

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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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 (LCGLE, 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.

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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