

MINISTRY OF DEFENCE OF UKRAINE  
MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE  
CENTRAL RESEARCH INSTITUTE OF ARMS  
OF THE ARMED FORCES OF UKRAINE

**COORDINATION PROBLEMS OF MILITARY TECHNICAL  
AND DEFENSIVE INDUSTRIAL POLICY IN UKRAINE.  
WEAPONS AND MILITARY EQUIPMENT  
DEVELOPMENT PERSPECTIVES**

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Abstracts of reports

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**Slyusar V.I.**, Doctor of Technical Science, Prof  
*Ministry of Defense of Ukraine (Central Research Institute of armament and military equipment of the Armed Forces of Ukraine)*

### REGARDING THE BUILDING OF SYSTEM OF SYSTEMS OF STANDARDS

Two years ago the author suggested the System of Systems of Standards (S3) Concept on LCGLE (Land Capability Group Land Engagement) level and this idea was very productive. Now is the time for expanding this concept for all CNAD (Conference of National Armaments Directors) level. Main tasks for the building of S3:

- Identification of Gaps in NATO Standards on Base of Lessons Learned;
- More Harmonized NATO Standards for S3 Building;
- Liaison between experts community inside CNAD Groups.

Some ways to System of Systems of Standards are:

- The process of maintenance and support of Standards should be include the collecting and analysis of feedbacks from Industry (via NIAG) regarding of experience of existing STANAGs/STANRECs use and identification of standardization Gaps (the similar feedback process uses EDA currently);
- Use of NDPP and MCR development process for identification of Gaps in standardization and Future Standards Portfolio forming (need better connection between NDPP and LAMP updates);
- Maximal expand of existing STANAGs/STANRECs to outside of Custodians Group for all similar applications in other Main Groups of CNAD.

Some Ideas for the Building of S3 (as examples):

- Standardization of Augmented Reality (AR) in collaboration between AVT-290 STO, LCGLE, LCGDSS, ICGIF, JCGVL, JCGCBRN CDG, MILENGWG MATP;
- Expand use of JREAP-C (Link-16) for targeting and communication in LCGLE, LCGDSS, ICGIF, JCGVL, JCBRND-CDG , MILENGWG MATP;
- Harmonization of STANAG 4677 with AR and JREAP-C; LINK-16 and AR;
- Harmonization of NGVA and Dismounted Soldier Reference Architecture (DSRA), use wireless power and data connection inside vehicles/helicopters;
- Future integration of soldiers exoskeletons and seats inside vehicles/helicopters;
- Expand to UGVs exiting UAVs standards (STANREC 4811 Ed. 1/ AEP-101 Ed. A Ver.1 “UAS sense and avoid”; STANAG 4737 Ed.1/ AEP-82 Ed. A Ver. 1 “Guidelines for the integration of weapons on unmanned platforms” etc.);

And as continue:

- Update JREAP-C (Link-16) on the base of new waveforms and technologies (COFDM, FBMC, MIMO, MultiUser-MIMO etc.);
- Expand Counter-Surveillance STANAG 4316 for combat vehicles to UAS, UGV, Helicopters and harmonized Counter-Surveillance requirements;
- Standardization of new Bus-interfaces (VPX, MTCA, CPCI Express, PCI-104 Express etc.) for all Vehicles (LCG LE, UGV, JCG GBAD, ICG IF, JCGVL, JCGCBRN CDG, MILENGWG MATP, NAFAG, NNAG, JCG UAS);
- Standardization Requirements and Testing (SRT) for self protection systems on board Helicopters against MANPAD Rockets and Grenades Attacks;
- SRT for Individual sensors of DSS against Laser Rangers and anti-personal radars;
- SRT for Infrared and Multispectral devices for DSS and vehicles/helicopters (STANAGs 2324, 2325, 2326, 2330, 2331, 4091 cancl.);
- SRT for large calibre soldier-carried munitions; combined STANAG 4569 (passive protection) and STANAG 4190, 4164, 4089 (anti-armour ammunition tests),
- Proposal to expand of Definition “Armoured Vehicles” in AEP-55 for Land, Air and Navy Vehicles.

**Slyusar V.**, Doctor of Technical Science, Prof,  
**Hamaliy N.**  
*Ministry of Defense of Ukraine (Central Research Institute of armament and military equipment of the Armed Forces of Ukraine)*

### NEW MODEL OF NATO DEFENCE PLANNING PROCESS, NDPP

A new model of the NDPP was officially released in October 2016, as the result of the adaptation throughout the last cycle, and with a few substantial changes: while the 2009 Outline Model described a process that was focused on the identification and mitigation of only the shortfalls, the new NDPP model incorporates a fundamental

change in the approach to the apportionment of targets. The NDPP was in the past focused on the short term; but the potential for influencing national defence investment decisions in the short term is extremely small. The new NDPP endeavours to move defence planning into the medium term, which has been pushed to 19 years in the future, as a more effective way of influencing national capability development.

The global aim of the NDPP, in short, is to define how many (and what kind of) divisions, air wings and ships are necessary to achieve the Level of Ambition of the Alliance. Here is a conceptual view of the process, which covers the five steps of the NDPP, in a four-year cycle.

In Step 1: the Political Guidance, last one dated 2015, with addition of the Supplementary Guidance from the Military Committee, have been the foundation on which the Minimum Capability Requirements 2016 have been developed by the Military.

In Step 2: the MCR16 document, dated April 16, sets the requirements, both Quantitative and Qualitative, for the Alliance for the future until 2032. It's a NATO confidential document, which was endorsed by the Defence Ministers in June 2016. Then the NATO staff has compared the MCRs with the current inventories in order to establish what capabilities the Alliance needs to maintain and what are the shortfalls, which became Defence Planning Priorities (DPPs).

The Step 3 is the ongoing step, whereby the Defence Planning Staff Team develops plans and negotiate with the nations their contribution to the required capabilities.

The principle of "fair share" is understood as an equitable division of the roles, risks, and responsibilities within the Alliance. Every Ally is requested to provide a combat capability. Besides, the initial apportionment to Allies will take account of "relative wealth" (ratio between national GDP and total GDP of all Allies) and other factors like the "Burden equivalency" (based on reference systems for each capability).

The principle of "reasonable challenge" is understood as what constitutes an appropriate ambition for an individual Ally in terms of its economic and financial capabilities, its human resources and in terms of time. At the 2014 Wales summit, HoSGs pledged to spend a minimum of 2% GDP for Defence, out of which 20% for capabilities. In terms of time, a period of three NDPP cycles is seen as a means of meeting reasonable challenge.

Unlike the other steps, Step 4 is a continuous step aiming at facilitating national, multinational and collective efforts to meet priorities with a view to the coherent and timely delivery of the capabilities sought by agreed target packages. This role in NATO has been given to the DI division of the IS, and subsequently to the CNAD structure, including the ICGIF. A key focus area in the current cycle is the 21 Defence Planning Priorities, deriving from the Main Shortfall Areas. This will be developed further on as well.

In Step 5: the last Capability Review, which is conducted every 2 years, has been concurrent to the development of the MCR16. It has been noted by Defence Ministers in June 2016. the next one is ongoing, and the questionnaire will be distributed to the nations this month.

The given features of the new NDDP model require the amended legal framework of Ukraine in the key to extending the terms of the medium-term planning to 19 years. In addition, it is necessary to begin work on defining requirements for opportunities at the level from the company and below in the following categories: mobility, lethality and protection. At the same time, general requirements for the minimum capabilities of military personnel systems should be taken into account (LCGDSS Overarching Definition Document Revised Oct. 2016) and NATO requirements for Weapons and Sensors post 2025.

**Tomchuk V.V., PhD,  
Kopylova Z. M.,  
Bura E. B.**

*Ministry of Defense of Ukraine (Central Research Institute of weapons and military equipment of the Armed Forces of Ukraine)*

## **EUROPEAN DEFENSE AGENCY AS A MECHANISM FOR THE COORDINATION OF THE MILITARY, TECHNOLOGICAL AND DEFENSE INDUSTRIAL POLICY OF EU COUNTRIES**

Senior management of the European Union (EU) is taking active measures to reform the military industry, to promote integration and cooperation processes in it. The European Defense Agency (EDA), which was established in 2004, serves as the main instrument for the formation of a single European Defense Forces to support the EU Council and the EU member states in their efforts to improve their defense capabilities and implement the European security policy and Defense.

The EDA has four main tasks:  
development of military potential of EU countries;