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FACTORS DETERMINING BATTALION'S COMBAT CAPABILITIES (BATTALION TACTICAL BATTLE GROUP)

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Abstract:

Despite having conducted a series of structural and organizational amendments enhancing combat capabilities of a battalion, a sub-unit of such kind still remains not fully independent. Therefore, in order to extend battalion effective capabilities formation of battalion tactical battle groups on its basis seems to be indispensable in the future. Notwithstanding a number of assets, this solution entails substantial requirements, which have been articulated throughout the content of this paper.

Keywords:

battalion, battalion tactical battle group, combat capabilities

INTRODUCTION

Dynamic changes in the security environment we are accompanied by trigger the necessity to undertake projects aimed at preparing the armed forces for efficient functioning in terms of either modern or future armed conflicts. We are currently witnessing radical changes in the approach to organizational structures and equipment of land forces' units and sub-units designated to ensure their full autonomy. Lessons learned from the early 21st century's armed conflicts prove the tendency to create new, joint task structures adapted to the nature of envisaged activities and diversion from existing concept of detaching certain forces, which integrate only in the course of the fight [1]. Therefore, demands of the modern times generate a requirement to create such organizational structures that guarantee both combat autonomy at the lowest possible tactical levels and the capability to operate within the framework of multinational battle groups [7]. The necessity to autonomize battalions, which currently constitute land

forces' basic organizational and training modules determining the strength of units and tactical formations, incorporates into the above-mentioned concept.

1. BATTALION AS SUB-UNIT OF LAND FORCES

Deliberations regarding a contemporary approach to a battalion should be commenced with presenting its definition. According to the Polish Language Dictionary a battalion is described as *the largest tactical sub-unit of various military branches* [23]. In turn, in the Lexicon of Military Knowledge *a battalion is defined as a quintessential land forces' tactical sub-unit, existing in other military branches as well, consisting of several companies* [9].

In the light of the foregoing definitions it can be assumed that the term *battalion* refers to a sub-unit, which can constitute a component of a higher echelon's unit of each type of military branches (armored, mechanized, airborne, anti-aircraft, engineering, chemical, communication and information, logistic or reconnaissance and electronic warfare).

A battalion constitutes a basic sub-unit of land forces' structure. Based on battalions the primary and secondary elements of a brigade's orders of battle and movements are organized, thus, it can be assign to fulfill any tactical tasks. In mechanized and armored cavalry brigades three types of battalions can be distinguished: tank battalion, mechanized battalion and motorized infantry battalion. Despite having similar organizational structures, due to differences in the combat equipment they are predisposed to tackle with distinct tasks, unique for each of them.

Contemporarily we can witness the dynamic transformations of battalions' organizational structures resulting from the changes in the character of combat operations. Experiences gained during the early 21st century's armed conflicts indicate that a battalion still remains a basic combat unit, whose efficiency depends on executive autonomy, maneuver capabilities, impact resistance, combat power and flexible organizational structure. Presumably in the foreseeable future the rigid and homogenous organizational structures will be superseded by tactical battle groups formed based on battalions. This approach is not new in the Polish art of war and repeatedly has constituted the subject of specialists' deliberations. It was not until the turn of 20th and 21st centuries that it was emphasized that a prospective mechanized battalion should consist of following sub-units [20]:

- 2 mechanized companies;
- 2 tank companies;
- HQ company;
- reconnaissance company;
- mortar battery;
- anti-tank company;
- ant-aircraft battery;
- engineering company;

- logistic company.

According to the authors of the above-mentioned concept, owing to varied combat equipment and mixed structure a battalion would have executive autonomy, adequate combat power and high fire and maneuver capabilities simultaneously maintaining significant enemy impact resistance.

The proposal regarding the organization of a mechanized battalion developed in 2003 by the scholars from the General Tadeusz Kosciuszko Military Academy of Land Forces is worth mentioning as well. Based on the results of the conducted research the following organizational structure was presented by them [3]:

- HQ company;
- 3 mechanized companies;
- tank company;
- support company;
- logistic company.

In the proposed solution the mechanized battalion was to consist of 1000 soldiers and possess 50 combat vehicles. It is to be underlined that analogous organizational structures were implemented in the land forces several years later.

Furthermore, the issue of the tank battalions' evolution was discussed in the military press. According to some authors, in order to assure the possibility of creating battalion tactical battle groups of significant firepower and resistance to enemy's impact, based on a tank battalion, they should be structured as follows [10]:

- HQ company;
- 3 tank companies (equipped with Leopard 2 tanks);
- mechanized company (equipped with BMP-3);
- support company;
- logistic company;
- reconnaissance platoon.

The comparative analysis of various states' battalions (Poland, Russia and Germany) constituted the basis for the study of another concept of a future tank battalion. Based on it, the proposal of a multipurpose, joint branches battalion whose characteristic feature was to be the capability of fighting in any conditions was developed. It was structured as follows [17]:

- command support company;
- 2 tank companies;
- 2 mechanized companies;
- support company;
- attack helicopter company.

In the opinion of the author the presented structure offered numerous advantages among which the following ones come to the fore: significant fire capabilities, abilities to combat enemy's air assault assets, maneuverability of logistic sub-units and the air support.

Throughout recent years the land forces' battalions have undergone substantial changes with regard to organizational structures and equipment, which positively affected their combat capabilities. The new ordnance has been introduced, the number of the combat vehicles has grown and command and logistic companies have been created. Nevertheless, a battalion continues to be deprived of assets capable of assuring the anti-aircraft cover and engineering support. Moreover, its anti-tank and reconnaissance potentials seem to be insufficient as well. The opinions underlining the legitimacy of considering the modification of the homogenous battalions' structures and introducing a mixed structure, for example a mechanized and tank company and in addition an infantry company, are noticed among military science theoreticians [8]. Simultaneously the results of the conducted research indicate that a battalion still remains the most universal sub-unit that can constitute a framework for forming a battle group [18]. However, in order to make it a component of a perspective, independent brigade a battalion requires to be enlarged through embedding sub-units of other military branches into its structure. In this regard it should be noted, that the structural improvements performed in battalions affect higher organizational levels. Admittedly, the number of vehicles in battalions has recently increased but at the same time the amount of those sub-units in a brigade has been reduced to three. The ternary organizational structure of brigades is of a highly defense nature and the conclusions drawn from the conducted exercises reveal that in many cases it appears to be of little functionality. In the view of the above, the need for developing the land forces' brigades has been frequently stressed [22], however, it has not been implemented until now. The pentonomic structure, existing in the 1950s in armored regiments and in the 1990s in mechanized and armored brigades of the Polish Armed Forces, seems to be an optimal solution as far as the composition of the unit is concerned. The final determination of the prospective brigade's composition obviously requires further research with regard to the functionality, combat and fire capabilities or maneuverability of its battalions.

2. FACTORS DISTINGUISHING BATTALION'S COMBAT CAPABILITIES

The conclusions drawn from the early 21st century's armed conflicts prove the legitimacy of the theoretical concepts developed in recent years, which indicates the necessity of reduction of the numbers of the armed forces while increasing their abilities to conduct tactical operations. Those abilities, known as combat capabilities, are defined as a ratio determining the level of military organization's combat readiness (including battalion) to fulfill tasks in a given tactical situation [5].

Considering the combat capabilities of a military organization only through the perspective of possessed fire assets and adopted tactical standards seems not to be entirely justified. According to military science theoreticians, in the foreseeable future, five factors will primarily affect combat operations: the fire efficiency and dispersion,

the fire quantity and precision, the integrating technology, the mass, efficiency and detectability [2]. Respecting above-mentioned assumption it can therefore be presumed the advantage over an enemy (apart from the fire dominance) will be determined by several factors, such as: the utilization of unmanned aerial vehicles and command support systems, the capability of combating enemy's air assets, the pace of engineering works, the use of precise-guided munitions, the cover and concealment of forces and the potential of logistic support.

It is assumed in the military literature that the number of assets, which a given formation is equipped with, constitutes the core determinant of combat capabilities [21]. However, it is not the technology itself that decides about the outcome of a fight. Its application by a human, the intellect of a commander and their intellectual efficiency are of a definitive importance. Therefore, combat capabilities of a battalion will follow from the variety of interdependent factors either tangible such as: combat potential, fire and maneuver capabilities and abilities to function in network-centric environment or intangible among which the level of training and morale of troops, the level of combat readiness, organizational structures and competence to take advantage of military operation environment can be recognized.

The tangible factors are directly combined with a battalion's capabilities of destructive impact on an enemy and can be mathematically assessed. The intangible ones, difficult to quantify though, have the considerable impact on possibilities and methods of utilizing the components of tangible factors. It means that two types of above described factors have to be considered as an indivisible whole.

The first of tangible factors – *combat potential* is defined as an abstract number, represented by the sum of possessed combat assets and their unitary quantitative indicators reflected by a resultant of their relative effectiveness and ability to impact a target (such as: the rate of fire and range), maneuverability and vulnerability to enemy fire impact. It mainly serves for calculating the qualitative-quantitative ratio of forces, which will be obtained by a battalion while fighting a specified enemy's formation. As can be observed, the identification of the combat potential is determined by various components among which, technical and tactical parameters of the ordnance, combat assets and resistance to an enemy's attack are of significant importance. Thus, it can be stated that the combat potential of a battalion is determined not only by the quantity but primarily by the quality of the possessed equipment [5].

Another factor – *fire capabilities* is defined as the ability to fulfill given tasks within the determined period of time with the use of dedicated amount of ammunition [21]. During defensive operations a number of enemy's armored assets, whose assault can be halted in defense area with 90% probability with taking into account qualitative ratio of engaged parties, will constitute a determinant of the fire capabilities of a battalion. In turn, during an assault operation the sum of the respective anti-tank assets capable of effectively combating armored and anti-tank assets of a defending enemy reflects the determinant of a battalion's fire capabilities.

The third tangible factor – *maneuver capabilities* is defined as a battalion's capabilities to conduct efficient fire and combat formation components' maneuver. The fire maneuver efficiency, its concentration, distribution and shifting depends mainly on the quick flow of information, skillsets of commanders and soldiers' level of training. On the other hand, the maneuver capabilities of combat formation components refer to the ability to perform road and cross-country marches in various weather conditions at different times of day [5].

Previously emphasized technological development in the field of military science causes a need for expanding the tangible factors, formulated at the end of the previous century, to further ones that have yet not been addressed. Application of new, digital technologies increases the abilities of battalion commanders and their staff to plan and conduct combat operations. Accordingly, considering the above-mentioned capabilities of a battalion to operate in the network-centric environment as a tangible factor seems to be justified [4].

The network-centric concept is based on merging sensors, specialized combat systems and commanders into one supreme organism in order to: obtain the possibility to access to the information (gaining the so-called common operational awareness), increase the tempo of command process, shorten the reaction time as well as acquire possibilities of better operational synchronization (self-synchronization) and optimal utilization of equipment possessed [4]. Lessons learned from the early 21st century's armed conflicts indicate that employing the above concept of conducting the combat operations by military forces allows achieving the synergy which enables for multiplying the impact on an enemy due to the skillful connection of particular components of combat formations into one, coherent system. The utilization of automated command systems, described in the military science literature as C^3I and C^4I systems, enables implementation of the above-mentioned concept.

Drawing the conclusions from the conducted exercises, it can be successfully assumed that implementation of the command support systems constitutes currently a power multiplier for the forces applying them. The fact that the implementation of the described solutions is not particularly of rapid nature results in the lack of full utilization of fire and maneuver capabilities by the forces is a matter of concern. The implementation of the command support systems is currently becoming a kind of a shackle linking remained tangible factors which affect combat capabilities of a battalion assuring their full utilization owing to much-desired synergy already achieved on the sub-unit level.

Based on the aforementioned analysis it can be assumed, that the combat capabilities of individual battalions will vary depending on the tactical and technical parameters of the equipment possessed. This is of the particular importance in terms of fulfillment of the received combat orders. As already stressed, each type of a battalion's armament has the assigned unitary quantitative indicator, expressed in numerical form. Similar indicators have been assigned to the combat assets of a potential enemy's forces. Hence, in theory by means of basic mathematical calculations determining a ratio of a battalion's potential (or selected elements of a battle group) in relation to the

potential of an enemy in the chosen place and time becomes possible. On the basis of the obtained calculations, during the planning process of a battalion's operation, the possible picture of a battle result can be specified. The values, however, are not necessarily measurable, thus, despite the mathematical indicators, commanders are obliged to obtain the knowledge about real capabilities of the equipment at their disposal. The utilization in combat of motorized infantry sub-units equipped with Wheeled Armored Vehicle *Rosomak* whose unitary quantitative indicator value lies in the range of 2.07 can be mentioned as the example. However, in the light of experience, the described vehicle is not able to effectively fight against contemporary enemy tanks (despite the unitary quantitative indicator assigned to them), which results from limited capacities of its armament in the aspect of armored assets' destruction. The depicted situation changes drastically in favor of a mechanized infantry sub-unit as soon as a tank sub-unit reinforces it or a sub-unit is equipped with Spike ATGM.

The application of the equipment unitary quantitative indicators while calculating the combat potential or fire capabilities of a battalion is a relatively primitive method. Nevertheless, it entails the risk of errors occurrence following from the omission of such factors as the terrain layout or the assessment of the usage of the fire support impact on hand. For example, more precise results can be achieved by the application of various types of simulation systems.

The employment of simulation tools significantly shortens the time needed to calculate quantitative-qualitative force ratio, which will be obtained by a battalion in the case of a fight against an enemy and enables to receive precise results of this confrontation. It is to be remembered, that the simulation does not reflect the future but is the hypothetical scenario of a course of a battle which is to facilitate reaching the decision by a commander and to enable sufficient lead time for implementation of changes in the variants of using battalion combat capabilities by the staff.

Based on unitary quantitative indicators signalized above one can assume that the potential of battalions is diversified and results from the available combat equipment. Tank battalions equipped with Leopard 2A4 (2A5) have the highest combat potential, whereas mechanized battalions equipped with BMP-1 the lowest. These data is to be taken into account during defining tasks as they particularly determine the level of a battalion's abilities of fulfilling them in a specific tactical situation. However, it is to be underlined that those mathematical indicators of a combat potential are the estimated values, which do not reflect intangible factors. Moreover, depending on the environment of operations conducted the use of the held potential can be limited. It concerns urban areas in which the usage of fire assets at their maximum range is not feasible. In turn, in the case of a combat operation carried out under reduced visibility conditions the range of the fire impact will be subordinated to optical devices (thermal and night vision) on hand. In such a case, the fire assets of lower range but equipped with appropriate sights will be more efficient than the assets of the higher range deprived of appropriate optical devices.

In the light of above-presented research results it is allowed to assume that while estimating the potential of a sub-unit not only its own forces and assets but also attached ones should be taken into consideration. It becomes of a significant importance during determining combat capabilities of battalion tactical battle groups, formation of which contemporarily constitutes a basic feasibility prerequisite of the fulfilling tasks received by a battalion.

3. BATTALION TACTICAL BATTLE GROUP

Contemporary battalions have to possess the high fire and maneuver potentials. It seems that the current equipment (58 combat vehicles) meets the above requirement, however, in consideration of the frequent need of creation additional components of combat formations the organizational structure of battalions turns to be nonfunctional. The requirement of the autonomy of battalions results from the nature of contemporary combat operations. The ability to combine efforts constitutes the prerequisite condition to meet their requirements, which appears to be possible in the case of organizing the highly independent battle groups predisposed to be enlarged into larger-size organizational structures [11]. For the above reasons, in the wide range of situations battalion tactical battle groups based on mechanized, motorized or tank battalions will be formed, which can be defined as a functional module, characterized by the high autonomy, organized under one command on the basis of mechanized, motorized or tank battalions, to which mechanized, motorized, tank or other branches sub-units can be attached when required in order to fulfill a specific combat operation.

The purpose of creating the battalion tactical battle groups is the achievement of the synergy effect. The organizational structure of a battalion tactical battle group ought to be flexible and assure the ability to conduct various operations under changing climate and terrain conditions. Therefore, creating of such structures will trigger the need of continuous implementation of new technological solutions for the needs of the armed forces. It is worth addressing that adequate training and leadership is of the significant importance as far as the efficiency of battalion tactical battle groups is concerned. It is expressed by common knowledge of the tactics and operational procedures on all command levels and the pursuit to demonstrate aggressiveness in situations when an enemy can be surprised [7]. It places great demands on commanders of battalion tactical battle groups, who are obliged to lead a combat operation in the network-centric environment, express initiative and be familiar with the joint operations principles in the aspect of the cooperation with the other branches or services, for example with the air force.

The adequate organizational structure, the training and the synchronization of components forming a unit constitute the precondition of autonomy of a unit. Thus, achieving operational readiness by a battalion tactical battle group will be a long-term process. This is confirmed by the opinions of military practitioners. The full operational capability of a tactical battle group formed on the basis of a tank battalion to which additional elements were assigned such as: the battery of self-propelled artillery, the anti-aircraft battery, the anti-tank platoon, the reconnaissance platoon, the forward observers section, the engineering platoon and the contamination reconnaissance

section was achieved after eight months [12]. Such a long period of time followed from the requirement to standardize operations (including understanding of SOP), organize the chain of command and familiarize with subordinates and their skillets as well as synchronize all the battle group's components. According to the battalion commander based on which the battle group was formed achieving operational capability in a shorter time would not be manageable.

In the given situations forming battalion tactical battle groups may be forced as a result of a developing situation. Usually, in such case, the structure of a battle group is determined by the sustained losses and the battle group is formed from the forces and assets remained at the commander's disposal, which assure fulfillment of the received task.

Experiences related to forming battalion tactical battle groups indicate that they will consist of two major components: a baseline sub-unit described as a core and an optional module [8]. A mechanized, motorized or tank sub-unit constitute the core of a tactical battle group selected in accordance with a presumed type of activities and an intended objective. The method of the task's fulfillment will come from the tactics characteristic for the baseline sub-unit, but the optional module is to be selected in relation to the requirements following from the character of the task and it can be modified as the situation develops. The selection of the optional components depends mainly on the presumed threats, the function and the localization of the battalion tactical battle group in the higher commander's combat formation. The additional factors shaping the optional module can be: the predicted time of operation and autonomy requirements, legal aspects of a battle group activation, reconnaissance and fire support requirements and terrain conditions (the environment) [7].

The battalion commander based on which the battle group is formed takes the command over it. Depending on the composition of the optional module the expert officers, who should advise the commander on the fields they represent and maintain the contact with the specialized sub-units, are attached to the HQ. It is also supposed that the level organizing a tactical battle group should provide reconnaissance data and necessary support and protection [8]. A battalion tactical battle group can be miscellaneously subordinated, either it can be an element of a brigade battle group or be subordinated to a division HQ. However, notwithstanding the subordination, a battle group should consist of several company battle groups composed of the battle module (a mechanized, motorized or tank sub-unit) and the support module (fire support, anti-aircraft and logistic sub-units) of a significant executive autonomy.

Forming battalion battle groups is a complex endeavor but as indicated by the above-presented results of the research it will become a common phenomenon in the future. It is important to note, that the specified conceptual structural solutions cannot be implemented in the cut-and-dried manner but they are to be adapted to the existing conditions, requirements and tactical situations. Uncritical transferring of the functional solutions and undertaking the attempts aimed at adjusting them to existing conditions can create effects contrary to the assumed objectives. Therefore, the selection of a battalion tactical battle group's structure should be equivalent to

prevailing or presumed combat situation and be adequate to possessed combat assets as well as human and logistic resources. It is worth underlining that during the formation of battalion tactical battle groups it is extremely valuable to create structures of innovative character and highly desirable prognostic qualities.

CONCLUSIONS

It goes without saying that the structural changes conducted in recent years have led to increasing combat capabilities of a battalion. However, despite significant transformations, such a sub-unit still remains not completely independent. Meeting contemporary demands entails the necessity of implementation of the module-based structures in the land force, guarantying the flexibility and possibility of forming the battle groups of various natures. Thus, the combat units of the significant degree of universalization and unification, fully prepared to conduct the autonomous operations and capable of multi-variant integration with the larger structures will be formed in the future [19]. The foregoing doctrinal assumption entirely acknowledges the validity of creating battalion tactical battle groups signalized in present paper. Nonetheless, the combat capabilities of battle groups, to the large extent, will depend not only on highly effective combat assets on hand but also, and perhaps primarily, on its automation and robotization as well as the resistance to impacts from the cyberspace.

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