METHODOLOGY OF EVALUATION OF LOGISTIC MILITARY STANDARDS DURING EXCERCISES
METODYKA OCENY WOJSKOWYCH STANDARDÓW LOGISTYCZNYCH PODCZAS ĆWICZEŃ

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Abstract: In article authors presented methodology of evaluation of military logistics standard. Main attention is payed to the practical approach performed during NATO Exercises Capable Logistician 2015. Logistic standards, most of them official NATO agreed covered by STANAGs (Standardization Agreements) were evaluated in respective functional areas to which special teams of experts were dedicated. It was proposed possible way ahead for the results of the evaluation.

Streszczenie: Artykuł prezentuje metodykę oceny wojskowych standardów logistycznych. Główną uwagę skupiono na podejściu praktycznym realizowanym podczas ćwiczeń NATO-wskich Capable Logisticians 2015. Standardy logistyczne NATO, większość z nich przyjęta porozumieniami standaryzacyjnymi (STANAG) były oceniane w poszczególnych obszarach funkcjonalnych w których działali odpowiednio przydzieleni eksperci. W artykule zostały zaproponowane możliwe drogi postępowania z uzyskanymi w czasie oceny wynikami.

Keywords: standardization, STANAGs, military logistics, standards evaluation

Słowa kluczowe: STANAG, standaryzacja, logistyka wojskowa, ocena standardów

1. INTRODUCTION

Efficient NATO Multinational Logistics strictly depends on common standards, doctrine and procedures which must be observed and followed by respective commands and logistic units in order to operate together with synergy – to be interoperable. According to NATO Standardization Policy, standardization, or the development and implementation of NATO agreed concepts, doctrine, procedures and designs, is a pivotal enabler to the cost effective delivery of interoperable forces for the Alliance (C-M(2010)0063, NATO Policy for Standardization, 2010) yet interoperability supports the implementation of such recent NATO initiatives as Smart Defence and Connected Forces through its three dimensions: technical, procedural and human complemented by information as critical transversal element.

Standardization as one of the most important NATO activity is defined as the development and implementation of concepts, doctrines, procedures and designs in order to achieve and maintain the compatibility, interchangeability or commonality which are necessary to attain the required level of interoperability, or to optimise the use of resources, in

the fields of operations, materiel and administration. (NATO Glossary of terms and definitions AAP-6). The need for elevating the significance of NATO standards is the part of Strategic Concept agreed following Lisbon Summit in 2010 (Strategic Concept for the Defence and Security of the Members of the North Atlantic Treaty Organization, 2010). Necessity of sharing common doctrine, standards and procedures in order to improve interoperability was also stressed by Secretary General in 2011 in Smart Defence concept. It was later confirmed in 2012 at series of security conferences and also at Chicago Summit in the context of Connected Forces Initiative (CFI). Standardization is a key enabler of the cost effective delivery of interoperable and ready forces for the Alliance Implementation of a validation process in conjunction with exercises and evaluations, using the NATO Response Force as a "testbed", could be an efficient way to generate objective feedback on standards with regard to interoperability and capability development. (Gontarczyk, 2015)

Testing and validation of standards should be accomplished through exercises, demonstrations and trials to enhance interoperability across all these required elements. (MC 0020/11 Military Committee Policy for Military Operational Standardization, 2015; C-M(2009)0145, Interoperability Documents for Inter-Committees Coordination, 3 Dec 09). Lessons identified, best practices and observations from operations and training, in particular collective training events, provide significant input to ensure the relevance of operational standards. The SCs (Strategic Commands) and their substructures as well as nations should ensure that lessons with relevance to the operational standard development process are provided to the respective standardization boards and/or working groups. (MC 0020/11 Military Committe Policy for Military Operational Standardization, 2015).

To follow principles of Strategic Concept and initiatives such as CFI, NATO shall have capabilities for conducting full range of military operations which will be tested and evaluated according to NATO EETE Policy (NATO Education, Training, Exercises and Evaluation Policy, 2014). Capability to support full range of military operations could be inter alia tested by evaluation of applicability of common logistic NATO standards.

The problem discussed within this paper can be expressed in form of question: *in what extend the scientific knowledge can be used to facilitate logistic standards evaluation process*. Answer to such formed question necessitated conducting of profound analysis of existing NATO Lessons Learned process and its practical execution during multinational exercises.

2. PREPARATION

In order to observe and follow NATO Policies nations agreed to start evaluation of logistic standards as a part of testing interoperability in area of logistics during common exercises. Lessons learned collected during exercise should facilitate bottom up approach within standardization process. Organized in 2013 and 2015 Capability Logistician Exercises (CL 13, CL 15) were first time opportunity for testing of such great number of NATO standards.

Complexity of the preparation process of multinational exercises necessitates initiation of coordination of subsequent event immediately after winding down the previous one. Therefore, the planning process for CL 15 exercise was initiated already in 2013. The work of EAR-C (Evaluation, Assessment and Reporting Cell) differed from the work of exercise planners in that to elaborate the final report and to address properly final conclusions and recommendations from CL 13 to respective bodies it took almost one year of staffing, coordination and several meetings. In 2014 the need arose to form new EAR-C for CL 15.

Members of EAR-C participated in several subsequent meetings which allowed them to wider their knowledge, improve the skills and familiarize them with the process of data acquisition and analysis. JALLC (Joint Analysis Lessons Learned Centre) was in lead of explanation and providing expertise in area of methodology of lessons learned process in order to deliver reports in ODCR (Observation, Discussion, Conclusion, Recommendation) format as required. (The Lessons Learned Handbook, 2016) Education and training provided by the JALLC in methods, tools and techniques of joint analysis and evaluation was indispensible in order to get some knowledge on analysist job not only subject matter expert in respective functional area. (Joint Analysis Handbook, 2016)

S*ubject matter experts provided knowledge and expertise in a specific functional areas to assess and evaluate standardization documents developed by NATO Nations.* There were identified following functional areas: Environmental Protection, Fuel, Information Exchange Requirements, Joint Logistics Staff Group, Materiel Handling and Transportation, Smart Energy, Water, Ammunition, Maintenance and Battlefield Damage Repair. Some of the areas such as Environmental Protection and Smart Energy were the first time subject of evaluation as the indepedent functional areas. When Environmental Protection has currently several existing standards, the Smart Energy was focused on seeking potential areas to be subject of common NATO consideration and/or to become in the future NATO standards. Experts from each area were committed to be familiar with the bunch of NATO standards from their area of expertise and to contribute with its ”injects” – skills or activities which were intended to be tested. Those injects properly formatted were then passed to excercise authorities to be

incorporated into Master Scenario Event List – the agenda for the excersising forces and reflected in Data Collection Plan – the agenda for the respective expert teams.

The experts must have had knowledge and familiarity with NATO Standardization documentation and procedures as well as knowledge and experience in the specific functional areas being evaluated by them. That knowledge was key to identify the appropriate action bodies and/or documents affected. There were required abilities to make objective observations and clearly and concisely articulate the results and the underlying reasons (root causes) for any instances where observed units were not fully complying with or employing the standard(s) and effectively analyze observations, make clear recommendations for improvement as necessary. Since the experts must have worked in the teams the ability to build relationships with individuals and organizations with which they interacted to collect the relevant data and information was indispensible. The work of the EAR-C members had not stopped together with the end of exercise, they should support as necessary post exercise evaluation and reporting requirements.

The vital role in preparation process from the EAR-C perspective played MLCC (Multinational Logistics Coordination Centre) and JALLC. MLCC as the organization in lead for planning and coordination was responsible for familiarization of experts with the basics of scenario exercises and the status of the planning process. MLCC staff provided also the current version of the scenario of events - Master Scenario Event List (MSEL). The current version contained the data that the members of the evaluation team - experts in various functional areas passed from mid-January to mid-February 2015. The completion of the MSEL was not the main task EAR-C, it was actually MLCC task. EAR-C job was to make sure that the appropriate input will trigger the appropriate reaction of exercisers and enable proper assessment of doctrines and standards.

The participation of the Joint Analysis and Lessons Learned Centre was an important element of the evaluators training. JALLC supported functional areas in the development and completion of data input to the MLCC MSEL and its harmonization among experts for the final approval by the Director EAR-C. Additionally JALLC conducted training on the database, which was created in the JALLC portal and was dedicated to the members of the EAR-C. Individual experts also received detailed instructions on how to use the database and the available tools to collect observations.

Planning conferences were key events for establishing cooperation with EARC members and commanders of respective MILUs (Multinational Integrated Logistic Units), fundamental components within particular functional areas.

Overall number of standards to be tested were about 70. As mentioned before, standards which were subject to evaluation had been divided into respective functional areas and each group of experts was responsible for coordination appropriate time and area to test their portfolio.

3. DATA ACQUISITION

Methodology of data acquisition based on the standard NATO ODCR format for lessons learned. Four steps methodology allowed arrange and streamline the work of the experts within the precisely defined stages. Observation, initial stage within methodology tells us what actually happened. The nature of the observation could be positive or negative - something has happened what we had expected to happen – standards depicted in NATO documents were observed by soldiers, or something has happened that was completely incompatible – the basic principles was unknown by soldiers, was ambiguously interpreted by them, or the standards didn't exist at all. The best observation should be limited to one single problem or issue and should not be complain in nature. The observer should not provide personal opinions or start from premature conclusions. (NATO Lessons Learned Handbook, 2016)

From academic point of view, observation aside from experiment is one of the key method of collecting empiric data in sociological studies. Observation, as an activity is used in other, numerous methods, however in observation method, observation activity itself is the foundation of data acquisition. Scientific observation differs from the other observation in that the aim is to obtain scientific knowledge, that is why scientific observation shall be planned, systematic, selective and concise (S. Stachak, 2006). Observations enable the researcher to describe existing situations using the five senses, providing a "written photograph" of the situation under study (Erlandson et all 1993). That is why it is noticeable that the experience, competences, stances and roles of observer are the key elements of the cognitive process. It is worth to mention that sometimes the observer can influence the research, only the common presence of the observer can cause different behaviour of the observed person (Pieter, 1967). Generally, we can identify several types of observation. Observation can be covert or overt, controlled or non-controlled, direct or indirect. We can also distinguish participant observation and non-participant observation. In case of overt observation a person or group of people is aware of being observed, in covert observation the subject of observation does not realize that he/she is observed. Controlled observation consists of systematic registration of the events/behaviour according to strictly defined order whilst in non-controlled observation

specific plan or key is not essential. Non-controlled observation is more flexible and open to unexpected events which is undoubtedly an advantage, however it is prone to subjective judgement which is one of the key disadvantages. In direct observation observer relies on his/her own senses, while in indirect observation scholar/researcher can use the other not necessarily skilled observers as his/her "sensors". Participant observation is the process enabling researchers to learn about activities of people under study in the natural setting through observing and participating in those activities. (DeWalt K., DeWalt B., 2002)

Considering above mentioned classification we can conclude that the observations conducted during CL 15 were overt, direct, non-participant and sometimes controlled in terms of specified activities that were subject to evaluation, sometimes non-controlled – unexpected events could surprise observer or be results from further situation development.

In principles, the data obtained from the observation has qualitative and individual character. Should we need to obtain more quantitative results or general findings/conclusions, necessary is transition of collected data using for instance categorization and then analyse groups or respective class of data set.

4. DATA-PROCESSING

Collected data within the process of observation were then processed by respective so-called filters (Fig.1). The first stage of the data processing was done by the experts themselves. That comprised refining of the written form of observation in respective format, then transforming them into ODCRs. Thus, they ought to elaborate respective analysis of the data providing: discussion of the reasons something happened, conclusion, which should answer the question what we learn from the event, and finally make recommendation for the remedial actions including action body. From the above mentioned steps discussion and conclusion required application of particular scientific methods and techniques.

Discussion explains why something happened, contains reasons and circumstances. In principles there are two methods of reasoning: deductive and inductive. In lessons learned process inductive method is the primary approach which bases on observations allows us to find general theory – answer to the problem. In particular discussion answer questions who, what, where, when, why and how. To complete discussion part of respective ODCR the several techniques od Root Cause Analysis are recommended. Among them the most useful seem to be brain storm, Ishikawa diagram or 5W. Categorization also may be useful at this stage since some causes could have one, common reason for instance. Knowledge of the

reasons as the paramount source of improvement not only is widely known with scientific community but in business activity as well.

Conclusion in turn, gives us summary of the situation. It completes the observation and discussion, should be concise and limited to one single problem. Conclusions summarize the process of reasoning and gives us foundations for making recommendations.

Draft ODCR forms, prepared by functional areas experts were then passed to the JALLC specialists, who checked them in terms of analysis methodology and to professionals in the field of standardization in order to refine recommendations to be ready for further action within standardization community and NATO standardization authorities. The final filter were EAR-C executives responsible for drafting the report on the activity of the cell that ultimately will go to the NAC (North Atlantic Council) in the framework of the report prepared by the MLCC. Developed forms (ODCRs) were introduced into the database at portal JALLC – NLLP (NATO Lessons Learned Portal) as recommended within Joint Analysis Handbook – where individual specialist could enter the comments or make appropriate adjustments. The most important thing from the standards evaluation perspective, then was to write good recommendation for respective action within standardization process and to find out appropriate NATO body to address the findings for individual standards. In order to do that it was necessary to categorize recommendations.

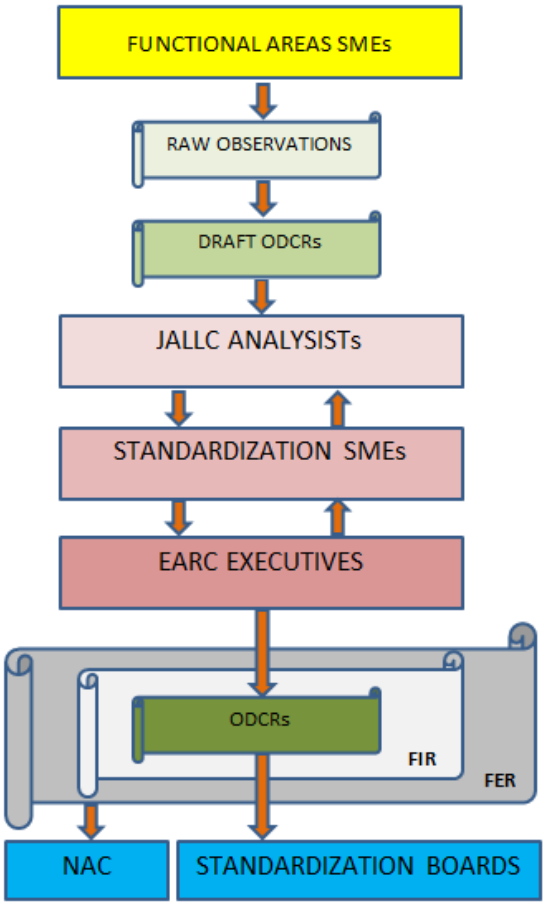

Figure 1. Process of refining ODCRs.

Source: Own compilation

Primary categorization considered status of standards in relation to respective observation and in particular told us how many standards are valid, how many needs review, how many new standards we need to cover deficiencies and finally which standards are considered to be completely outdated and need to be cancelled.

Another categorization was related to criticality of standards as a criterion and considered mainly areas which up to now were not covered by standards or existing standards required substantial improvements. The recommendations taken within the final stage of ODCR process can vary depending on the action body to be addressed and the action to be taken. Both are driven by the criticality level of captured observation. The aim of the categorization of the criticality was to elaborate common recommendations for the respective categories which could enable to develop the roadmap for the further treatment. (Fig.2.)

Figure 2. The role of lessons learned in standardization process.
Source: Own compilation

There were proposed four criticality levels:

Level I – Save life/ health – without that there is not possible to execute any activity, no further comments are required according to authors to explain that. All standards concerning safety and security measures for instance should be included to this category.

Level II – Success of operation – having NATO standards in respective area can have significant influence on execution of operational tasks. Those standards may concern inter alia procedures for logistic support of operation management.

Level III – Significant interoperability improvement – all standards should aim in interoperability improvement, however standards in this category help not only operate together within top/staff level but also down to private soldier.

Level IV – Optimization of resources – this category contains those standards in which it is difficult to find direct connection with interoperability, however they help in smart using of resources or/and facilitate reduction of logistic footprint. Good example in this category could be future, potential smart energy standard/s.

Operational standardization is facilitated by either a top-down approach that is driven by the NATO Defence Planning Process (NDPP) or NAC / MC guidance (resulting in Standardization Tasks) or a bottom-up approach that is mainly driven by the lessons learned

process (resulting in Standardization Proposals) (MC 0020/11 Military Committe Policy for Military Operational Standardization, 2015). Lessons learned from CL 15 could be explicitly considered as bottom up resulting. Depending on level of criticality and existence or not the standards in respective area, there have been proposed actions to be taken (Tab. 1.) according to standardization process (AAP-3(J) Production, Maintenance and Management of NATO Standardization Documents) starting from development of Standardization Proposal, speed up of the development process or starting review of existing standardization document.

<table>
<tr><th colspan="2">Criticality Level</th><th>Possible recommendation for existing standardization documents</th><th>Possible recommendation for new standardization documents</th></tr>
<tr><td>I</td><td>Life/Health</td><td rowspan="2">Immediate review is required</td><td rowspan="2">Fast track procedure is required to provide NATO agreed standard.</td></tr>
<tr><td>II</td><td>Success of operation</td></tr>
<tr><td>III</td><td>Significant Interoperability Improvement</td><td>Review is recommended ASAP, regardless of 3 year cycle.</td><td>Immediate SP delivery is expected by respective nation/body.</td></tr>
<tr><td>IV</td><td>Optimization of resources</td><td>Include changes during upcoming 3 year review cycle.</td><td>Delivery of SP for new standard should be considered by respective nation/body.</td></tr>
</table>

Table 1. Actions to be taken in respect of criticality level of captured observations.
Source: Own compilation.

Within existing standardization process critical is the necessity of observation of the consecutive steps within the process. Furthermore, even though the fast track procedure allows to shorten the time for respective steps, each nation must be given suitable time for internal circulation of the documents. Necessity of making more profound changes in existing document may require even much more time than initially granted.

As mentioned before, particular recommendation may also suggest to keep existing standardization document as it is or to cancel it. In first instance there is no rapid action to be taken by respective nation/body, however confirmation of usefulness of respective standard can energize nations which have not implemented evaluated standards yet to do so. In the second instance, the recommendation is not productive in terms of improvement of interoperability, however leads to decreasing of standards portfolio which could be perceived as positive effect.

As the result of the process of data collection more then 90 observation has been recorded and 80 of them developed in ODCR format. By the last day of EAR-C work 72 ODCRs passed all filters and were ready to be incorporated into FIR (First Impression Raport). Finaly, within FER (Final Exercise Report) there have been 68 ODCRs completed as ready for further action.

5. CONCLUSION

Results obtained from evaluation performed by EAR-C experts during Capable Logisticians 15 exercises confirms validity of the statements within NATO documents that lessons learned from the exercise should be main source for the interoperability improvement through standardization.

Proposed methodology for evaluation of NATO logistic standards using lessons learned process will facilitate of bottom up process for development of standards which is the key to allow the respective nation, command or NATO bodies to propose changes in existing documents or make proposal for new standards. Evaluation of standards during exercises may be even more useful since it allows to get information concerning usefulness of standard from the field, from end user and even from private soldier.

Developed within article explicitly expressed solutions can be successfully used as a standard set of possibilities that will guide and facilitate in the future elaboration of appropriate recommendations by the experts, and then address them properly.

Knowledge on scientific methods, NATO Lessons Learned Process and Joint Analysis Tools seems to be indispensable and prerequisite of decision of participation in standard evaluation cell, it can be obtained also during conferences and workshops dedicated to respective group of experts which facilitate preparation process.

The experience obtained by individuals can be used both to current research activities in the field of logistics, international standardization and evaluation of exercises and the prospective re-participation in the process of collecting lessons learned.

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