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# INTEROPERABILITY CONSIDERATIONS IN THE LIGHT OF ENDOWMENT OF THE ROMANIAN ENGINEER ARMED FORCES

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***Abstract**: During the time he held the chair of United States Secretary of Defense, Donald Rumsfeld argued that it had become fashionable for military strategists to develop and launch increasingly sophisticated concepts, without technical and financial support to implement them. Based on this statement, it was noticed that the same approach was applied by some Romanian military strategists, who have rushed to adopt certain concepts from our counterparts that belong to western countries and implement them in our national legislation without taking into account all the necessary resources (human, financial, technical etc.) for their application. In this respect, one example could be the interoperability and its derivatives, the main focus of the present paper.*

**Keywords: interoperability, engineer, concept, doctrine, standardization**

## 1. Introduction

At first glance, interoperability seems to be a simple concept, measuring the degree to which different organizations (including the military) are able to work together to achieve a common goal or mission (in case of military structures).

In real life, the concept of interoperability is not well defined, very often being situation-dependent, appearing in various forms and degrees, and occurring at various levels (strategic, operational, and tactical).

The perfectly interoperable systems and data are designed to support the strategic, operational, and tactical interfaces between organizations, in line with previous agreements and protocols on organizations, strategic objectives and operational concepts.

These kinds of perfectly interoperable systems are certainly not found in real life situations, and as a result, critical interoperability shortfalls should be identified at all levels.

During the 1970-1980 period, the Romanian engineer forces were mainly equipped with domestic manufacturing machinery. From this perspective, the parks were filled with newly introduced type S 1500- LS bulldozers, (P-603, P-801 and P-802) excavators, AG-180graders, RC 8-14 rollers, MC-10 compressors, UMT 12.5 cranes, ACG-78 engineer exploration equipment, TABCG-80, DPM-4 mine layers, PR-71 bridge pontoons, GVM-65 saw mill, AEPL-–70electric woodworking and many other pieces of equipment. Moreover, all deposits were overloaded with different kinds of antitank and antipersonnel mines, water mines, pyrotechnic and electric fuses, cumulative and concentrated charges and different types of concealing devices. At the same time, the obsolete technology equipment made in Russia was taken out and scrapped.

Unfortunately, almost all types of new technologies which equipped the engineer forces in the 1970-1980 period

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did not meet the requirements of the modern battlefield due to the lack of ergonomic devices, self-defense systems, multifunctional systems, ballistic protection etc. Even if Romania was part of the Warsaw Pact at that time, its engineer forces did not achieve compatibility, interchangeability, and communality with similar forces members of this organization.

In addition, considering the international environment at that time, Romania took some measures against the policy of the Warsaw Pact by replacing all technologies made in Russia with domestic technologies, able to meet the *"entire people's war"* doctrine, thus expressing a particular position of Romania in the Treaty.

The events of December 1989 brought Romania into a security vacuum and the only solution was to start the preparation to join the North Atlantic Treaty Organization.

Fulfilling all the requirements imposed by Membership Action Plan, Romania became a member of the North Atlantic Treaty Organization in 2004. At that specific time, the reform of our armed forces included the transformation from a big army (385,000 personnel) to a flexible and mobile one (90, 000 personnel), able to be interoperable with the armies of other member states from NATO.

The enthusiasm generated by integration prompted some Romanian military strategists to emulate a lot of concepts developed by their counterparts in NATO. These concepts were used as a base for issuing some normative acts, disregarding the fact that the reform of our armed forces was ongoing and their endowment might not support the process of ensuring interoperability with the armed forces of other NATO member states.

The idea to standardize instruction in the Alliance became an objective necessity and this plan covered both conceptual level (doctrines, manuals, instructions etc.) and the execution level (technologies of training, resources, etc.).

## 2. Some limitations of the interoperability process related to doctrine and endowment of engineer forces

According to NATO doctrines for Military Engineering, at strategic level, the engineer activity mainly addresses operational planning and execution, force planning, policy and doctrine, infrastructure and common funded projects. Engineer expertise at strategic level is needed to ensure that engineering capabilities are developed in a timely and comprehensive manner in order to fulfill the future requirements. On operations, the strategic engineer activity focuses primarily on the provision of means and capabilities to generate, mount, sustain and recover forces.

Moving the focus on the operational level and below, we can sustain that specialist engineering advice is required by designated commanders throughout all the stages of an operation, from initial planning to recovery and re-deployment, in order to ensure the most effective use of scarce military engineering assets.

Unfortunately, the standardization of instruction of our forces did not receive the necessary funds and therefore it was necessary to implement NATO procedures with inadequate technical means. These aspects were specific for the engineer forces of the Romanian Army, as well.

Although the process of ensuring interoperability of the Romanian engineer forces with the engineer forces belonging to NATO countries was triggered a few years ago, in areas which were mentioned before, the process is far to be complete in the near future.

The *Doctrine of engineer forces in joint operations,* 2009 edition presented an overall pattern of functions, domains and missions of engineer forces, according to NATO standards.[1] At that time it was very difficult to answer the following

question, 'Do Romanian engineer forces have the structure, endowment and training in order to achieve interoperability desire, in line with NATO standards?'

In one of the amendments to this doctrine issued in 2012, it was very clearly stated what should be the structure and missions of the engineers at the strategic, operational and tactical level. Although 4 years passed since the approval of this amendment, such a structure has not been implemented, having a very important role in planning and organizing the engineer missions at all levels. Moreover, according to the *Doctrine of engineer forces in joint operations,* 2016 edition, it is required to have a specialized engineer structure at national level, represented by the chief of engineers, the planning element and an EOD Cell, on a case by case basis. [2] In this situation, one question arises, 'Could the Romanian engineer forces attain interoperability without having the same engineer structures as the NATO member states?'

Even if the old doctrine was replaced with a new one, the *Doctrine of engineer forces in joint operations,* 2016 edition, the question still does not have a clear answer, but could be clarified taking into account the following considerations:

a) the Romanian engineers are still using the old versions of equipment like DT-3 mine detector, long and short metallic probe, manual demining kit, etc while the engineers from NATO partners are using, on a large scale, remote control robots and new generation technology;

b) the engineers from modern armies are performing mine clearance using remotely-operated vehicles, having the capabilities to detect metallic/non-metallic mines, while the DT-3 metallic detector belongs to the old generation detectors, with a maximum depth of 30 cm and an obsolete power source (battery);

c) the modern armies are using modern technologies for counter mobility such as the rapid distribution systems of antitank mines or cluster systems with remote mines via mobile launchers, etc. while our engineers are still using the old DPM-4 minelayer;

d) the minefield lanes are executed by the modern armies using polyurethane solutions, volumetric explosives, detonating devices, remotely-controlled demining machines etc., while Romanian pioneers are still using 2m explosive elongated charges or reactive IAR-3 charges, which are difficult to assemble and manipulate in minefields and have low efficiency, as well;

e) the demolitions in different environments are performed by modern armies engineers using plastic explosives with big destructive effects, binary explosives while our pioneers have only low power explosives with limited power of destruction;

f) the engineers from NATO armies provide modern mobility capabilities, using self-propelled pontoons, made of alloys with a high mechanical resistance, modern assault bridges (width of obstacle: 20-45 m, time: 3-5 min, force of support: 600KN), Mabey Johnson bridges (width: 60 m), etc. while the Romanian engineers still use BLG-76 assault bridge (width of obstacle: 16 m) and PJM-76 bridge, covering an obstacle of only 10 m;

g) main supply routes are designed, maintained or built by engineers from the modern armies employing machinery of high productivity and ergonomics, which can attach multiple interchangeable organs, while our engineers are using obsolete machinery, most of them being outdated due to the approximately 45 years of use;

h) the main command posts or reserve command posts used by the modern armies are built inside containers or tents, easy to handle, while the Romanian headquarters structures continue to have buried shelters, which are very difficult to be realized and manipulated. [3]

The examples could continue, as there are arguments for the other engineering support missions, which will certainly be presented in a future analysis.

## 3. Conclusion

A summary analysis presented in the contents of this material leads to the conclusion that although our engineer forces belong to the NATO alliance, the process of ensuring interoperability with our partners is still ongoing, mainly due to the lack of financial resources and new technologies in the engineer field.

Having an optimistic approach and based on the 2% allocation of GDP for the army modernization, the desire of interoperability for the engineer forces could be achieved by the operationalization of the existing plans for modernizing the engineer forces, approved in 2008.

What should be very clearly understood by the top level politico-military leaders is that interoperability often comes at a price (not low), and sometimes these costs may be difficult to be defined and estimated, taking into account the military expenditures to enhance it, but also the economic and political costs.

## References


[1] *Doctrine of engineer forces in joint operations,* 2009 edition, 2009.

[2] *Doctrine of engineer forces in joint operations,* 2016 edition, 2016.

[3] Vladu, Mircea, and collective, *Endowment of engineer according to the challenges of future war*, "Carol I" National Defence University Publishing House, Bucharest, 2006.