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HEADQUARTERS SUPREME ALLIED COMMANDER TRANSFORMATION
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ACT/CAPDEV/REQS/TT-3307/SER:NU: 0235

TO: See Distribution

SUBJECT: **Call for Paper to industry in support of NIF21**

DATE: 9 December 2020

1. The next NATO-Industry Forum (NIF) will take place in the context of NATO 2030 and the Reflection Process, initiated by the Secretary General, to make sure the Alliance remains fit for purpose in a current and foreseeable security environment.

This security environment is dynamic, ambiguous and uncertain, and shaped in particular by:

- a. the continuously changing character of warfare;
- b. an ever-growing pace of technological innovation, driven by the commercial sector;
- c. increased interdependence of instruments of power and domains of operation that increasingly demand agility and innovation;
- d. multiplication of strategically relevant actors, with complex connections; and,
- e. compression of time in relation to decision-making from operational to strategic.

2. To retain its military edge, the Alliance needs to rely on consistent, mission-driven capabilities, delivered and adapted at the speed of relevance. At the same time we assist at an unprecedented growth and acceleration of technological development, especially in the digital domain. This adds more challenges to the alliance that to face tomorrow's challenges needs to maintain a technological edge on the international competitors.

3. Ahead of the NIF, NATO Supreme Allied Command Transformation (SACT) and The International Staff/Defence Investment, by this initiative, calls for Industry at large (Defence or non-traditional Defence, innovative, small or start-ups), the National Armament Directors and Allied government agencies and experts to submit papers that will help NATO better understand how to reinvent defence capability development and acquisition to cope with the challenges of the Alliance security environment, in particular along two lines of effort:

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- a. capability development and acquisition processes driven by the imperative of agility and continuous integration of innovation;
- b. development of a mission-focused approach to capability development and acquisition, fuelled by system-of-systems capability architecture and open standards, in order to enable consistent, mission-driven capability development across the Alliance.

THE SUPREME ALLIED COMMANDER TRANSFORMATION:

André LANATA
General, FRA AF
Supreme Allied Commander Transformation



ANNEX:

A. Call for Papers

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ANNEX A TO

ACT/CAPDEV/REQS/TT-3307/SER:NU0235

DATED: 9 DEC 20

CALL FOR PAPER FOR THE NATO INDUSTRY FORUM 2021

1. The purpose of this letter is for Supreme Allied Commander Transformation (SACT) and The International Staff/Defence Investment Division (IS/DI) to request from industry and National Armament Directors (NAD) original submissions that will address the topics described below. Qualified papers will be used to inform the webinar discussions that will take place in March 2021. These discussions will be hosted by SACT and IS/DI. It will precede NATO's Industry Forum 2021 that is a joint effort of the Allied Command Transformation and NATO HQ International Staff, Defence Investment.

2. As described by the last Strategic Foresight Analysis report, the current and foreseeable security environment of the Alliance is dynamic, ambiguous and uncertain. Driving factors are a continuously changing character of warfare and a growing pace of technological innovation, driven for a large part by the commercial sector. The NATO's traditional Capability Development is struggling to keep pace with the rate of change of this environment. The increased complexity and interdependencies also challenge coherency and interoperability of the current and future military capabilities.

3. To retain its military edge, the Alliance needs to be able to rely on consistent, mission-driven capabilities, delivered and adaptable at the speed of mission relevance. Within this context, the Alliance defence industries and acquisition communities must increasingly respond to a demand for greater agility and for leveraging innovation across the entire life cycle of defence capabilities.

4. SACT and IS/DI, by this initiative, calls for industry at-large, allied government agencies and experts to submit papers that will describe possible ways for NATO to understand and plan for gaps in capabilities with reference to the following topics:

- a. Agility and Innovation in Acquisition: The agile approach is initially a set of software development principles that emerged 20 years ago. However, initially designed to develop software, the agile approach is more and more adopted beyond the sole software realm, including to develop complex systems like space launcher or fighter aircrafts. Adopting agile for such systems can dramatically change the game. Today the foundation of agile is a culture of small, dynamic, empowered teams actively collaborating with stakeholders throughout an iterative development cycle. Continuous adaptation to a changing situation is an essential component of the agile culture. The agile approach allows users to receive results faster, and in return, provide essential early feedback faster to the team in order to inform the next incremental delivery. It is a true paradigm shift for product development, organization and leadership compared to the traditional approaches including a cultural shift to embrace the agile mindset across

"Success no longer goes to the country that develops a new fighting technology first, but rather to the one that better integrates it and adapts its way of fighting...." – The National Defense Strategy (2018) – United States

A-1

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the organization – largely beyond the sole development teams. Although the task is not easy, the rewards are worth the effort: dramatic increase of speed delivery, quality and user satisfaction, diminution of costs and risks, and ability to constantly integrate innovation. SACT encourages the submission of papers discussing the refactoring of acquisition processes, organizations and leadership driven by the imperative of agility and continuous integration of innovation, as well as the expected impact and change in NATO and national defence planning, capability development, procurement and government-industry partnership. In particular, case studies and best practices are welcome.

b. Mission-driven capability development: The traditional capability development approach is platform-focused, with acquisition programmes developed essentially independently from each other and integration in an overall effect chain dealt with downstream. This approach was adapted to a paradigm of proximity between effectors and effects, in time, space and domain, where edge was in solving “local” challenges. While digitization and systems networking continue to grow, interdependencies skyrocket: small touches in key points bring global consequences. Edge is consequently in integration and coordination between multiple systems. Overall coherence of Defence Systems becomes both a more and more vital imperative and an increasing challenge. Existing Allied initiatives to develop new approaches to tackle this challenge encompass the US DOD Mission Engineering or the French MoD new defence-wide capability approach. These new concepts want to break down the cultural and technical domain stovepipes and optimize overall capabilities for the targeted effects and missions. SACT encourages the submission of papers discussing mission-driven capability development as a potential new framework for the Alliance. This kind of approaches require renewed collaboration modalities between the acquisition communities and industry in order to deliver consistent, mission-driven capability development efforts across the Allied nations. Submission of papers discussing the key roles of a system of systems capability architecture and open standards, including methods like high-level capabilities architecture, model based Systems Engineering or other are also encouraged.

5. Suggested targeted topics include, but are not limited to:
- DevSecOps and the advent of defence software factories;
 - Agility for complex cyber-physical systems: the advent of Industrial DevOps;
 - Scaling skunk works: moving to continuous full-scale innovation;
 - Defence Industry 4.0;
 - Prototype warfare;
 - Agile systems-engineering (how to engineer systems in an agile approach) & Agile-systems engineering (how to engineer agile systems);
 - Architecture-driven capability development;
 - Model Based Systems Engineering as a key enabler both of agility and architecture-driven capability development.

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6. PAPER SUBMISSION REQUIREMENTS:

Selected papers based on relevance to the above-described subjects will be used to inform the discussion in a series of webinars that will precede NATO's Industry Forum (NIF) 2021. Authors of the papers may be requested to present their findings in that occasion.

7. PAPER SUBMISSION REQUIREMENTS:

- Papers should be submitted to snt@act.nato.int and industrial.relation@hq.nato.int by COB 15 Feb 2021 in Microsoft Word format and not exceed 5000 words (excluding references);
- Papers may be submitted at no cost;
- Submissions should be original work and not previously published elsewhere;
- Text or ideas from other sources require proper attribution;
- Submissions must include disclosure of all relationships that could be viewed as presenting a potential conflict of interest;
- Groundless criticism regarding any nation, ethnicity, religion, organization, or individual(s) are unacceptable;
- Please add an additional page which contains a biographical sketch of the author(s) and co-author(s) or that represent the industry (as appropriate).