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## The foundation for a joint fire support capability using the NATO model

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### Abstract

Providing joint fire support is an indispensable capability for joint forces that facilitates the achievement of set objectives in all types of operations. Starting from the idea that the development of a fire support doctrine, currently non-existent at the national level, is not sufficient to achieve this capability at the joint force level, I have argued in this paper, other changes that I consider necessary using the NATO capability development model, described by the acronym DOTMLPF-I. In the first part of the article, I have briefly presented the components of the NATO model and then, in the second part, I address the fire support capability as a whole, in terms of doctrine, force structure organization, training, the need to review the available resources, the training of military leaders and fire support personnel, the existing infrastructure and the level of interoperability required to make this capability truly available to the armed forces structures. The actions identified in the eight strands of the NATO model can provide a perspective for developing or enhancing the capability to provide nationally-led joint fire support.

### Keywords:

fire support; joint fire support; capability; NATO model; DOTMLPF-I.

### Article info

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Currently, at the national level, there is no common doctrinal framework that implements in a unified manner the way to provide fire support at the joint level; the force structures belonging to joint force components each have their own doctrines and field manuals detailing fire support. In addition to the need to have a joint fire support doctrine developed and implemented through all categories of national armed forces, I considered it useful to identify ways to base this capability to provide joint fire support (through an exclusively national effort) on the NATO model of capability development, known by the acronym DOTMLPF-I (Doctrine, Organization, Training, Materiel, Leadership, Personnel, Facilities and Interoperability (NATO 2021, 7). As an argument for choosing this model, I mention that Romania's Military Strategy of 2016, in Chapter IV Defense Capabilities and Priorities for their realization, bases actions on the eight directions described by the NATO model in order to achieve credible and sustainable defence capabilities (Portal legislativ 2016).

The analysis of an existing or determined capability as necessary to meet a new requirement, using the NATO model specified above, may argue the need for changes, material or non-material, in the form of actions in any of the eight directions described by the acronym DOTMLPF-I. Having argued the need for the development of a joint fire support doctrine in a recently published article "Implementing a Joint Fire Support Doctrine – A Joint Operation Requirement", (Mirea and Stanciu 2024) dealing basically only with the first direction under the DOTMLPF-I acronym, I found it useful to address the joint fire support capability as a whole, in all aspects described by the NATO model.



**Figure 1 NATO model for capability development**  
Source: Adaptation from MD Harris Institute 2013.

As the development of a joint fire support doctrine may not be sufficient to build a joint fire support capability, I have set out in this paper to briefly identify and argue potential actions in all eight of the above-mentioned directions to build or develop a national joint fire support capability.

In developing this article, I have explored mainly open sources of information in the form of websites and authored works to which I have added unclassified doctrines

and field manuals in force at the national and NATO level, which detail relevant aspects of providing fire support at the joint level and argue potential actions to substantiate a capability according to the NATO model. The collection, analysis and interpretation of the data from the sources explored were systematically carried out based on documentary analysis (Okoko, Tunison and Walker 2023, 140), a method that ensured my understanding and synthesis of the main aspects of the subject of this paper.

### **DOTMLPF-I utility in the foundation of a capability**

The Analysis Framework, described by the acronym DOTMLPF-I, is a tool or methodology (Willi 2016) useful, in my view, both for substantiating a new capability and for identifying shortfalls or deficiencies in the approach to an existing capability - the provision of joint fire support in this case. The usefulness of this analytical tool lies in systematically addressing all (interrelated) aspects that may influence the availability of a capability. Changes to a single element - such as the development of a doctrine for joint fire support - will not have the desired operational effect because, depending on the entity under analysis, other changes may be identified as necessary, such as changes in the organizational level or in the interoperability of joint force components, in order for the desired capability to be actually achieved or enhanced. The purpose of using such an analytical tool in the case of a joint fire support capability is to increase the level of joint force effectiveness in exploiting the potential of fire support systems available at its component level.

The *doctrinal* course of action aims to implement or update the fundamental principles for the employment of force structures, which are usually contained in existing national doctrines. In our case, we do not have a national joint fire support doctrine, but if one existed, the NATO model analysis would have aimed at its possible refinement, so that the content elements or specific terminology in the field of providing joint fire support would reflect an updated approach to the capability pursued.

Actions in the field of the *organization* pay attention to the structural functionality of the forces in order to identify possible shortcomings or needs for updating the way individuals or components of force structures cooperate systematically to achieve the entrusted objectives. The focus of the analysis in this direction is on how to leverage the targeted capability within the existing organizational context. Some needs for organizational adjustment can thus be identified so that the targeted capability is revealed to its full potential.

Concerning *training*, actions in this direction concern the way in which individuals, sub-units, units and staff are prepared or trained to implement doctrinal provisions, field manuals or existing tactics, techniques and procedures in order to accomplish the mission. From the perspective of a new or developing capability (in the process

of acquisition, equipping, deployment, etc.) at the force structure level, training is central to understanding the full range of operational implications that the availability of this emerging capability has.

The action line on *materiel* aims at the equipment component of a capability. Analysis in this area may identify possible needs to modify existing quantities of military equipment or highlight the need for new acquisitions so that the capability is truly operational in all respects.

*Leadership* actions aim at the professional preparation of military leaders - a product of continuing education - incorporating training, expertise, education and personal development. Moreover, leadership is the foundation of command - the art of motivating and directing personnel. Changes in this direction are required when there are some shortcomings in the utilization of the targeted capability due to the level of professional competence of individuals.

The analysis and identification of measures in the area of *personnel* are based on the existence of qualified personnel to capitalize on the capability under study. The categories of personnel that comprise the force structures and their basic skills can have a significant impact on how to exploit the full potential provided by an available capability.

From the *facilities* domain perspective, the potential actions focus on the infrastructure elements necessary for the effective exploitation of the targeted capability. In this category of actions, the buildings, structures, related utilities, land and fire ranges required for operating the capability under analysis are targeted.

The potential changes in *interoperability* direction pursue actions in its three characteristic areas of interoperability - technical, human and procedural. As a NATO-level capability development model, interoperability is essential, as allied force structures must perform in a multinational operating environment. Moreover, from a NATO perspective, interoperability is even seen as a force multiplier ([NATO 2023](#)).

### **NATO model (DOTMLPF-I) applicability in funding a capability**

As mentioned above, the analysis framework described by the acronym DOTMLPF-I, is a useful tool, both for substantiating a new capability and for identifying shortfalls or deficiencies in the approach to an existing capability. The capability analyzed through these eight domains' perspectives is the provision of joint fire support.

Starting from the idea that, at present, there are some shortfalls in providing joint fire support - such as the lack of a doctrinal framework - I have set out to present a perspective on the foundation of this capability with national armed forces using the NATO model in the way I have observed it being used at the alliance level ([NATO 2018](#)).

### ***Doctrine***

The joint fire support doctrine is the basic regulation underpinning the common conceptual framework and specific terminology required by commanders and staff in planning and providing joint fire support according to the concept of operation (NATO 2015, VII). The lack of such a doctrinal regulatory framework at the national level, to implement in a unified way the fundamental concepts of joint fire support in all categories of armed forces, led me to argue the need to eliminate this shortcoming in the aforementioned article “*Implementing a Joint Fire Support Doctrine – A Joint Operation Requirement*” (Mirea and Stanciu 2024).

The first and most important doctrinal action to substantiate the capability to provide joint fire support is the development of such a regulation at the highest hierarchical level of national military authority. It is the joint fire support doctrine that describes the fundamentals of the capability under study, but it is also a guide to best practices for the joint force commander and his staff in the use of the fire support systems provided by the component force categories. The development of the doctrine will ensure the coherent implementation of key concepts such as standard tactical missions or fire support coordination measures, so that the full potential of the joint fire support capability can be achieved effectively and safely for friendly forces.

### ***Organization***

The need for action in this direction is directly dependent on the implementation of ongoing or prospective procurement programs for military equipment components of the fire support system. For example, the equipping of ground force structures with M142 HIMARS (High Mobility Artillery Rocket System) (Mureșan 2024) implies some organizational changes at the unit level in order to be able to operate such systems, and it is probably necessary to review the functions of the crew within groups/pieces/installations since HIMARS systems require a small number of operators compared to the artillery systems they replace. It should be noted that such reorganizations within military units are reflected in classified documents not the subject of this paper.

The need for organizational changes is all the more evident in view of national ownership of capability requirements within NATO. The transformations implied by the disappearance or replacement of old fire support systems, in conjunction with the gradual implementation of acquisition programs, come with new challenges also from an organizational point of view. These, in turn, need to be reflected in the updating of existing field manuals that regulate and detail how individuals, sub-units and units systematically cooperate for operational efficiency. A temporary solution to ensure the exploitation of the full potential of the joint fire support capability, regardless of the current organizational situation of the national armed forces, may be, in my view, the implementation and permanent updating of Standard Operating Procedures (SOPs) at every command level in order to ensure standardization and preserve the efficiency of force structures (James 2020).

### ***Training***

In the absence of a joint fire support doctrine, as mentioned above, national armed force categories are guided by their own doctrines and field manuals governing the way how to provide fire support. Joint training of the responsible actors within the components of the joint force can develop and strengthen the joint fire support capability. The objectives of military exercises include the joint training of participants, especially those from different branches of the joint force, to enhance interoperability at the joint and alliance levels ([SMFT 2019](#)). Exercise scenarios provide the framework for joint training of command staff to plan and conduct actions according to a single concept of operations.

In this context, one line of action to strengthen the capability to provide joint fire support is to identify and counter the shortfalls caused by differences of perspective between force categories on basic concepts in the field of fire support. These shortcomings are, in my view, an effect of the aforementioned lack of a common doctrinal framework, as each category of armed forces has its own regulations in this area. At the moment, concepts such as *standard tactical missions* or *fire support coordination measures* are not similarly understood and implemented across all categories of national armed forces. For example, the standard tactical mission *direct support*, which can be assigned to a fire support structure, is detailed differently in land forces than in naval forces. Land force structures implement the provisions of NATO fire support doctrine AArtyP-5(B), NATO Fire Support Doctrine ([NATO 2015, 3-2](#)) and naval force structures implement the provisions of Allied Joint Maritime Operations doctrine AJP 3.1, Allied Joint Maritime Operations.

The training of those responsible for providing fire support from land force structures together with liaison officers from other categories of armed forces - components of the joint force, ensures the identification of shortfalls in the exploitation of joint fire support capabilities and can lead to the implementation of solutions to overcome them, such as SOPs.

### ***Materiel***

The national equipping programs, recently carried out or currently under implementation ([MApN 2024](#)) may generate some challenges in capitalizing on new capabilities available to the force structures alongside the existing ones. Thus, equipping with modern equipment and the replacement of obsolete ones determines not only a revision of the field manuals in force but also a review of the amount of military equipment available in order to ensure the efficiency of the structure in relation to its core mission.

Another action in this direction to strengthen the joint fire support capability is to understand that changes in the field of force structure equipping have an impact on the whole structure of the operations conducted. For example, equipping land force structures with HIMARS systems has an impact on each component of the



structure of operations (combat, striking or engineering systems) and implies a review of resource quantities by forces so that these new fire support capabilities can be truly exploited in the operation. If we consider issues such as the need for adequate ammunition supply or the additional need for air and missile (anti-drone) protection of HIMARS systems, we can conclude that equipping with such modern systems requires a review of the amount of military equipment of all types available to the force.

### ***Leadership***

Given that leadership is, as mentioned above, a product of continuing education that builds on the training, expertise and personal development of individuals, enhancing the capability to provide joint fire support can be achieved through actions in all these areas. The ultimate aim is to develop and maintain the optimum level of professional competence, primarily for those responsible for providing fire support at the level of force structure commands.

An important point from my point of view is that, in accordance with the national regulations in force, those responsible for providing fire support at the joint level come from the ranks of field artillery officers ([SMFT 2018, I-2](#)). Accordingly, actions to strengthen the capability to provide joint fire support must be focused on optimized training of these officers throughout their careers, developing their joint fire support conceptualization skills across all the functions they occupy and all the career courses they attend.

A concrete action to achieve the proposed goal could be, in my view, to adjust the curricular structure of the programs of all career courses in order to integrate fire support systems from other categories of national armed forces into the training of these officers.

Another concrete action could be to integrate fire support systems from other categories of national armed forces into all exercises conducted by those responsible for providing fire support in land forces. For example, the brigade-level fire support coordinator, who is also the commander of the organic field artillery battalion, will also have at his disposal some air force or naval fire support systems during exercises to integrate them into the fire support plan of his land structure.

Actions in this direction of leadership aimed at an adequate professional training of individual military leaders are a feature of the study programs of the Command and Staff Faculty of the “Carol I” National Defense University as they have established through the graduate model the qualities necessary for military leaders at all levels of command. The joint-level exercises conducted at the National Defense University have among their objectives the development of essential skills for trainee and student officers in leading military actions. Land forces fire support officers benefit from the expertise of air and naval colleagues, established as liaison officers at the command level, to plan and provide joint-level fire support during exercises.

***Personnel***

Actions in this area are closely linked to those in the area of leadership but are aimed at ensuring that all categories of personnel involved in exploiting the joint fire support system in operation have the necessary skills. The essential personnel, in my view, for the provision of joint-level fire support are those who staff (or augment in the case of liaison officers) the force structure commands. They are the main specialists but also the responsible officers who must have the necessary skills to operate the joint fire support system in an operation. Thus, the appropriate professional training of all personnel (regardless of force category, weapon or basic speciality) participating in fire support cells/working groups is very important in order to realize the full potential of the joint fire support capability.

***Facilities***

The existing facilities at the national level provide, in my view, the minimum necessary conditions for the exploitation of the joint fire support capability, as the national armed forces have at their disposal a multitude of infrastructure elements for the training, exercising and employment of fire support systems. The specific needs for modernizing or improving current conditions offered by the available facilities are constantly analyzed at the level of each category of forces.

An action in this direction could be, in my view, to analyze the opportunity of having a national firing range that would allow the long-range use of very long-range fire support systems, such as HIMARS systems that have ammunition with a range of up to 300 km or Bayraktar drones. With the introduction of new or upgraded fire support systems into the national armed forces structures, such needs may also arise. Existing national firing ranges provide for the use of these munitions, but within certain limits, the ranges having been developed and approved for capabilities that existed at a certain point in the past.

***Interoperability***

Actions in this area aim to ensure technical, human and procedural interoperability so that the personnel and equipment that make up the fire support systems at the level of the categories of national armed forces can really underpin the capability to provide fire support at the joint level.

The development of joint fire support doctrine and the use of standard operating procedures, as mentioned above, addresses the need for the procedural interoperability required for joint fire support capability.

The joint training of fire support officers from all categories of national armed forces in joint-level military exercises covers the human interoperability requirement for the joint fire support capability.

Technical interoperability is the most problematic, in my view, because achieving it requires the acquisition of specialized systems such as automated command and control systems or automated fire control systems. The full potential of fire support



systems available to a joint force depends on such systems. An example is the International Field Artillery Tactical Data System (IFATDS), available to HIMARS-equipped structures, which in my view needs to be integrated with equally modern command and control or ISR (Intelligence, Surveillance and Reconnaissance) systems so that the full potential of HIMARS systems can be exploited.

## Conclusions

The implementation of current or prospective equipping programs, which involve the acquisition and introduction of various modern military equipment into the national armed forces structures, also brings certain challenges in terms of exploitation and optimized use of the capabilities thus acquired. In addition to the direct, easily perceptible advantages that the new military equipment brings to force structures, all the implications that they have for exploiting them to their full potential in an operation must also be taken into account. Thus, the organizational changes imposed by new equipment, as reflected in the organizational structure, must be accompanied by reviews of related areas directly or indirectly linked to their exploitation, such as the training of personnel responsible for using the equipment, the existing facilities for training individuals, teams, squads or units, the quantities of resources allocated to the beneficiary structures, the degree of interoperability of the equipment and so on.

The analysis model, deployed along the eight courses of action of the acronym DOTMLPF-I, is a useful tool to understand all the implications of the timely exploitation of a new capability and also to outline a perspective for optimizing an existing capability. In this paper, I have used this tool to systematically address each aspect under which the capability under study - the provision of joint fire support - can be enhanced through concrete actions in the eight directions. I have thus identified some shortcomings in the current exploitation of the national fire support system and, at the same time, I based actions in the form of proposals to improve the capability to provide joint fire support at the national level.

The capabilities assumed by our country as a contribution to NATO's collective defence planning, analyzed also on the DOTMLPF-I model, are those that constitute the basis for acquisition needs or the need to change certain aspects on the eight directions so that these assumed capabilities are really developed and strengthened at the national level.

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