23 March 2016

To: Permanent Representatives (Council)
From: Secretary General

ALLIANCE INNOVATION – FOOD FOR THOUGHT PAPER

I attach a food for thought paper on Alliance Innovation. This paper is offered to assist delegations in their preparations for the informal discussion on innovation in the North Atlantic Council on 5 April 2016. I see this as part of our efforts on Institutional Adaptation towards the Warsaw Summit.

(Signed) Jens Stoltenberg

1 Annex

Original: English
INTRODUCTION

1. Since the creation of NATO, Allies have relied on maintaining a strategic, operational, and tactical military advantage. However, the current security environment poses an increasing challenge for the Alliance to keep its edge. This is, in part, due to the discovery, availability and innovative use of high and low-technologies by both state and non-state actors.

2. Today, technology is globally available due to the shift of its development from the military towards the civilian domain. With this has come a rapid-pace of technological change and innovation, driven primarily by consumer demand. Further, civilian technology is being adapted for military purposes, particularly in the areas of electronics, communications, and information technologies. Two clear examples of how this has been exploited are the novel design and use of improvised explosive devices in Afghanistan and hybrid warfare tactics used in Ukraine and elsewhere.

3. On an individual basis, a number of Allies recognize the need to invest in new technologies and develop concepts and doctrine to maintain credible military capability. The US Secretary of Defense has announced a budget increase to 71.8 billion USD on research and development for 2017\(^1\). The French government allocated over 1 billion EUR in 2015 to defence Science & Technology\(^2\). In the UK, the Defence Secretary has recently announced the intent to spend 800 million GBP to boost innovation over the next ten years\(^3\). In addition, within the European Union, the Group of Personalities issued its report on the Preparatory Action for Common Security and Defence Policy (CSDP)-related research in early 2016, recommending 100 million Euro for Preparatory Action and a total budget of at least €3.5 billion for the period 2021-27\(^4\).

4. As an Alliance, however, more could be done. Although some programmes and strategies exist, the Alliance has yet to place a deliberate focus on innovation.

ALLIANCE INNOVATION

5. Innovation in a defence context applies novel approaches to political, military, and technological elements in order to deliver game-changing improvements to military capability. Defence innovation is about challenging the status quo by critically looking at different uses of what already exists, while considering advantages offered by novel and future concepts and technologies.

6. Innovation has been used in the past to address national defence and security challenges. Most recently, the significant increase in use of unmanned systems to reduce

\(^1\) http://www.defense.gov/News-Article-View/Article/683790/carter-dod-must-innovate-to-lead-in-a-competitive-world
\(^2\) http://www.defense.gouv.fr/dga/actualite/tout-savoir-sur-l-orientation-de-l-effort-de-recherche-pour-la-defense
\(^3\) https://www.gov.uk/government/news/defence-secretary-announces-800-million-innovation-initiative
human risk, the attack-the-network approach to Counter Improvised Explosive Devices, and the novel concept to reduce collateral damage through the use of existing precision guided munitions, are but a few examples of where innovation has played a strong role in improving military capabilities.

7. **By adopting a collaborative approach to innovation, the Alliance would be able to leverage existing and planned investment while avoiding what is now a fragmented, less-than-efficient use of resources across all Allies.** An Alliance focus on innovation for key capabilities, such as Alliance Future Surveillance and Control or Command and Control, will inform national and NATO investment and support synergies across the Alliance. Further, innovation is necessary to respond to the rapid pace of change in the security environment; traditional, incremental approaches will not keep the Alliance ahead of the adversary who will exploit any available opportunity.

8. Collaborative identification, assessment, and implementation of potential **game-changing opportunities** by Allies, NATO, and Partners as appropriate, would help preserve the Alliance’s advantage while informing policy makers and simultaneously reducing individual nations’ investment risk. Recognizing that innovation occurs primarily within nations, Alliance innovation would inform and complement national programmes, seeking to increase the breadth, depth, awareness of, and access to innovative solutions amongst Allies, while actively promoting interoperability-by-design and lowering innovation risk through collaboration.

9. Alliance innovation presents a clear and recognizable commitment to the Defence Investment Pledge from the Wales Summit. Pursuing solutions through Alliance innovation would highlight investments by Allies that contribute to the goal of 20% of defence spending on major new equipment, including related Research and Development.

10. Three elements are key for Alliance innovation to be successful. First, there must be **political commitment to innovation.** Leadership by the Allies is critical to ensuring Alliance innovation success. Second, the Alliance must apply **out-of-the-box thinking** to solve challenges both today and tomorrow. Third, the Alliance must have a **forum to identify and generate innovation opportunities,** leveraging both Allies’ and NATO’s activities. Senior representatives of the NATO entities primarily responsible for innovation-related activities would lead this forum.

11. Alliance innovation must be considered from two inter-related perspectives: **innovative approaches to addressing essential capabilities,** such as Alliance approaches to addressing anti-access area denial (A2AD) challenges, and the **innovative application of new, emerging, and existing technologies,** such as exploitation of additive manufacturing concepts. With such an approach, the Alliance would proactively address capability challenges while identifying disruptive concepts and technologies. With quick, short term iterations, rapid advances of knowledge and understanding will inform decision makers for the benefit of the Alliance and Partners as appropriate.

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12. Alliance innovation should focus on identification, assessment, and implementation. The identification of promising innovation opportunities will result from challenging existing paradigms, looking both inside and outside of the traditional security and defence community, and embracing unconventional or non-traditional cooperative approaches. Direct involvement of academia and industry is therefore fundamental. Collaborative assessment would be achieved through concept development and experimentation, in order to inform decisions on implementation. Pursuing effective, rapid implementation of promising innovative solutions, both by Allies and NATO, is critical to the success of Alliance innovation. Commitment to Alliance innovation would ensure that the best opportunities are shared and transitioned from identified solutions towards fielded capabilities.

13. There are a number of areas that offer potential innovation opportunities in both military and civilian sectors. Militarily, capability areas for innovation consideration could be Command and Control, Logistics, Communications, and Joint Intelligence, Surveillance, and Reconnaissance. In the civilian sector, cyber security, telemedicine and individualized medication, Big Data, artificial intelligence, and the Internet of Things all have potential for Alliance innovation. Pursuing innovation in these areas and others would contribute to maintaining the Alliance’s military edge.

POSSIBLE WAY AHEAD

14. The upcoming Warsaw Summit is an opportunity to have Alliance innovation form part of the political agenda. A commitment to Alliance innovation would complement decisions on deterrence and adaptation, and provide the necessary political support to take Alliance innovation forward after Warsaw. Allies could consider adopting the following statement and making it part of the Summit Declaration:

Allies recognize the necessity to maintain military advantage through the identification, development, and implementation of innovative solutions. To reduce individual national investment risk, Allies agree to embark collaboratively on the identification of innovative approaches, assessment in order to select most promising options, and implementation of those solutions that leverage Alliance efforts in an efficient and effective manner while also promoting interoperability of Alliance forces, now and in the future.

15. Such a declaration could be supported by a tasking from Heads of State and Government to develop a framework for Alliance innovation to be delivered at the February 2017 meeting of Defence Ministers.

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6 Industry refers to civilian and defence industry, large and small.