UHF and HF antennas and ancillary elements such as cables, connectors and connector vaults.

e. TDL Infrastructure

(1) Physical, network and RF/IF integration for a Link 16 suite of equipment.

(2) Physical, network and RF/IF integration for a Link 22 suite of equipment.

f. Monitor and Control

(1) Monitor and Control systems (separated between RED and BLACK parts of the capability), providing state of health of the CIS and non-CIS infrastructure including but not limited to network elements, servers, power infrastructure, environmental conditions, etc.

(2) A spectrum monitoring SDR based solution, including associated software, able to cover HF, VHF and UHF frequency bands up to 1.250 MHz.

g. Tactical edge deployable infrastructure

(1) A tactically deployable entity packed into a maximum of 60 boxes of up to 50Kg each. The tactical deployable entity is expected to be non-redundant, have half of the compute capacity and number of radios and no Link 16 capability. It will also have 12 single screen work positions equipped with VCS consoles. It is also assumed that the tactical unit will be deployed in a force-protected area with an adequate electricity supply and HVAC.

h. Support and Maintenance

(1) 1 year warranty post acceptance of the solution.

(2) Options of 1 year to 2 years extended warranty.

(3) Contractor Logistics Support following warrant period in options of 1 year, up to 20 years in total. Please breakdown if possible major items.

(4) In field support rates.

14. Risks

a. Please identify at least the three (3) major risks that this project could encounter and indicate which areas could be affected.

b. Please provide appropriate mitigation measures.

15. CONTINUATION SHEET

Page ___ of ___

Please feel free to add any information you may think that may be of value to NCIA in the space provided here. Should you need additional space, please copy this page and continue with the appropriate page numbers

Annex C Distribution List

All NATO Delegations (Attn: Investment Committee Adviser)

All NATEXs

NATO Communications and Information Agency
Boulevard Leopold III
1110 Brussels
Belgium
www.ncia.nato.int