



**NNEC provides overarching principles to enable for future missions effective and efficient networking, in line with the Comprehensive Approach and the Connected Forces Initiatives.**

### **An Update on the NATO Network Enabled Capability (NNEC) Concept**

The NNEC concept developed doctrine and guidelines on how to federate capabilities to be used in joint and combined operations. The concept considers both military and non-military partners and is constructed in line with the NATO Comprehensive Approach set forth at the Lisbon Summit. Capability unification used in support of future operations is the *raison d'être* of the Alliance. Federation fosters information sharing between mission partners, resulting in better situational awareness and improved command and control, which are key requirements for "*information superiority*

" that dramatically improve mission effectiveness. Federation can be achieved through simultaneous utilization of the four NNEC components: the underlying *networks and systems, the information*

to be shared, the processes to do so, and the policy and doctrine required to enable and empower users to share the information they possess. True "enterprise-level" federation can become a reality through coherent and balanced efforts made in all four areas.

## NATO Network Enabled Capability Federating the Future Mission Network - ACT

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A number of innovative tools have been developed to enable the inclusion of NNEC elements in existing, planned and new capabilities. The NNEC criteria are a set of (NNEC-driven) requirements that can be overlaid on capabilities to ensure they will be able to seamlessly exchange information with other peers. The NNEC assessment process is the method to formally validate the capability in terms of its ability to support information sharing and federation. Other tools are available as part of the NNEC Body of Knowledge, e.g. the *NNEC roadmap*

a planning and analysis tool to ensure on-time and efficient organization of resources and activities; or the

*NNEC-NDPP guidelines*

, exploring how to embed federation requirements into NDPP as the main NATO procurement planning tool.

### Implementing NNEC: A Success Story

Significant efforts have been made to "*operationalize*" the NNEC concept (i.e. to bring the abstract benefits of federation closer to the warfighters). In conjunction with the development of the guidelines and tools described above, the Afghanistan Mission Network (AMN), first emblematic implementation of NNEC, served as proof of concept, and NNEC principles have permeated all areas of capability development. In addition, a number of NNEC compliance assessments have been conducted, to measure capability compliance with NNEC criteria. Those assessments have helped quantify federability compliancy and progress, generating a number of observations and solid recommendations to help refine both the capability assessed and the criteria themselves.

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### NNEC in Support of Developing Future Mission Network (FMN)

The FMN concept, currently under development, warrants timely implementation to meet NATO and Nations' expectations; it was the main theme of the 2012 NNEC Conference held in Vienna, Austria. Possessing the potential to become NNEC's next emblematic implementation; building on the principles of federation of networks and services, information sharing and efficient exploitation of current capabilities. The FMN also embraces and exploits lessons identified from operations in Afghanistan and Libya. The contributions of NNEC are encapsulated in the NNEC components, offering solutions and innovative developments such as new policy models for information assurance and information management joining instructions that formalize and describe information sharing mechanisms; the concept of information clearinghouses, distributed information repositories and multi-level information tagging; and federation of assets built over common essential core services, COI provided specialized (mostly Web) and mediation services in line with the C3 services taxonomy.

### The Way Ahead

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The NNEC principles are more relevant than ever highlighting the continued need for a long-term vision, further development of innovative tools and use of emerging technologies to feed implementation. Seeking interoperability at all levels, they support FMN implementation, and the ambitions of the Connected Forces Initiative. The benefits that can be gained through use of a federated approach are becoming critical drivers and are fully embraced and supported by NNEC. Achievement of the current initiatives being pursued by the Alliance will require changes in education and training, exercises and the ways new and emerging technologies are introduced and employed in operations. The practical solutions offered by NNEC compliant capabilities have the potential to make this possible, providing support to the coordination of conceptual requirements, implementation and operational coherency. These and many other topics will shape future discussions and will be studied further at the upcoming 2013 NNEC Conference "coNNECting Forces" to be held in Lisbon, Portugal.

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