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Factors Shaping the Employment of Military Force from the Perspective of the War in Ukraine

Faktory formujúce použitie vojenskej sily z pohľadu vojny na Ukrajine

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Abstract: The study presents a meritorious view of the traditional operational factors of space, time and force. On the background of the first and second phases of the War in Ukraine, it examines how the relevant factors shape the use of military force in operations, clarifies their mutual correlation, interference, application connections and also causality. The results of the study demonstrate the necessity of a correct and holistic perception of operational factors for effective deployment and employment of military forces in the contemporary operating environment. The main benefit of the study, applying the heuristic and inventive function of analogy from the open sources of available identified knowledge from the deployment of military forces in the War in Ukraine, is the mediation of model examples of a comprehensive vision of the effects of how operational factors shape the use of military force in contemporary high-intensity warfare operations.

Abstrakt: Predložená štúdia prezentuje meritórny pohľad na tradičné operačné faktory, a to priestor, čas a dostupné sily. Na pozadí prvej a druhej fázy vojny na Ukrajine skúma, ako predmetné faktory formujú použitie vojenskej sily v operáciách, ozrejmuje ich vzájomnú koreláciu, interferenciu, aplikačné súvislosti, ako aj kauzalitu. Výsledky štúdie demonštrujú nevyhnutnosť správnej a celistvej percepcie operačných faktorov pre efektívne nasadenie a pôsobenie vojenských síl v súčasnom operačnom prostredí. Hlavným prínosom štúdie, uplatnením heuristickej a invenčnej funkcie analógie z otvorených zdrojov dostupných identifikovaných poznatkov z nasadenia vojenských síl vo vojne na Ukrajine, je sprostredkovanie modelových príkladov komplexného videnia vplyvov, akými operačné faktory formujú použitie vojenskej sily v súčasných operáciách v konflikte vysokej intenzity.

Key words: Military Power; Operating Environment; Operational Factors; War in Ukraine.

Kľúčové slová: Vojenská sila; operačné prostredie; operačné faktory;-vojna na Ukrajine.

INTRODUCTION

After the end of the Cold War, the general premise was often proclaimed that there was a low probability of a large-scale conventional armed conflict in the Euro-Atlantic area in the foreseeable future. However, due to the deteriorating security situation on the European continent, this eventuality was not completely ruled out.[1] The change of security situation in Ukraine following the annexation of Crimea was an example of the inaccuracy of such a premise[2] and additionally, it also presented a challenge for national security decision-makers because the presumed existence of a suitable exclusively military solution was not assured.[3] The proliferation of advanced technologies, the emphasis on arming "standard" as well as "non-standard" armed forces, the spread of propaganda of "turbulent" ideologies, extremism and populism, the expansion of disinformation and the associated growing susceptibility of the population to rapid changes of public opinions and attitudes have increased the probability of armed conflict occurrence, which could be even more destructive than in the case of previous "warfare generations".

Thus, in the current "warfare generation", the ability to set an achievable political-military goal for the military instrument of power, which will contribute to the overall achievement of political goals, in synchronization with other instruments of state power, should be a decisive imperative for the governing bodies of the state. Otherwise, deployed forces, which represent the executive component of the military instrument of power, can become "stuck" in the operating environment. Achievement of the decisive conditions, which correspond to the achievement of the end state of the military operations, could become tedious, economically and humanly inefficient and even (geo) politically destructive, in such conditions.

Subsequently, there could be a general perception of failure, resulting from the different perspectives of politicians, military strategists and commanders.[4] This situation puts pressure on the reassessment of the political goals as exemplified by the strategic withdrawal of the dispersed Russian forces from most of Ukrainian regions[5] and their

1 SPIŠÁK, Ján et al. *Operační prostředí. Implikace pro tvorbu a rozvoj schopností ozbrojených sil ČR 2020* [online]. Brno: Univerzita obrany, 2021. [cit. 2022-04-27]. Available at: https://lnk.sk/bvak

2 MUŠINKA, Miroslav. Konflikt na Ukrajine a jeho dopad na bezpečnosť EÚ. In: *Národná a medzinárodná bezpečnosť 2021* [online]. Liptovský Mikuláš: Akadémia ozbrojených síl gen. M. R. Štefánika, 2021, pp. 257-268. [cit. 2022-04-02]. Available at: http://archiv.aos.sk/struktura/katedry/kbo/NMB2021/Zbornik_NMB2021.pdf

3 STOJAR, Richard et al. *Bezpečnostní prostředí. Sektorová analýza a implikace pro ozbrojené síly ČR 2020* [online]. Brno: Univerzita obrany, 2021 [cit. 2022-04-26]. Available at: https://lnk.sk/uzg4

4 BETTS, K. Richard. The Trouble with Strategy: Bridging Policy and Operations. *JFQ: A Professional Military Journal* [online]. 2001-02, no. 29 [cit. 2022-04-06]. Available at: https://apps.dtic.mil/dtic/tr/fulltext/u2/a403405.pdf

5 KOTOULAS, Ioannis, PUSZTAI, Wolfgang. *Geopolitics of the War in Ukraine.* Athens: Foreign Affairs Institute, Greece, Jun 2022, Report No. 4 [cit. 2022-12-04]. Available at: https://euagenda.eu/upload/publications/geopolitics-of-the-war-in-ukraine-final.pdf

concentration in the regions mainly occupied from 2014[6] or even the termination of the deployment of military forces. However, such reconsiderations may evoke that the withdrawal is close to defeat, such as the withdrawal of coalition forces from Afghanistan.[7]

The effort to define the war (traditional conventional, asymmetric or hybrid) and the effort to understand the particular form of warfare (regular or irregular) is initiating the discussion about the military capabilities' development and relevant operational concepts.[8] The necessity of a comprehensive understanding of the struggle for power (especially political one) as the fundamental cause of the war and subsequently the essence of warfare is sometimes forgotten.[9]

If the decision maker decides to deploy the armed forces to a crisis area, their capabilities need to respect the circumstances of the operating environment.[10] The decisive ability of the military forces, given their missions and range of capabilities, is to achieve military dominance in all domains of the operating environment, even against a sophisticated adversary with complexly developed capabilities and well-set objectives.

Despite the significant increase in the importance of non-physical domains of the operating environment interrelated with the outspread of the modern technologies and their relative availability, the current armed conflict in Ukraine documents that the physical environment represents a key domain of the military operating environment, e.g. the land operating environment.

The land operating environment is characterized by diverse morphology and varying physical characteristics and actors. It is a permanent habitat of its inhabitants, which requires a specific approach. This fact, therefore, predetermines the deployment of such military forces and military capabilities that are specifically able to continuously rapidly manoeuvre in the land operating environment, control it and, at the same time, maintain contact with the population. Thus, this ability indirectly affect activities in non-physical domains of the operating environment.

The operational factors of time, space and force represent the application aspects of the deployment of military forces, i.e. the employment of a military power to achieve political goals. Decision makers applying a military source of power must understand that commanders of military forces must constantly assess the relationship between

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6 SPENCER, John. Studying the Battle of Kyiv, Part 1. In: *Modern War Institute* [online]. Jul 8, 2022 [cit. 2022-11-29]. Available at: https://mwi.usma.edu/studying-the-battle-of-kyiv-part-1/

7 KOMPAN, Jaroslav, HRNČIAR, Michal. The Security Sector Reform of the Fragile State as a Tool for Conflict Prevention. *Politické vedy*. Vol. 24, No. 2, 2021, pp. 87-107. [cit. 2022-11-15]. ISSN 1335-2741.

8 PIKNER, Ivo. Military Concept Development and Military Lifelong Education. In: *ICLEL 2015 - International Conference on Lifelong Learning and Leadership for All*. Sakarya: Sakarya University Faculty of Education, Turkey, 2016, pp. 269-272. [cit. 2022-03-28]. ISBN 978-605-66495-0-9. Available at: https://www.researchgate.net/publication/301650047_Military_concept_development_and_military_lifelong_education

9 MAJCHÚT, Ivan. Deployability of armed forces in the current armed conflicts. In: *The 23rd International Conference The Knowledge-Based Organization: Management and Military Cciences.* Sibiu: Nicolae Balcescu Land Forces Academy, 2017, pp. 195-199. [cit. 2022-03-20]. ISBN 978-973-153-273-8.

10 SPILÝ, Peter. Vojenské umenie verzus aktuálne bezpečnostné hrozby. In: *Národná a medzinárodná bezpečnosť 2013* [online]. Liptovský Mikuláš: Akadémia ozbrojených síl gen. M. R. Štefánika, 2013, pp. 421-428. [cit. 2022-03-24]. Available at: http://archiv.aos.sk/struktura/katedry/kbo/NMB2013/Zbornik_NMB_2013.pdf

time, space and force, including in relation to the information environment and information (Figure 1). The right harmonization of factors creates the conditions for initial success, which could be exploited even by other than military means, including, e.g., economics.[11]

The requirement of modern military operations, as documented in the War in Ukraine,[12] is to gain and maintain freedom of action in all domains, i.e. the ability to make a variety of important critical decisions in order to achieve envisioned military objectives that enable political objectives to be achieved.

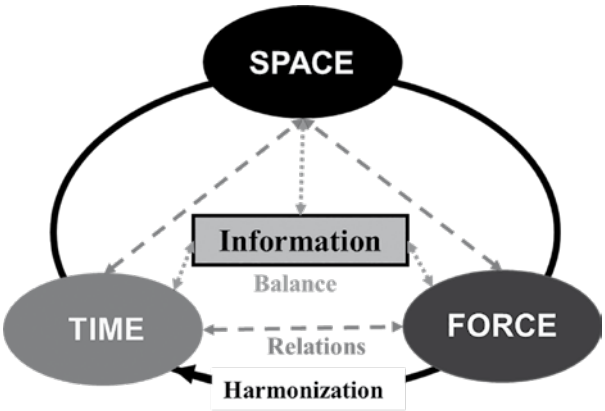

Figure 1: Correlation of operational factors

1 METHODOLOGY

In this context, the study presents a current meritorious view of the traditional operational factors of spac3e, time and force by analysing and comparing the broad portfolio of available scientific researches and informational portals. The main aim of the study is to illustrate the necessity of correct perception of operational factors, their mutual correlation, interference, application context and causality. Although the emphasis is on traditional operational factors, their framework is influenced by the information environment.

11 FRIANOVÁ, Viera. Economic thinking as a significant prerequisite for the efficient management and functioning of the defence sector. *Journal of Defense Resources Management*. 2015, Vol. 6, Iss. 1 (10), pp. 13-20. [cit. 2022-12-09]. ISSN 2068-9403. Available at: https://www.researchgate.net/publication/328481843_Economic_thinking_as_a_significant_prerequisite_for_the_efficient_management_and_functioning_of_the_defence_sector

12 MĚŘIČKA, Jan. The Information War in Ukraine as a Part of the Military Strategy. *Vojenské rozhledy*. 2022, Vol. 31 (63), No. 1, pp. 21-37. [cit. 2022-12-12]. ISSN 1210-3292 (print), ISSN 2336-2995 (online).

The main benefit of the study, applying the heuristic and inventive function of analogy from the open sources of available identified knowledge from the deployment of military forces in the War in Ukraine, is the mediation of model examples of a comprehensive vision of the effects of how operational factors shape the use of military forces in contemporary high-intensity warfare operations. Additional result of the study is to be an aide-memoire applicable to support decision-making for the establishing goal and size of military employment in the pursuit of political goals.

The study stems from the results of theoretical research and analysis by the authors. It applies the knowledge from domestic and foreign scientific and professional publications, articles, studies, qualification papers, including terminological dictionaries, departmental and alliance materials assessing the contemporary operating environment and its development trends in the context of the current global security environment and focusing on identification of the actual food for thought for political and military leaders from the Russian incursion in Ukraine. The study uses information from open sources, and the authors' goal is not to assess the political or moral level of the invasion, but to offer a military perspective on the use of operational factors in the context of the ongoing War in Ukraine.

2 THE FACTOR OF SPACE

The factor of space currently includes the land, sea, air, space and also the cyber and human domains of operating environment, including all their characteristics that affect the deployment of military forces. Military commanders should be able to understand the basic characteristics of the space in which they will conduct operations, its dynamic and topographical components[13] and the distances between areas of interest. If the space factor is not properly and realistically evaluated, military operations will probably fail.[14] This premise is based on the fact that space can be a source and at the same time the goal of military operations when achieving the political goals.[15]

Space is the goal because without its control, the conduct of military operations is very limited or even almost impossible.[16] In modern conflicts, the target area is the urban environment where vital military, economic and political infrastructure exists. Russian and Ukrainian political and military decision makers are fully aware of this, and that

13 SEDLÁČEK Martin, DOHNAL Filip, ROLENEC Ota. Proposal of an Algorithm for Evaluation of Wet Gap Crossing Using Geoprocessing Tool. In: *TRANSBALTICA XII: Transportation Science and Technology. TRANSBALTICA 2021* [online]. Cham: Lecture Notes in Intelligent Transportation and Infrastructure. Springer [cit. 2022-04-28]. Available at: https://doi.org/10.1007/978-3-030-94774-3_53

14 NOHEL, Jan, ZÁHRADNÍČEK, Pavel, FLASAR, Zdeněk, RAK, Luděk. Possibilities of Modelling the Coordinated Maneuver of Units in Difficult Terrain Conditions. In: *2021 Communication and Information Technologies (KIT)*, 2021, pp. 1-5. [cit. 2022-05-21]. ISBN 978-1-6654-2879-8.

15 VEGO, Milan. *Joint Operational Warfare*. Newport: Naval War College, USA, 2007.

16 JANČO, Ján. Mosty a ich vplyv na vojenskú mobilitu. *Vojenské reflexie*. 2022, Vol. 17, No. 1, pp. 89-107. [cit. 2022-12-14]. ISSN 1336-9202.

is why the control of the urban centres of Ukraine was and is the primary goal of both sides of this conflict.[17] On the other hand, the built-up area, paradoxically, represents an obstacle that fundamentally slows down and disrupts the relatively fast movement of forces. In addition, this "obstacle" is often exacerbated by activity, as it was, e.g., in the "Azovstal" steelworks in Mariupol, of the besieged Ukrainian forces, including the Ukrainian civilians,[18] fixing a significant parts of the forces of the Russian Federation, which are consequently absent in other important directions.

On the other hand, we could consider space (especially the land space) as a source for the success of military operations because it is vital for forces concentrations and redeployments. Additionally, it is crucial for the manoeuvring of forces for movements to conduct decisive operations or exploiting the initial success, respectively, and even more for the logistics of military forces to transport supplies by land, sea or air "ways". An example is the Russian military supply convoy heading from the Belarusian border to Kyiv. Due to the fact that Russian forces controlled only a narrow ground corridor, the military convoy was forced to use a single marching axis, which dramatically increased its length to about 60 km.[19] After the destruction of vehicles moving at the lead of the column by Ukrainian drones or by deliberate damage to key infrastructure, respectively, the Russian convoy remained fixed as the physical terrain did not allow a bypassing manoeuvre. The result was not only the creation of ideal conditions for the destruction of other Russian vehicles in the convoy, but especially a significant delay in the supply of ammunition and fuel for Russian manoeuvring forces, which made it unfavourable for conducting Russian operations in the Kyiv direction.[20]

Another example is the inability of the armed forces of the Russian Federation to seize and subsequently control the Hostomel airport by a rapid airborne operation.[21] However, this was part of the overall inability of the Russian invasion forces to gain another domain of space, namely airspace, by not suppressing the Ukrainian air defence to gain and maintain broader air superiority. This situation caused the loss of momentum of the Russian invading forces and the exploration of success. At the same time, it prevented the movement of other troops of the Russian Federation directly into Kyiv. Consequently,

17 DiMARCO, Louis. Urban operations in Ukraine: Size, Ratios, and the Principles of War. In: *Modern War Institute* [online]. Jun 20, 2022 [cit. 2022-11-29]. Available at: https://mwi.usma.edu/urban-operations-in-ukraine-size-ratios-and-the-principles-of-war/

18 STABLEFORD, Dylan. Azovstal steel plant becomes symbol of Ukrainian resistance. In: *Yahoo News* [online]. [cit. 2022-04-27]. Available at: https://lnk.sk/mjxw

19 McGEE, Luke. Here's what we know about the 40-mile-long Russian convoy outside Ukraine's capital. In: *CNN News* [online]. [cit. 2022-04-09]. Available at: https://edition.cnn.com/2022/03/03/europe/russian-convoy-stalled-outside-kyiv-intl/index.html

20 BORGER, Julian. The drone operators who halted Russian convoy headed for Kyiv. In: *The Guardian* [online]. [cit. 2022-04-21]. Available at: https://lnk.sk/htj6

21 CLARK, Mason, BARROS, George, STEPANENKO, Kateryna. Russia-Ukraine Warning Update: Initial Russian Offensive Campaign Assessment. In: *Critical Threats Project*. [online]. Feb 24, 2022 [cit. 2022-10-04]. Available at: https://www.criticalthreats.org/analysis/russia-ukraine-warning-update-initial-russian-offensive-campaign-assessment

the Russian forces could not carry out a decisive operation because their forces did not have freedom of movement to achieve the planned objectives.

One of the basic characteristics of modern military operations is the increasingly large Area of Operations where all the movements, manoeuvres and combat are executed. So, there is a dilemma which forces and when to deploy because the larger space (especially the land space) requires larger force for control. The achievement of "rapid victories" as seen in the War in Ukraine is predominantly determined by the domination over all domains of space (air and land as the traditional ones). Space, as a decisive operational factor, must therefore be controlled to such an extent that the military objectives could be achieved. If it is not controlled, any military activity loses dynamics, military forces lose momentum, and thus the ability to execute a surprising manoeuvre. Consequently, by not controlling the space, the resistance of the defending forces is at least maintained and this situation leads to a result with disproportionate losses and associated reduction of physical and moral components of fighting power. These effects might lead to a re-assessment of strategic objectives, as identified in the War in Ukraine.

Although the physical component of the operating environment, i.e. the terrain[22] in the land operating environment, could be considered an essential component of space, it cannot be separated from the human space. Human population shapes the terrain and by it clearly affects military operations in a particular area. We could claim that there is a direct dependence between the size of the physical space and the human space. The first phase of the Russian Federation's invasion of Ukraine documents this dependence, when the invading forces made territorial gains,[23] which increased the physical component of space by gaining it and also increased the size of the human space - in terms of a larger population in the occupied territory, which was not inclined to cooperate with the occupying forces. Thus, the actions of gaining the space increased the number of "freedom-fighters", therefore, the long-term control of these enlarged areas created a demand for an increase in the size of occupying forces.

It is documented in the War in Ukraine that the human space can fundamentally affect a high-intensity conflict, i.e. a conventional conflict, where defensive operations in built-up areas could be conducted even by newly recruited, volunteer or territorial military structures personnel from the local population, i.e. the Ukrainian civilian population.[24] Their advantage is based on a shared situational awareness and knowledge of local physical terrain (especially the built-up urban areas, including industrial centres), because it is their natural habitat. This has also a significant psychological and moral benefit for the defender. Such situations were documented during the "Mariupol siege".

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22 SPILÝ, Peter. Insight into contemporary operational environment. *Security Dimensions: International & National Studies.* 2014, Vol. 11, No. 1, pp. 132-140. [cit. 2022-04-15]. ISSN 2353-7000.

23 THE VISUAL JOURNALISM TEAM. Ukraine war in maps: Tracking the Russian invasion. In: *BBC News* [online]. [cit. 2022-04-27]. Available at: https://www.bbc.com/news/world-europe-60506682

24 MEDNICK, Sam. Russia-Ukraine: The civilians fighting on Kyiv's front lines. In: *Aljazeera* [online]. [cit. 2022-04-15]. Available at: https://www.aljazeera.com/features/2022/3/23/the-civilian-fighters-taking-up-arms-on-ukraines-front-lines

It is also necessary to understand that the larger space could be a source of more information. In the contemporary operating environment, factors of information and space are in relationship which is based on the ongoing demand for accurate information on all aspects of the physical component of the operating environment. The land space is to be a suitable domain for information transmission, but this is limited by the technological and economic sophistication of the actors. At the same time, space limits information and its transmission, because large space requires extensive coverage of communications, which must be maintained, managed, and additionally well protected from enemy electronic warfare.

Additionally, the cyberspace increasingly gains strategical importance.[25] In essence, it expands physical space into another dimension (domain), which requires the deployment of specialized military forces to conduct non-physical military operations. At the same time, it brings a new dimension to the conduct of operations, because military forces are no longer geographically tied to a certain area, but the supporting elements of both own and adversary forces may be completely outside of this area. As an example, we could follow the activities of the "Anonymous" group,[26] which were not primarily aimed against the physically deployed Russian military forces, but rather to exploit weaknesses in the cyber security of state institutions of the Russian Federation. Their activities were intended to shape the Russian population's "information vacuum" in order to undermine the credibility of Kremlin's political-strategic narrative.

International or transnational information and technology companies with non-state capital, which are able to provide valuable data without significant time delays ("right now") and thus directly support one of the parties to the conflict, are also significant actors that influence the information factor. In the War in Ukraine, these companies support Ukrainian armed forces, especially by providing on-line satellite surveillance and establishing long range redundant communication networks (such as Starlink[27] and Maxar Technologies[28]).

Despite many challenges for conducting military operations identified in the War in Ukraine, we could assess that the factor of space is a fundamental, still, not the most important factor because its importance is reflected in the interference with other factors, such as time and force.

25 FUČÍK, Jakub, BAXA, Fabian, FRANK, Libor, PROCHÁZKA, Josef. *Technologický vývoj. Implikace pro schopnosti ozbrojených sil ČR 2020* [online]. Brno: Univerzita obrany, 2021. [cit. 2022-04-28]. Available at: https://lnk.sk/tabm

26 TIDY, Joe. Anonymous: How hackers are trying to undermine Putin. In: *BBC News* [online]. [cit. 2022-04-22]. Available at: https://www.bbc.com/news/technology-60784526

27 FREUND, Alexander. Ukraine is using Elon Musk's Starlink for drone strikes. In: *DW* [online]. Mar 27, 2022 [cit. 2022-04-27]. Available at: https://www.dw.com/en/ukraine-is-using-elon-musks-starlink-for-drone-strikes/a-61270528

28 WEITERING, Hanneke. Ukrainian entrepreneur calls for faster, better satellite data to help fight Russian invasion. In: Space [online]. Mar 01, 2022 [cit. 2022-04-27]. Available at: https://www.space.com/russian-invasion-ukraine-better-satellite-data-needed

3 THE FACTOR OF TIME

The factor of time is very closely linked to the factor of space. Time, contrary to space, is much more dynamic and especially unrepeatable. The loss of space is compensable because space could be regained or at least shaped, which is also documented by the Ukrainian recapture of the territory controlled by Russian forces at the beginning of the invasion. On the other hand, the loss of time provides a clear advantage to the adversary. Here, we can also identify the relationship between the time and space factors, re-documented in the failed control of the Hostomel Airport.[29] If the Russian forces were able to control it as planned at the beginning of the invasion, the invading forces would not have had to make relatively long movements towards Kyiv, rather, they would be situated directly in its suburbs. Thus, the unsuccessful seizure of space as a goal caused a loss of time, which the invading forces needed for a ground movement to Kyiv.

Every military activity requires an exact amount of time, which is, however, affected by friction in war.[30] In essence, the parallel is that the greater the force, the more time it takes to deploy, and this is exacerbated by the size of the space which it operates in or which it is to be deployed in. It has been clear since World War II that military units "spend" more time in preparation and movements than in conducting combat operations.[31] This carries along the risk that even a minor incident (e.g. restriction of movement caused by damage to infrastructure) could disrupt the time sequence and synchronization of the subsequent military activities, thus interfering with the achievement of objectives.

With the rapid development of technology, the importance of time as an operational factor is also gaining more prominence than during previous "warfare generations". Technologies ensure the ability to move quickly, continuously collect and process information, reduce the time needed for the decision-making process, and provide an advantage over a technologically backward adversary. Still, these advantages may become disadvantages (equivalent system overload, mobility constraints)[32] against close to peer adversary.

However, the time gained must always be used to achieve the advantage, without any hesitation or delay. Optimizing one's own internal processes (undisrupted decision-making, short activation time, very short reaction time) and disrupting the same processes of the enemy at the same time, so that the enemy has to act without preparation

29 CLARK, Mason et al., Ref. 21.

30 CLAUSEWITZ, Von C. *On War*. Princeton: Princeton University Press, UK, 1984 [online]. [cit. 2022-04-06]. Available at: https://lnk.sk/mcm4

31 LAWRENCE, Christopher A. *War by Numbers: Understanding Conventional Combat*. Nebraska: Potomac books, USA, 2017. ISBN 978-1612348865.

32 ROLENEC, Ota, ŠILINGER, Karel, ŽIŽKA, Pavel, PALASIEWITZ, Tibor. Supporting the decision-making process in the planning and controlling of engineer task teams to support mobility in a combat operation. Int. J. Educ. Inf. Technol. 2019(13), pp. 33–40.

("hastily") and thus relatively unprepared, seem to be the most suitable way to gain time initiative.

The factor of time can be considered crucial in the War in Ukraine, which is also documented by the military operations, when less numerous Ukrainian military forces could disrupt the momentum of the larger Russian forces, thus causing the failure of achievement of Russian military objectives, and additionally erosion of the Russian will to fight and bewilderment in the Russian commanding structures.

In general, we can claim that the ability to act faster than the adversary brings a decisive advantage. The numerical or spatial disadvantage may be partially or completely offset by the ability to achieve the assigned objectives more quickly in a limited time by available force.

4 THE FACTOR OF FORCE

The factor of force (understood in the present study as military forces) represents in its narrowest sense a military source of power. In general, we could claim that the more available forces compared to the adversary, the more freedom of action the military operations have. Given the amount of force available, we should consider two basic terms, namely fighting power and combat power.

Fighting power is the projected combat capability of military forces to perform tasks and act against a specific threat.[33] Fighting power could be understood as projected or available. While the projected fighting power is based on standardized numbers of military forces ("tables of organization and equipment") and the doctrine of military forces, the available fighting power is theoretically available for planned military operations. It follows that the projected fighting power would always be higher than available, because its balance is only theoretically achievable. The War in Ukraine uncovers disparity between the projected and achievable fighting power of Russian forces, as the available fighting power was influenced not only by the tables of equipment but also by the will to fight and the conceptual ability to conduct high-intensity warfare operations.

On the other hand, the combat power should be perceived as a set of means of destruction and disruption that a military unit or units can use at a given moment against the enemy. In terms of combat power, it is necessary to assess the technological sophistication, the level of training and synergy of forces and resources of opponents.[34] Similarly, combat power is affected by the capability of using weapon systems, especially

33 DUBOIS, Edmund, L. *A Concise Theory of Combat.* Monterey: Institute for Joint Warfare Analysis, USA, 1997. [online]. [cit. 2022-04-08]. Available at: https://core.ac.uk/download/pdf/36731683.pdf

34 BYSTRIANSKY, Ivan. Bojový potenciál a bojová sila. *Vojenské reflexie*. 2022, Vol. 17, No. 2, pp. 86-106. [cit. 2022-12-14]. ISSN 1336-9202.

of higher technological complexity.[35] The moral component also presents an important role in the combat power, i.e. the morale of the forces. The indicator may be the level of identification of the actor in the conflict with the objectives of the operation, i.e. the subjective degree of willingness to endure hardship. Additionally, there are the approaches and processes applied in order to achieve these objectives, e.g. the competence of commanders to command and control their units and achieve the assumed effects.

The conversion between available fighting power and combat power depends on the friction of available forces with the environment and the adversary. Obstacle-saturated terrain, different from estimated conditions, or adverse weather conditions could significantly reduce or limit the effectiveness of military forces, resulting in a significant reduction in the combat power activated from the available fighting power (Figure 2).

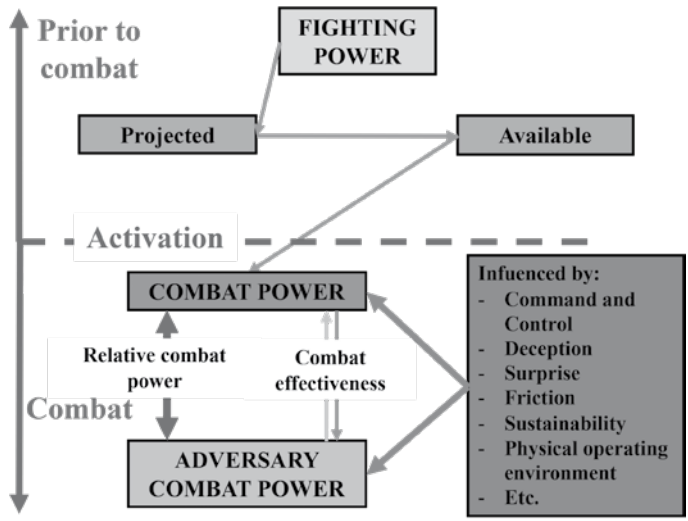

Figure 2: The relationship between fighting power and combat power[36]

Appropriate deployment of available forces is conditioned by the knowledge of the requirement to determine exactly which forces and capabilities are needed in order to achieve the assigned military objectives. Therefore, the timely and accurate information by its nature and applicability increases the effectiveness of the employment of available forces. At the same time, the available forces interfere with the factor of space

35 KOZÁKOVÁ, Eva, POLACH, Miroslav. Dopravně-psychologické posouzení psychické zátěže osádek bojových vozidel Pandur II. In: *Psychológia práce a organizácie 2018 – minulosť, prítomnosť a výzvy do budúcnosti*. Košice: Univerzita Pavla Jozefa Šafárika v Košiciach, 2019, pp. 244-252. ISBN 978-80-8152-713-5.

36 VEGO, Milan. Ref. 15.

(especially land-space), documented by the ability of these forces to control specific areas and to concentrate or disperse them in key areas. In particular, determining the right balance between available forces and space, on the basis of relevant information, becomes a critical factor in the planning of military operations.

However, the factor of force is severely distorted in the War in Ukraine, in particular by the support of the international community, which provides Ukrainian military forces with additional resources that would otherwise be difficult to recover.[37]

DISCUSSION AND CONCLUSION

The aim of the study was to demonstrate the necessity of a correct perception of the operational factors of space, time and force for the effective deployment and employment of military forces in the contemporary operating environment. Through a theoretical analysis of the factors, the authors have pointed out how the factors shape the use of military force in the operations. They reveal their mutual correlation, interference, application context as well as causality. By presenting the actual examples from the first and second phases of the ongoing War in Ukraine, they have clarified a practical military perspective on the possible consequences of incorrect perception and evaluation of the operational factors and their unbalanced application in the contemporary operating environment.

The correct perception of the conditions, contexts, functions, interconnections and influences of individual operational factors postulates the ability of military commanders to correctly identify quantifiable and non-quantifiable parameters of military power,[38] i.e. which military capabilities it is appropriate to deploy, at the same time applying the operational factors in order to decide how and when to deploy these generated capabilities in the decisive time, space and size.

In today's information-connected world,[39] the operational factors of space, time and force must be considered traditional.[40] Their application framework is dramatically influenced by the information environment, which is fundamentally different in its nature. This is a consequence of its controllability, i.e. the possibility of significantly disrupting or directing the flow of information and, at the same time, the indeterminacy and immeasurable nature of what information is.

37 MULLER, Robert. *Slovakia sends its air defence system to Ukraine.* In: *Reuters* [online]. [cit. 2022-04-11]. Available at: https://www.reuters.com/world/europe/slovakia-gives-s-300-air-defence-system-ukraine-prime-minister-2022-04-08/

38 VARECHA, Jaroslav. Možný pohľad na parametre bojového potenciálu. In: *Národná a medzinárodná bezpečnosť 2016* [online]. Liptovský Mikuláš: Akadémia ozbrojených síl gen. M. R. Štefánika, 2016, pp. 569-577. [cit. 2022-03-24]. ISBN 978-80-8040-534-2.

39 JANČO, Ján. Súčasné názory na vzťah bezpečnostnej hrozby a bezpečnostného rizika. In: *Bezpečnostné fórum 2022*. Banská Bystrica: Interpolis, 2022, pp. 82-90. [cit. 2022-14-12]. ISBN 978-80-973394-6-3.

40 VEGO, Milan. Ref. 15.

Information could always be a source of power, but especially in the current information age, it can also bring confusion and system overload. At the same time, a proper assessment of available force, space and time cannot be made without accurate information on all important aspects of the operating environment and operational situation. Accurate, timely and reliable information is the basis for decision-making processes determining the desired specific effects ("targeting").[41] Modern effectors are capable of generating a range of physical and psychological effects[42] with minimal collateral damage using highly accurate ammunition and ammunition with a reduced effect on surrounding objects.[43] Modern technologies, including military technologies, are a catalyst for success in the deployment of military forces.

Individual operational factors should not be understood as isolated aspects, instead, they should be understood in mutual relations. This means that it is only by properly balancing all operational factors that a decisive advantage over the adversary can be achieved, thereby ensuring the achievement of the defined military end states that would enable the achievement of political goals.

The results presented by the study can be a basis for further research. This research should be oriented, for example, on the assessment of the extent and area of influence of the operational factors in the deployment of prospective military technologies, especially autonomous unmanned ground and air systems,[44] which are capable of eliminating the quantitative and qualitative limits of currently available military forces and assets.

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41 BELAN, Lubomír, UCHÁĽ, Marek. 2018. Targeting vo vojenstve. *Vojenské reflexie.* 2018, Vol. 13, No. 1, pp. 72-82. [cit. 2022-04-24]. ISSN 1336-9202.

42 ŠUSTR, Michal, POTUŽÁK, Ladislav, BLAHA, Martin, IVAN, Ivan. Střelba s jednotným dopadem střel a možnosti využití v Armádě České republiky. *Vojenské rozhledy*. 2020, 29 (4), pp. 84-93. [cit. 2022-04-27]. ISSN 1210-3292 (print), 2336-2995 (on-line).

43 TURAJ, Milan. Zhodnotenie aktuálneho stavu bojového použitia predsunutých leteckých navádzačov v podmienkach Ozbrojených síl Slovenskej republiky. *Vojenské reflexie*. 2018, Vol. 13, No. 2, pp. 164-174. [cit. 2022-04-24]. ISSN 1336-9202.

44 ZAHRADNÍČEK, Pavel, RAK, Luděk, ZEZULA, Jan. Budoucí prostředí a robotické autonomní systémy. *Vojenské reflexie.* 2022, Vol. 17, No. 2, pp. 56-72. [cit. 2022-12-14]. ISSN 1336-9202.

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