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A LEGACY SINCE 1864

The Romanian Armed Forces road to modernity started in 1859, once the United Principalities General Staff Corps, currently the Defence Staff, was established.

Soon after it, in 1864, a group of nine captains, graduates of the first series of the Officer Cadet School in Bucharest, took the initiative to develop a *"military science, art and history journal"* named *"România Militară/Military Romania"*.

The initiators of the publication – **G. Slăniceanu** (Captain, Chief of the Engineer Battalion), **A. Gramont** (Staff Captain), **G. Borănescu** (Engineer Captain), **G. Anghelescu** (Staff Captain), **A. Anghelescu** (Artillery Captain), **E. Arion** (Artillery Captain), **E. Boteanu** (Staff Captain), **E. Pencovici** (Staff Captain) and **C. Barozzi** (Engineer Captain) –, educated not only in Romania but also abroad, were inspired by the necessity to develop a substantial theoretical activity in the Romanian Army too.

The journal manifesto[1], included in the first issue, which appeared on 15 February 1864, contained innovative ideas and approaches that were meant to:

"- contribute to the organisation of our military system the Legislative Chamber is about to decide upon soon;

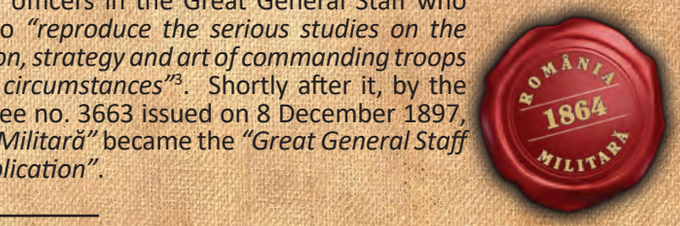
- assemble and examine the Country old military institutions that had made for the glory of Romania for several centuries and ensured our existence;

- explore, in the absence of any military study, all the aspects related to the Army training, the most solid basis of the armed forces;

- get the Romanian Troops well-informed about the military events in the world;

- join efforts to work concertedly and whole-heartedly to develop and strengthen the edifice that is meant to ensure the future of our country"[2].

"România Militară" was an independent publication, under the aegis of the War Ministry, and it ceased to appear in 1866 as there were no sufficient funds and subscribers. The publication was resumed in 1891, about a quarter of a century later, also as the result of the initiative of a group of officers in the Great General Staff who intended to *"reproduce the serious studies on the organisation, strategy and art of commanding troops under any circumstances"*[3]. Shortly after it, by the Royal Decree no. 3663 issued on 8 December 1897, *"România Militară"* became the *"Great General Staff official publication"*.



[1] *Din trecutul României Militare cu prilejul aniversării a 75 de ani de la apariția ei în viața armatei. 1864-1939*, București, 1939, p. 31.

[2] *Ibidem*, p. 32.

[3] *România Militară*, no. 1, 1981, p. 6.

English version by **Diana Cristiana LUPU**.

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DRONE WARFARE – EVOLUTION OR REVOLUTION IN MILITARY AFFAIRS?

Major General Florin-Marian BARBU

Chief of Operations Directorate, Defence Staff

English version by **Iulia SINGER**.

The ongoing revolution in science and technology, which began in the late 19th century, continues to shape the entire field of military science, both theoretically and practically. As a consequence, with the current technological advancements in weaponry, their variety, the complexity of their effects, the expansion of operational areas and their typology, the complexity of the international security environment and not only, we find ourselves at a turning point in defining future directions and are headed towards a period when strategies, concepts, plans, theories etc. will be continuously redefined and realigned.

Weaponry, organisation of armed forces, operational procedures or relations between humans and combat technologies have been significantly adapted, acquiring new and important features depending on the technological evolution. One can assess that the current techno-military revolution influences the relations between humans and technology, and understanding these implications is crucial for addressing the challenges posed by modern warfare and the development of military science.

One of the most evident changes in modern warfare is the widespread use of advanced technology. Cyber technology has become a crucial tool in current conflicts. Cyber attacks can disrupt critical infrastructures such as power grids, financial systems and communication networks, without traditional military intervention. Moreover, drones and autonomous vehicles have also revolutionised military tactics, enabling precise operations with minimal risk to military personnel.

In recent conflicts such as the Nagorno-Karabakh one, the global war on terrorism (GWOT), and particularly the Ukraine conflict, drones seem to have a significant tactical and operational impact, but a limited strategic one. This has prompted significant discussions worldwide within armed forces and various security

structures about their role in combat operations. The extent, use and proliferation of drone capabilities across all operational domains (air, land, sea, space and cyber) are obvious. Therefore, every nation or defence coalition must consider these identified lessons in future defence-planning efforts both by rethinking the military equipment procurement strategy and by reshaping certain force structures. However, do drones represent what is called a revolution in military affairs or are they just a step in the evolution of technology, with direct influences on military tactics and strategy?

Drones Alone Cannot Ensure a Decisive Effect for Winning the War

In the mentioned conflicts, especially in the Ukraine conflict, drones have proved highly effective at the tactical level of warfare. They have enabled cheap precise strikes either by directly attacking an enemy or, more often, by directing artillery shells to the desired target. Drones seem to have the most significant impact when interconnected (in swarms) and operated by ground fire units. Even though such a combat network exists at tactical levels, examples of such networks are rudimentary, still relying on operators manually inputting data and making decisions through commercial communication channels such as WhatsApp and Google Meet.

In the Ukraine conflict, both sides have used drones on an unprecedented use. The main gain seems to be situational awareness on the ground using eyes in the sky. Equally important, drones have exponentially boosted the precision of artillery fire, which seems to be the dominant weapon in this war. Drone operators make it possible for imprecise indirect fire weapons to have precision effects. When drone operators use command and control networks to share information with artillery units, they can significantly accelerate targeting cycles, achieving repeated and precise strikes. Small FPV (first-person view) kamikaze drones cost a fraction of other weapons price and enable combatants to attack moving targets beyond their line of sight. Moreover, Ukrainian and Russian forces use long-range kamikaze drones as cheap cruise missiles to conduct strategic attacks. Likewise, the use of naval drones has brought relevant successes

for Ukraine against the Russian fleet in the Black Sea. Russia has also used drones to destroy Ukraine's critical infrastructures or attack civilian targets in order to demoralise the population and the enemy armed forces. Individually, these are notable advances, but not even cumulatively can they represent a revolution in military affairs.

It is likely that this pattern will continue as the war lengthens. Yet, it is clear that drones alone cannot determine the outcome of the conflict, although they will certainly play a prominent part in the ongoing war in Ukraine and on future battlefields.

Drones Are Vulnerable Systems

Most of the drones currently used and lost are relatively cheap military or commercial drones with limited resistance, range and payload and are vulnerable to countermeasures, particularly to EW (electronic warfare). Most drones are easy to detect: they fly at relatively low speeds and thus their navigation features can be easily identified.

Instead of investing in strengthening these systems, both sides simply buy or produce more. Moreover, most drones are remotely piloted and are not completely autonomous. Autonomy can be used in some systems and could become more widespread, but drones are currently tied to human operators. Ukrainian forces have widely used drones to gain an asymmetric advantage over a superior Russian military force.

Russian forces have quickly adapted and imitated Ukraine's use of commercial drone to a surprising extent, considering the Russian Ministry of Defence's reluctance to officially adopt private sector technologies. Russian forces have used drones as part of the reconnaissance process, increasingly enabling their firepower.

Throughout the war, there have been rapid adaptation cycles, because both sides have learned from one another, adopting successful tactics and technologies and developing tactics and procedures to improve their defences. Especially that the use of drones, kamikaze ones included, has forced the identification of efficient protection measures. It would not be operationally sustainable or financially

practical to use complex surface-to-air missile systems, such as Patriot, to neutralise a small-value commercial drone adapted to deliver a combat payload. Accordingly, as countermeasures develop, these will increasingly work against the technological advantage drones currently enjoy.

Drones Will Not Replace Current Military Doctrines, But Will Adapt Them

Revolutions in military affairs are so disruptive, that they make old weapons, modes of warfare and organisational structures obsolete. Thus, revolutions require more than the widespread adoption of new technologies. Moreover, armed forces must develop new operational concepts, integrate new capabilities into wider military systems and adapt their organisational culture and structure. This kind of change is difficult to achieve during war, because combatants are focused on immediate combat and tactical adaptations, without reviewing doctrine and organisation. In the Ukraine war, we witness rapid cycles of tactical innovation, emulation and the development of new capabilities. In time, these cycles may lead to more profound changes in operational concepts and the way in which Russian and Ukrainian forces are organised, which could really revolutionise warfare. According to this standard, the conflict in Ukraine represents, at best, the early stages of a revolution, because the effect of drones has been rather more evolutionary so far.

When a legitimate military revolution occurs, this is usually characterised by a symbiotic interplay between technology and doctrine. As these two variables interact, a dynamic unfolds that creates transformative change, which alters the very nature of war – which makes a technology revolutionary. This kind of events represents a fundamental advance in technology, doctrine and organisation, which renders existing methods of warfare obsolete. Consequently, a genuine revolution in military affairs requires not only new technology, but also a doctrinal component adapted to new technologies. In the previously mentioned conflicts, drones have proved they can perform various types of missions, including air surveillance, precision strikes, real-time intelligence and enhanced

situational awareness for C2 (command-control) architecture. This implies that, instead of leading to changes of current doctrines, drones are more of a force multiplier that strengthens existing practice. A capability that produces an effect when added and used by a combat force significantly enhances the combat potential of that force and thus increases the probability of successfully accomplishing the mission. An example of a technology that represented revolution in military affairs is the atomic bomb. Due to its destructive power, this weapon changed the stakes of war, deterrence strategies and international relations. Another example is the aircraft carrier, which, by interconnecting multiple technologies, provides the capability to project power over long distances, thus playing a decisive part in the course of war.

Measures Implemented by the Romanian Armed Forces

In this context, in which the use of drones on the battlefield has become a necessity, the Romanian Armed Forces is making efforts, together with the allies, to adapt to the new reality. Among the measures taken or being implemented are both the acquisition of drone-type combat systems and anti-drone systems, the development of such capabilities through ACTTM – the Agency for Research on Military Technology and Techniques – and the establishment of combat units equipped with drone-type systems.

Recently, Romania has been directly affected by this drone war, with components coming from several such devices used in the Ukraine conflict crashing on our territory, near the border. Even though the incidents are isolated, the drone parts fallen in Romania increase the risk of misunderstandings, including between Russia and NATO, prompting the Romanian Armed Forces to enhance security in the area to protect the civilian population. Among the implemented measures, one can include the following: increasing the number of soldiers assigned in missions in this area to implement additional measures, including intervention subunits that can act as needed; EOD teams ready to intervene whenever possible drone parts are investigated on the spot; more observation

points and ground sensors installed; increased patrolling on the Danube with the river flotilla; construction of shelters for the civilian population.

In April 2023, Romania and Türkiye signed a contract for the acquisition of 18 Bayraktar TB2 drones (6 platforms with 3 drones each), which will be integrated into the Romanian Land Forces this year. In December 2022, the Ministry of National Defence and Elbit Systems signed a contract for the acquisition of 21 Watchkeeper X drones (7 systems of 3 drones and one command centre each) for the Romanian Armed Forces. Alongside Patriot and Himars systems, the Romanian Armed Forces are expecting to receive their first KP-SAM Chiron-type MANPAD systems (Man-Portable Air-Defence Systems) from South Korea. These are light anti-aircraft weapon systems designed to protect soldiers and equipment on the battlefield from aircraft, drone or helicopter attacks. The Romanian Armed Forces will receive in the coming years more advanced 35 mm cannon systems, including against drone swarms, produced by Rheinmetall, and are considering the acquisition of naval drones.

Moreover, at the end of 2022, the acquisition process was launched for 18 SHORAD – VSHORAD air defence systems, for the beginning. These are short and very short range anti-aircraft missile systems, with a total desired acquisition of 30 such systems.

As part of a joint effort to bolster deterrence and defence measures in the Black Sea, the US Army deployed an M-LIDS system in Romania to combat drone threats. M-LIDS includes an electronic warfare system against drones, a command and control system, an infrared camera, direction-finding sensors, and an AN/TPQ-50 radar. The system also features a 30 mm XM914 cannon. The protection systems developed on the wheeled platforms on which the system is mounted are state-of-the-art and resistant to mines and ambushes.

Romania's defence industry is also adapting to the new reality imposed by the use of drones on the battlefield. The Romanian company BlueSpace Technology announced last year the launch of a new groundbreaking product, the UAS drone combat system, the first of its kind manufactured in Romania. The BS-JDP01 model

is a non-kinetic, portable, independent defence equipment designed to neutralise unmanned aerial vehicles (UAVs) by disrupting the main signals used by commercial UAS and S-UAS systems.

Conclusion

The use of drones in the Ukraine conflict has provided valuable lessons that have influenced modern military tactics and strategies. Continuous surveillance, precise attacks, use of commercial and improvised drones, vulnerabilities to electronic warfare, the need for effective countermeasures, and the psychological and economic impact are all essential in understanding how drones have changed the landscape of modern warfare.

Moreover, the use of drones has significantly changed warfare tactics, providing the armed forces with critical advantages in surveillance, precise attacks, rapid response and integration into complex information networks, all while reducing the risks and costs associated with traditional military operations.

Drones have also significantly changed the strategic conduct of warfare, offering advantages in power projection, operational efficiency, reducing political and humanitarian risks and adaptability in asymmetric and cyber warfare. These changes have redefined many aspects in planning and carrying out modern military operations. Therefore, we can state that drones have become an increasingly important tool, although they have not revolutionised warfare.

For Romania, adapting its military strategy to incorporate drones is crucial for responding to modern security challenges and maintaining a strategic advantage. Investments in technology, training, and doctrine development are essential steps for effectively integrating drones in the Romanian military arsenal, thus ensuring an increased capacity to rapidly and efficiently respond to contemporary threats.

These lessons will continue to shape future military doctrines and strategies, as drone technology evolves and becomes even more integrated into global military operations.

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OPERATING CONCEPTS – AN ESSENTIAL ELEMENT FOR THE ROMANIAN ARMED FORCES DEVELOPMENT

Colonel (N) (r.) Ovidiu PORTASE

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Military operating concepts are the mandatory starting point for the defence forces design and development. The Consolidated National Defence and the Integrated Joint Force, two operating concepts presented in the Military Strategy of Romania - 2021, provide the necessary vision for the transformation and adaptation of the Romanian Armed Forces and the joint force to the current and future realities of the operating environment.

In this article the author presents some considerations related to the place, role and importance of operating concepts used by the armed forces of other states, accompanied by some examples and points of view that might help to better understand the terms, to develop and implement these concepts and their subsequent concepts, doctrines, and capabilities through which they are operationalized in the Romanian Armed Forces.

Keywords: concepts; development; joint forces; capabilities; Romanian Armed Forces;

Motto:

"Coming together is a beginning. Keeping together is progress. Working together is success".

Henry Ford

INTRODUCTION

Transformation and adaptation are essential processes for any organization that wants to successfully achieve its goals and develop in a constantly changing environment. For any state defence forces, these processes are carried out based on a framework built on high-level programmatic documents (strategies, policies, strategic guidance etc.), which sets the desired end state, objectives, main directions of action, and other details required for these forces design and development.

Transformation and adaptation are essential processes for any organization that wants to successfully achieve its goals and develop in a constantly changing environment.

The military transformation process is an ongoing and complex one. It started with the first force structure and it is still on. Theorized and put in practice by the development and implementation of new concepts, strategies, doctrines and capabilities, it aims currently to increase the efficiency of military structures by creating effects simultaneously in several operational domains (land, air, sea, space and cyber), by integrating forces at national and multinational level, by quickly adapting to changes in the operating environment or by other methods that ensure the successful fulfilment of the objectives, missions and tasks entrusted to them.

One of the key elements of this process are new, innovative concepts, those ideas and notions that define and describe future contexts and situations, challenges, problems and specific solutions, here the military instrument of power.

This paper presents some considerations related to the place, role and importance of operating concepts used by the armed forces of other states, accompanied by some examples and points of view that can help to better understand the terms, to develop and successfully implement these concepts and the subsequent ones, those doctrines

and capabilities by which they are operationalized in the Romanian Armed Forces. At the same time, this work is intended to be a follow-on to one article I wrote in 2020 (Portase, 2020), a more detailed view on an element of the proposed strategy for the Romanian Naval Forces development – the concepts.

The information in this article is addressed to all those interested in how the Romanian Armed Forces design and development could be carried out, including those who might be involved in the new security and defence concepts implementation [extended national security (National Defence Strategy/SNAp., 2020), consolidated national defence, integrated joint force (Military Strategy/SMR, 2021) etc.].

It should be stated that the information presented in this work comes exclusively from the public domain, and despite its limitations given due to the lack of access to classified documents and discussions or to those which have not been made public until now, this work can be widely disseminated within communities of interest from both the public and private sectors.

The design and development of military forces is a long-term process, which requires the development of new concepts and capabilities, as well as their experimentation and validation, before their actual implementation and use.

OPERATING CONCEPTS – PLACE AND ROLE IN THE SPECIALIZED LITERATURE

The changing nature of the operating environment and the nature of military actions, the emergence of new threats generated by innovative approaches and capabilities by some international actors constitute risk factors for national security and defence. To be able to successfully manage them, military forces must adapt, develop, or even reinvent themselves on how they use current and future capabilities. The design and development of military forces is a long-term process, which requires the development of new concepts and capabilities, as well as their experimentation and validation, before their actual implementation and use.

A concept can be seen as an agreed notion or idea, usually presented in a document, which provides solutions in solving a problem specific to a field of operation and which can lead to the development of a way forward. Since the ambiguous definition of a concept or the assignment of a generic name to it can create problems instead of solutions, I consider it necessary to first present the place and the role

that operational concepts occupy in the military lexicon, also providing some examples for a better understanding.

Military concepts are, as a rule, descriptions of a method or scheme for using a certain military capability to achieve a stated goal or objective. This description may be general or specific and may range from describing in generic terms the use of military forces in the broadest sense to specifying in detail the use of a particular training or technical system.

In principle, the process of developing military concepts is initiated when there is a need to find a solution to a newly emerging/identified military problem (e.g. the emergence of a new type of threat, the use of emerging/disruptive technologies) or to an already existing problem (e.g. a better solution can be found as a result of the emergence of a new technology, by implementing a new organization or tactic etc.).

There are a lot of military concepts taxonomies in military literature, but there is no generally accepted hierarchy for these concepts. Thus, according to a NATO (2021) hierarchy used for concept development and experimentation, military concepts are strategic concepts, operational concepts and functional concepts. Unfortunately, this simple classification does not cover the wider range of their use at national level (to include, for instance, tactical level concepts applicable to armed forces services – CS or concepts used by support commands – SC), thus making this hierarchy inadequate. This article argues to maintain the hierarchy presented in the Military Strategy of Romania/SMR – 2016, but supplemented to include elements of the hierarchy used by Schmitt (2002) and Pikner, Zuna, Spisak, Galatik (2013), a hierarchy where military concepts are presented from general to particular as follows:

- **institutional concepts** – related to the operation of military institutions, as a whole (strategic credibility; inter-institutional approach and planning; the concept of a NATO accredited Centre of Excellence etc.);
- **operating concepts** – describe the way military forces operate[1]/ use the necessary capabilities to respond to future military

The process of developing military concepts is initiated when there is a need to find a solution to a newly emerging/ identified military problem (e.g. the emergence of a new type of threat, the use of emerging/ disruptive technologies).

[1] The term *"operating"* is preferred by some authors to avoid possible confusions of using the term *"operational"*, a term with double meaning – one as the operational level of warfare and the other as the attribute related to military operations (operational) (A.N.).

challenges, applying military art and science in situations defined by a certain set of parameters (type of mission, operating environment, type of force, level of warfare etc.);

- **functional concepts**[2] – relating to how to exercise certain military function (command and control, manoeuvre, fire, protection etc.);
- **enabling or integrating concepts** – describe the capability employment to perform a specific military function or those having an integrative character (IAMD, MDA[3], inter-institutional, multinational etc.); they add depth and detail to one or more assembled operating concepts.

The term "operating concept" can be used to define both the operating concept of a certain type of force structure – starting from its highest level (capstone concept) and down to the basic one (cornerstone concept) and the ranking of military concepts according to the warfare level (strategic, operational, or tactical concept).

The major advantage of this hierarchy is that the term *"operating concept"* can be used to define both the operating concept of a certain type of force structure – starting from its highest level (capstone concept) and down to the basic one (cornerstone concept) and the ranking of military concepts according to the warfare level (strategic, operational, or tactical concept).

In terms of their role, military concepts are multipurpose documents. Basically, they present visions or ideas that an organization uses to anticipate and adapt to the emerging challenges of the operating environment and to prepare theoretically and practically the problem solving. Their scope and degree of detail differ depending on the level of warfare they are developed for (strategic, operational, tactical) and the area where they will be implemented (operational, functional etc.). Mainly, military concepts are used in defining the necessary solutions for new doctrine, forces or capabilities development, but they can also contribute to institutional strategies development by defining visions (a generic example is shown in *figure 1*), presenting approaches or proposing frameworks as solution-oriented ideas to achieve desired goals or end states.

[2] Some recent documents include the functional, enabling, integrating and SC/CS concepts into a single category – supporting concepts (A.N.).
[3] IAMD-Integrated Air and Missile Defense, MDA-Maritime Domain Awareness.

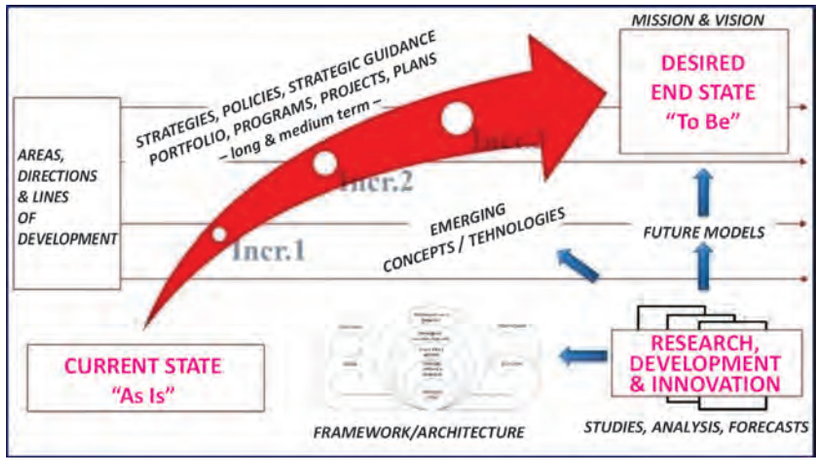

Figure 1: Strategy for the development of the Romanian Naval Forces (Portase, 2020)

Military capstone operating concepts[4] are usually the joint operating concepts to ensure the link between strategic directions on security and defence matters and the integrated action of joint force capabilities. They provide the necessary context for armed forces transformation, general approaches to how to solve a potential future military problem and the conceptual framework required for the lower-level military concepts and new capabilities development. These concepts outline how the joint force will act to conduct operations in the next 15-20 years and facilitate concept development and experimentation and joint capabilities development through DOTMLPFI (Doctrine, Organization, Training, Material, Leadership, Personnel, Facilities and Interoperability) solutions. Generally, military capstone operating concepts are based on the strategy pursued for the achievement of military objectives, thus contributing to national objectives achievement, by carrying out joint actions together with national organizations or multinational partners.

Joint operating concepts are concepts below the fundamental concept of operation level that describe how the joint force commander intends to plan, prepare, deploy, employ, and sustain a joint force against potential adversary capabilities in a specific operation type or

[4] E.g. Capstone Concept for Joint Operations (CCJO) in the USA or Integrating Operating Concept (IOpC) in the UK.

in the event of a crisis. Unlike the military capstone operating concept, the joint operating concept addresses planning and execution aspects of a specific campaign or operation type or of a particular scenario, identifies the challenges and essential capabilities required and the conditions under which they will be used. The joint operating concepts are the *"transformation engine"* and serve as a guide for the development and integration of joint functional concepts and SC/CS and their capabilities (Joint Operations Concepts, 2003).

The lower-level operating concepts along with the joint operating concepts can be used as starting points in defining the structure budgeted or in the project phase that will act to operate in the new operating environment, the future capabilities needed by the armed forces of today or as basis for the military doctrines review or development. Thus, these concepts identify a current or future challenge and propose a solution to improve the joint force's ability to meet that challenge, including through new ways of employing the joint force, but using future technologies.

The joint operating concept addresses planning and execution aspects of a specific campaign or operation type or of a particular scenario, identifies the challenges and essential capabilities required and the conditions under which they will be used.

The operating concepts development is based on the results of strategic level studies on the global change trends in various domains (human, societal, environmental, technological etc.) for the long-term horizon (15-20 years), the influence of these changes on the future operating environment, the reasons why wars are fought, how future operations will be conducted, the actors involved and the capabilities used. The development and validation of these concepts is usually done under the coordination of force development structures existing at the strategic commands level, J-7 type structures, using a common framework for the entire armed forces structure.

OPERATING CONCEPTS AT INTERNATIONAL LEVEL

Of all the military concepts available in the public space, the most important ones, from this article perspective, can be considered NATO and EU concepts – operating concepts with direct applicability to the Romanian Armed Forces, those of the armed forces with a tradition in developing this type of concepts, such as the USA, UK, France and other Western states – pioneers in concept and military capabilities development, as well as those of potential direct or indirect adversary

states (Russia, China, Iran, North Korea etc.), all these concepts being mandatory elements of study in order to identify future potential challenges, problems and solutions.

NATO military concepts are important for the Romanian Armed Forces as they are determining elements in establishing the Romanian Armed Forces employment and the required capabilities in an allied context. They are developed on the basis of the strategic directions from NATO strategic concept, the defence ministers' political guidelines and NATO military strategy. The latter, together with the military implementation concepts developed at NATO strategic command level[5], establish the new military-strategic level baseline for the use and development of the Alliance's military instrument (Tammen, 2020).

The Concept for Deterrence and Defence of the Euro-Atlantic Area (DDA), the military concept developed by ACO, operationalizes the NATO military strategy so that the Alliance can face the dynamics and complexity of today's security environment. A classified document approved in 2020, the DDA outlines how the Alliance uses the military tool, aligning it with the requirements of modern warfare, strengthens the Alliance's defensive posture and its defensive role, sets NATO's military priorities and a new strategic-level approach against current and future threats.

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The NATO Warfighting Capstone Concept (NWCC) is the military concept developed by ACT for the development of the Alliance's military tool over a period of 20 years. Approved in 2021 and dubbed *NATO's Military North Star*, the NWCC provides an agreed long-term vision for NATO's military adaptation and supports the Alliance's efforts in developing military forces, identifying capability gaps, and making recommendations to meet future requirements. It describes the future operating environment with a focus on threats and the changing character of warfare, suggests a *"push-pull"* approach to modernize what the Alliance already has and to maintain and build advantage where needed to stay ahead of the threat curve. NWCC aims to out-think, out-excel, out-fight, out-pace, out-partner and out-last any adversary or threat through its functional design; establishes

[5] Allied Command Transformation – ACT and Allied Command for Operations – ACO.

the imperatives needed to organize and synchronize warfighting development efforts: cognitive superiority, layered resilience, influence and force projection, cross-domain command, and integrated multi-domain defence[6], all with critical enablers of data, technology, agility, people, preparation and integration.

It should be also mentioned here that there is a new NATO military concept under development – the Multi-Domain Operations (MDO) concept. Jointly developed by ACT and ACO, the concept is to be tested and validated in future exercises and training sessions to ensure the integration of the two new operational domains – space and cyber – at the speed, intensity and agility that NATO must use to maintain its advantage.

The EU Military Staff, through the Concepts and Capabilities Directorate, is responsible for the concepts, doctrines, planning and capability development, for cooperation with the European Defence Agency (EDA) and for ensuring coherence between EU military concepts and crisis management procedures.

As for military concepts at the EU level, they mirror to some extent the concepts developed and implemented at NATO level, mainly because a large part of the EU states are NATO members and they have unique NATO-EU force packages. However, the structural and functional particularities of the EU imply different approaches. The EU Strategic Compass, the specific strategic directions and the framework created by the European Defence Fund (EDF), the European Defence Industrial Development Programme (EDIDP), the Permanent Structured Cooperation (PESCO) and the Coordinated Annual Review on Defence (CARD), all influence the way in which EU concepts are applicable to actions, where the use of the military instrument and its capabilities are involved and how they are developed and validated.

The EU Military Staff, through the Concepts and Capabilities Directorate, is responsible for the concepts, doctrines, planning and capability development, for cooperation with the European Defence Agency (EDA) and for ensuring coherence between EU military concepts and crisis management procedures[7]. The EU family of concepts includes mainly concepts regarding the mode of action and the capabilities of the military rapid reaction forces established based on the Framework

[6] Allied Command Transformation, *NATO Warfighting Concept*, https://www.act.nato.int/our-work/nato-warfighting-capstone-concept/, retrieved on 28 September 2023.

[7] European Union External Action, *European Union Military Staff; Concepts and Capabilities Directorate*, https://www.eeas.europa.eu/eeas/european-union-military-staff-concepts-and-capabilities-directorate_en#top, retrieved on 28 September 2023.

Nation Concept (battle groups, maritime, air rapid reaction forces etc.), supplemented by several institutional and functional concepts (force generation, C2, intel, logistics etc.). Recently, however, there have been discussions regarding two concepts necessary for the implementation of the Strategic Compass: the military framework for security and defence and the EU Rapid Deployment Capacity respectively.

Among Western nations, the US Armed Forces is the organization that has probably had the most interesting evolution of operating concepts in recent times, starting with the *"AirLand Battle"*[8] and continuing with the series of operating concepts that led to the Capstone Concept for Joint Operations (CCJO)[9]. Even if its last capstone concept variant is classified, the content of the previous variants gives us a general idea of its purpose and content.

CCJO is the concept that, together with the National Military Strategy (NMS), represents the military approach of the Chairman of the Joint Chiefs of Staff (CJCS) to the implementation of the National Security Strategy (NSS). Hierarchically above all joint and SC concepts, this concept represents the CJCS vision of the future US joint force and provides the content, role, and coherence needed in the future force design and development process over an 8-20-year time horizon[10]. Starting from the directions established by the NSS, the National Defence Strategy (NDS) and the NMS, from the characteristics of the future operating environment[11] and from the military problem to be

CCJO is the concept that, together with the National Military Strategy (NMS), represents the military approach of the Chairman of the Joint Chiefs of Staff (CJCS) to the implementation of the National Security Strategy (NSS).

[8] AirLandBattle (ALB) – a concept implemented starting 1982 to operationalize the *"containment"* strategy and defeat the Soviet Union through the use of synchronized air and ground operations, impetuous manoeuvre, deep battlefield operations and a tempo to defeat the numerically superior Soviet force, with emphasis on operational level military actions. James L. Cook, *The Importance of Joint Concepts for the Planner*, (2020), https://www.459arw.afrc.af.mil/News/Article-Display/Article/2421510/the-importance-of-joint-concepts-for-the-planner/, retrieved on 28 September 2023.

[9] Joint Vision-JV 2010 in 1996, Joint Operations Concepts – JOpsC in 2003, CCJO: Joint Force 2020 in 2012 and CCJO: 2030 in 2018.

[10] The main stages of this process related to the future joint force are force employment (operate) – with a time horizon of 0-3 years, force development (adapt) – with a time horizon of 2-7 years and force design (innovate) – with a time horizon of 5-15 years. https://www.jcs.mil/Portals/36/Documents/Doctrine/MECC2019/mecc2019day1brief6_jointfutures_concepts.pdf?ver=2019-10-17-143319-517, retrieved on 28 September 2023.

[11] NSS, NDS, NMS and the Joint Operational Environment (JOE) study are distinct documents, developed by institutions located at different hierarchical levels of authority (US President, Department of Defense, Joint Chiefs of Staff, and the intelligence community, under the coordination of J -7).

solved, CCJO establishes the central idea and some supporting ideas, the multipurpose DOTMLPF[12] appropriate solution for a distinct set of challenges and future operational problems, the main directions of development and use of the assembled force, and the fundamental actions necessary to fulfil the missions under the conditions of the integration of own efforts with those at the inter-agency and multinational level (unified/integrated action). Subject to an extensive and long-term process of experimentation and several revisions, once fully matured, this concept is implemented as the joint doctrine of the US Armed Forces[13].

US operating concepts describe how the joint force commander will conduct operations within an operational-level campaign, applying CCJO in solving a specific military problem (current operations, defence support to civil authorities, peacekeeping operations, major joint operations etc.).

US operating concepts describe how the joint force commander will conduct operations within an operational-level campaign, applying CCJO in solving a specific military problem (current operations, defence support to civil authorities, peacekeeping operations, major joint operations etc.). These concepts identify the challenges, the basic capabilities required and the conditions under which these capabilities are to be used, while establishing the operational context for the development and experimentation of support concepts (functional, facilitation, integration etc.) and the operational capabilities required to meet military objectives and ensuring the contribution to the achievement of strategic objectives. From the series of recent operating concepts, it is worth mentioning the JOAC[14] operational concept and the SC MDO, DMO, JADC2 and EABO[15] concepts, as significant examples for deepening the subject of operating concepts.

It should be noted that with the implementation of the NMS in 2018, there has been a significant change in the conceptual approach to future US operations following the strategic direction that the

[12] Doctrine, Organization, Training, Material, Leadership, Personnel, Facilities and Interoperability.

[13] The latest edition of the US Armed Forces's capstone doctrine presents the fundamental principles and general guidance for the employment of US armed forces in two volumes: *"JP-1 vol. 1 - Joint Warfighting"* and *"JP-1 vol. 2 - Joint Force"* published in August 2023 (classified document) and June 2020, respectively.

[14] Joint Operational Access Concept – joint concept for operational access, concept created and used by the US since 2012 to respond to the challenge/problem of operational access in an area where an anti-access and area denial (A2AD) strategy is used.

[15] The US Services operating concepts (SC): the US Army Multi-Domain Operations (MDO) (initiated in 2013, became doctrine in 2022); the US Navy Distributed Maritime Operations (DMO); the US Air Force Joint All-Domain Command & Control (JADC2); the US Marine Corps Expeditionary Advanced Base Operations (EABO).

assembled force should be capable of competing below the level of armed conflict, in response to future attempts at hybrid actions such as *"green men"*, *"armed militias"*, disinformation campaigns[16] etc. As a result, the development of the Joint Warfighting Concept (JWC) was initiated and the process of developing capabilities required by the concept (Concept-Required Capabilities-CRC) was moved to a concept-driven and threat-informed process of developing capabilities governed, similar to NATO.

Consonant to NATO and the USA, the development of military concepts used by the UK Armed Forces is done starting from the strategic context, future scenarios, areas where profound changes for humanity will take place, threats and long-term opportunities identified by the study of global strategic trends (GST) and future operating environment (FOE)[17].

According to the Ministry of Defence report produced as part of the Security, Development and Foreign Policy Review process[18], the UK Armed Forces will become a threat-oriented integrated force with a continuous change in thinking across the five operational domains: land, sea, air, space and cyber.

The Future Force Concept (FFC) presented in 2017 combines the operating concepts specific to the operational domains into a single document, with the aim of guiding the development of the future force in a coherent manner and promoting a united mindset for a common purpose, beyond the current horizon of policies and resources.

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[16] Dryad Global, *No Ordinary Boats: Cracking The Code On China's Spratly Maritime Militias* (2021), https://channel16.dryadglobal.com/no-ordinary-boats-cracking-the-code-on-chinas-spratly-maritime-militias, retrieved on 28 September 2023.

[17] *UK Global Strategic Trends* – GST, https://www.gov.uk/government/publications/global-strategic-trends and *UK Future Operating Environment* – FOE, https://www.gov.uk/government/publications/future-operating-environment-2035, retrieved on 28 September 2023.

[18] *Defence in a Competitive Age* (2021), https://www.gov.uk/government/publications/defence-in-a-competitive-age, retrieved on 28 September 2023.

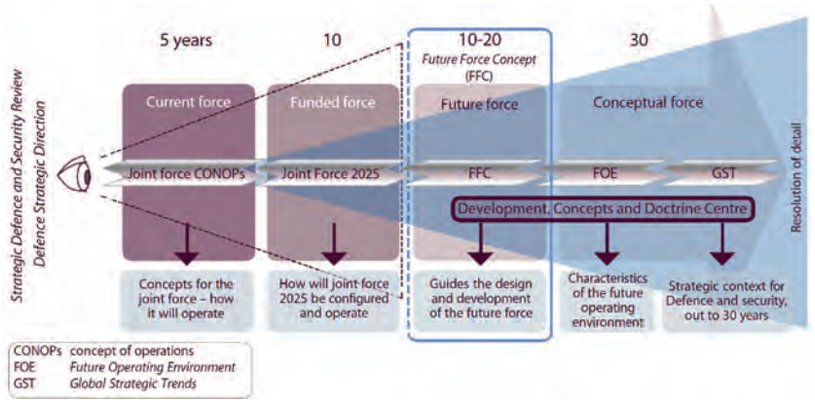

Figure 2: Future force development continuum
(Joint Concept Note 1/17 – Future Force Concept, 2017)

The content of the FFC includes references to the future strategic context and operating environment (planning horizon 2035), to the joint action mode, to the characteristics, challenges and opportunities of the operating domains, to the inferred elements that can be used in a coherent future force development.

Like the other concepts presented here, the content of the FFC includes references to the future strategic context and operating environment (planning horizon 2035), to the joint action mode, to the characteristics, challenges and opportunities of the operating domains, to the inferred elements that can be used in a coherent future force development. Aimed at understanding the future operating environment, the FFC concept has been recommended for study and understanding by all involved in policy and strategy formulation or military capability development and acquisition, commanders and staff, including military students. Even if it was developed based on documents issued in 2015, which are no longer up to date, the approach and principles the FFC was built on and promoted are worth remembering.

Currently, the development of the UK's armed forces is based on the Integrated Operating Concept (IOpC) published for the first time in 2020[19]. IOpC was designed to respond to the challenge of a strategic context where the lines of peace-war, public-private, external-internal affairs, state-non-state are increasingly blurred, and where strategic competition has become a continuous engagement with instruments of military and non-military power used without restriction by authoritarian regimes, with no demarcation between peace and war.

Taking this challenge into account, IOpC sets out a new, transformational approach in which the armed forces must prove

[19] *Integrated Operating Concept*, The Development Concepts and Doctrine Centre (2021).

useful in this strategic competition on the brink of war, while they are able to cope with a way of waging a war whose character can change very quickly. IOpC specifies that the integrated actions in all five domains (multi-domain integration – MDI) – must also be done at the tactical level, extending the joint character below the operational level, in order to create the multi-domain effect. At the same time, the concept requires that the military instrument should be integrated into the total national enterprise (fusion doctrine[20]).

To that end, the IOpC is based on an Integrated Operating Framework[21] (IOpF) where a distinction is made between the military activities of *"operating"* and *"warfighting"*. According to the IOpF, the forces must be able to adapt to operating at different gradual levels of combat capability (readiness), while maintaining a reserve of forces, including that constituted by mobilization, optimized for fighting. This differentiation between operating and waging war represents a fundamental shift in military philosophy that requires very different thinking about the use of the military tool, the development of appropriate forces and capabilities, and the development of doctrine that allows for decisive competitive action against an adversary that does not distinguish between peace and war.

The MDI concept[22] *(figure 3)*, an experimental 2020 British concept based on the IOpC, which deals with the integration of military capabilities with other instruments of national power across all operational domains and at all operational levels (strategic, operational,

Figure 3: Multi-domain integration
(Joint Concept Note 1/17, ib.)

The MDI concept, an experimental 2020 British concept based on the IOpC, which deals with the integration of military capabilities with other instruments of national power across all operational domains and at all operational levels (strategic, operational, tactical).

[20] Fusion Doctrine was introduced in the National Security Capability Review (NSCR), 2015, p. 10. The NSCR describes the UK's collective approach to national security and provides the rationale and purpose of Fusion Doctrine, but does not explain its practical application. *The Orchestration of Military Strategic Effects* (2021).
[21] *Integrated Operating Framework*, Development Concepts and Doctrine Centre (2021).
[22] Joint Concept Note 1/20 – *Multi-Domain Integration* (2020).

tactical). It also provides a vision for developing an integrated force for 2030 and beyond, within the broader context of government, private sector and Allies integration. MDI uses four tenets (information advantage, strategically posture, configured for the environments, creating and exploiting synergy), aims to integrate, synchronize and lead joint operations based on joint functions (C2; intelligence; fire, information, manoeuvre and outreach; resilience; support), with the unstated aim of maximum integration at all levels and of all actors involved in order to reach, ideally, fusion.

For the correct understanding of this concept, several important aspects related to the meaning of some terms must be specified. First, the MDI uses the term *"cyber and electromagnetic operational domain"* to integrate activities in the cyber domain with those in the electromagnetic spectrum in a single domain; second, the MDI uses the term environment rather than operational domain to define where military activities take place; third, but not least, MDI should not be confused with MDO, the latter a US military concept with a narrower applicability that does not encompass the role of the military instrument in the broader system of the national level.

The inclusion of IOpC and MDI concepts in the new UK defence doctrine demonstrates that these concepts have moved from experimental to mature concepts level, meant to provide clarity when discussing strategic competition.

The inclusion of IOpC and MDI concepts in the new UK defence doctrine[23] demonstrates that these concepts have moved from experimental to mature concepts level, meant to provide clarity when discussing strategic competition.

All the above shows that in the contemporary operating environment, the *"joint"* approach – specific to the operational level – may no longer be comprehensive enough, making it necessary to use a new approach, which allows integration from strategic to tactical level – the multilevel approach.

OPERATING CONCEPTS IN THE ROMANIAN ARMED FORCES

It can be considered that the fundamental transformation of the Romanian Armed Forces was initiated at the beginning of the new millennium with the implementation of the Romanian Armed Forces Transformation Strategy (STAR 2007), a series of actions

[23] Joint Doctrine Publication 0-01 – *UK Defence Doctrine* (2022).

and activities related to the sizing, training, and equipping of the Romanian Armed Forces to participate in future operations and which mainly aimed at the transformation of forces, concepts, and capabilities. The transformation process, theoretically in its last stage now (2016-2025) – the stage of full integration into NATO and the European Union, has taken place in close correlation with the transformation process of the Alliance, based on a medium and long-term vision and the stages established by STAR 2007.

The military transformation aimed at the development and integration of new concepts, strategies, doctrines, and capabilities with the aim of improving the efficiency and degree of interoperability of the forces and adapting to changes in the security context. The achievement of the transformation objectives was conditioned by the development of a coherent and viable research and experimentation programme, the validated concepts being transposed into requirements and plans, through the defence planning process, and incorporated into procurement and training programmes.

The concepts currently used by the Romanian Armed Forces come from a series of documents developed at different leadership levels and at different moments (extended national security/NDS20, credible defensive capability/NMS00, strategic credibility/NMR16 etc.) and cover the whole range of the concept hierarchy: strategic and military, national and multinational.

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Each of them have their role in the Romanian Armed Forces design and development on different levels: the strategic concepts describe the main ways of using the armed forces in the operationalization of the Military Strategy of Romania and define the ways in which the armed forces will be structured, equipped and trained[24]; the institutional concepts resulting from the National Defence Strategy (NDS) and the Defence White Paper (WP) describe the way in which the Romanian Armed Forces contribute to ensuring national security in the context of the implementation of the extended security concept; operating concepts define the practical application of military art and science and highlight how the armed forces act to implement institutional

[24] Romania's Military Strategy/Strategia Militară a României – military security through: credible defensive capability; restructuring and modernization; strengthened operational partnership; gradual integration – 2000 (SMR00).

concepts at strategic, operational and tactical levels; functional concepts describe the mode of action of the armed forces in specific/ specialized fields (NMS16).

The operating concepts, briefly defined in NMS16 and presented in a separate chapter of NMS21, have experienced continuous development, both in terms of presence and weight in the national space. The most relevant for the present paper are the concept of consolidated national defence (CND) and the of integrated operating concept – the Integrated Joint Force (IJF).

CND is formally presented for the first time in WP21 as the main direction of action for the development of capabilities, so that later NMS21 establishes CND as the fundamental operating concept in the period 2021-2024 and identifies IJF – the integrated operating concept.

CND is formally presented for the first time in WP21 as the main direction of action for the development of capabilities, so that later NMS21 establishes CND as the fundamental operating concept in the period 2021-2024 and identifies IJF – the integrated operating concept. Based on the conclusions of the 2020 Defence Strategic Analysis (DSA20) and the results of ongoing studies on long-term forecasts of the security and operating environment[25], the CND and the IJF can identify future military and operational problems and provide the specific solution, thus supporting the implementation and revision of the 2040 Romanian Armed Forces Transformation Programme. In turn, the two concepts can provide the conceptual framework for the development and experimentation of lower-level operating concepts (for the military actions of the Services and Supporting Commands/ SC&CS, functional concepts, enabling/integration concepts), provides the basis for the development of new capabilities through DOTMLPFI solutions and describes how to conduct joint operations in an inter-institutional and multinational context for the entire range of missions and operations.

Being detailed in NMS21, the content of the two concepts will not be included here. Instead, some considerations related to these and similar international concepts will be presented. Even though the two concepts must take into account national legal constraints or other limitations, they can be inspired by elements of the concepts presented

[25] Most of the states perform studies and forecasts on the future operating environment: the JOE 2040/ US; GST & FOE/ UK and their Spanish equivalents (Panorama of geopolitical trends. Horizon 2040/Operating Environment 2035). ACT periodically performs strategic studies and forecasts on the future security environment over a 20-year horizon (NATO Strategic Foresight Analysis – SFA) to identify trends and associated implications on the operational environment. A new NATO cycle was initiated in 2022, https://www.act.nato.int/activities/allied-command-transformation-strategic-foresight-work/, retrieved on 22 October 2023.

above. One of the main arguments for it is that the CND and IJF must align or at least have a common denominator with similar NATO and EU concepts (DDA, NWCC, MDO, Rapid Response Force). Likewise, the results obtained in the process of developing and validating these concepts or other national concepts can be used in the Romanian Armed Forces concept development process using a comparative and parallel approach.

Thus, taking into account that the CND ensures a unified vision of conducting operations in the future, it can be appreciated that there are similarities between the CND and the US CCJO, especially in terms of the joint force, a situation that favours making comparisons and analogies and, why not, adopting common or similar approaches and solutions (such as moving from the concept required capabilities/ CRC development process, to the concept-driven, threat-informed capability development process). However, the uncovered areas where similarities with other elements can be identified – such as the UK IOpF approach or IOp concepts and the circumscription of public and private sector activities to military ones.

Due to its model of integrating military capabilities with capabilities of other instruments of national power at different levels (operational domains, levels of warfare, interagency, allied etc.), MDI can help effectively translate CND and IJF into reality.

In the case of the IJF concept, a CND based-concept, the imperatives and critical enablers presented by the NWCC or the requirements of the EU family of concepts for the military rapid response force can be taken into account in order to ensure the minimum conditions necessary for conceptual integration and interoperability at allied and EU level. An outstanding positive contribution to the IJF and CND development can be made by UK's MDI[26] concept. Due to its model of integrating military capabilities with capabilities of other instruments of national power at different levels (operational domains, levels of warfare, interagency, allied etc.), MDI can help effectively translate CND and IJF into reality. Obviously, the adoption of the MDI must be done taking into account the national particularities, especially the compatibility between the MDI terms and the Romanian doctrinal ones.

Starting points in the process of designing and developing the future force and capabilities of the Romanian Armed Forces, the content of the CND and IJF has a determining role both in the future budgeted or planned force (the force in development) and the one in the design stage (the project force and the conceptual force).

[26] Multi-domain integrated actions are one of the imperatives of NMS21.

To inform programmatic documents like NDS, Defence White Paper or NMS for their 4-5-year time horizon and the Defence Planning Directive for its 10-year time horizon respectively, as well as to ensure coherence and continuity on the resource-programme-capability relationship beyond these time horizons, it could be useful to implement the UK development continuum model for the Romanian Armed Forces development cycle *(figure 2)*. The adoption of such model would provide a sum of advantages, as follows: facilitates the alignment and synchronization of the national development process with those existing in other NATO or EU states; allows the establishment of long-term research-development-innovation programmes that stimulate in-depth scientific research and create the necessary conditions for the defence industrial base adaptation to new technologies and to new technology development; provides more time for new operating concepts and technologies development, experimentation and validation process; informs the process of education and training for the next generations of military personnel, so that they will be prepared for the full understanding and effective use of conceptual and technical novelties; extends the planning horizon up to 30 years so it can cover the entire lifecycle of the main combat platforms (ships, aircrafts, tanks etc.) and provide guidance for planning their mid-life upgrades.

CONCLUSIONS AND PROPOSALS

As it has been shown so far, operating concepts occupy a well-defined place and have an important role in the future military forces and capabilities development of a state and implicitly for the alliances they are a part of.

The changing character of the operating environment obliges these forces to change the way they use current and future capabilities through a continuous process of transformation and adaptation. Operating concepts and the subsequent ones address the future problems of the environment where the joint force operates in, proposing material and non-material solutions that lead to the fulfilment of objectives and missions in future situations defined by a certain set of parameters (type of mission, operating environment, type of force, level of warfare etc.). The multitude of operating concepts existing at the international level have a number of characteristics that define, differentiate or resemble them (integrated forces, multi-domain operations and activities etc.), characteristics that can be used in the development and validation of one's own national concepts.

Theoretically in its final stage, the Romanian Armed Forces transformation can seize the opportunity of this moment and start a new development cycle on new bases and principles, common with allied or partner armed forces, where the already existing programmes – *Armata 2026* and *Armata 2040* – could be adapted and integrated. The implementation of a common hierarchy of operating concepts and the assimilation of new approaches and concepts in use by Romania's allies and partners, simultaneously with the transition to a new continuum for future forces development are some proposals that can also contribute to the Romanian Armed Forces development.

Moreover, the recent changes in the security and operating environment, the adoption of new strategic concepts and the future national defence planning documents triggered by the 2024 presidential elections are additional arguments to initiate work on a new transformational strategy to ensure the Romanian Armed Forces development on modern, western foundation and to prepare them for the challenges of the future operating environment. Developed as a public document, such strategy would help a larger audience to better understand the place and role of national defence and the military body within society, the importance of national resilience, would stimulate the appetence and level of involvement of public and private sector partners and the population in this field, including by operationalizing the operating concepts and transforming them into reality.

ROMANIAN MILITARY THINKING

The recent changes in the security and operating environment, the adoption of new strategic concepts and the future national defence planning documents triggered by 2024 presidential elections are additional arguments to initiate work on a new transformational strategy to ensure the Romanian Armed Forces development on modern, western foundation and to prepare them for the challenges of the future operating environment.

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SUPREMACY IN THE ELECTROMAGNETIC SPECTRUM

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Supremacy in the electromagnetic spectrum provides additional options and increased flexibility in any competition, even other than military conflicts, in addition to greater control of the scale of escalation. It gives policy makers and military leaders the decision space to manage events in real time while denying equivalent decision space to adversaries. At the same time, supremacy in the electromagnetic spectrum requires the collection, analysis and validation of robust information in the following key areas: electromagnetic spectrum sensors, communications, data links, radars, jamming, directed energy and infrared systems, engineering data describing the performance, characteristics and signature information of associated equipment, weapons and platforms, combat support data and modelling and simulation support. The authors describe these topics through a detailed analysis of the importance and role of supremacy in the electromagnetic spectrum.

Keywords: electromagnetic spectrum; electromagnetic environment; electronic supremacy; electronic surprise; electronic warfare;

INTRODUCTION

The study of the importance of supremacy in the *Electromagnetic Spectrum (EMS)* in modern military actions constitutes an essential component of contemporary military science and art. That is why, in all modern armed forces, achieving supremacy in the electromagnetic spectrum is consistently pursued in all phases of military conflicts, during crises and even in peace time.

It can be stated that the electromagnetic spectrum transcends geopolitical boundaries, which makes its use and availability necessary in the exercise of governance and security, in the conduct of commerce and other social activities. Therefore, electromagnetic spectrum specialists must provide national authorities with flexible and safe options regarding its use. Nations must possess EMS superiority to ensure freedom of action in all areas and to prohibit or limit the same to their adversaries. There must be a deliberate integration of traditional electronic warfare, cyber and spectrum management activities across all domains and operational environments. *"Electronic warfare is carried out in the operational electromagnetic field to ensure the freedom of action of our own forces and allied ones, in all fields while denying it to adversaries"* (David, 2021).

"Electronic warfare is carried out in the operational electromagnetic field to ensure the freedom of action of our own forces and allied ones, in all fields while denying it to adversaries".

As a consequence of the discoveries in physics and electronics, the development and improvement of conventional combat equipment follow the path of increasing the power of destruction, the flexibility in action and the fire rate, the distances, speed and accuracy of hits, as well as of improving the conditions for operating, maintenance and repairs.

The leap from automatization to the cyberinteraction of some elements of combat equipment and then to the achievement of weapon systems was determined by the evolution of electronics and cybernetics. The next stage is the integration of automated command and control systems and weapon systems into flexible cyber systems, adaptable to the change and the pace of combat actions.

Due to the performances achieved in the fields of microelectronics, optoelectronics and laser technology, the most spectacular evolution has been the fire control systems. Modern fire control systems, working in different regimes (automatic, semi-automatic, manual, mixed or emergency), are able to ensure the determination and calculation of target parameters, own parameters, ballistic corrections due to the ammunition used and shooting conditions, so as to ensure the maximum probability of discovering and hitting the target.

Nowadays, target detection, and especially their detection and identification, is entirely dependent on crews, aided by electro-optical sensors and other specially designed devices. This activity is made more difficult by the increasing use of camouflage, false targets, and often the sheer volume of information that must be analysed in the very short time available to open fire. It thus becomes increasingly necessary to extract targets from a complex and heavily cluttered environment with greater certainty and much faster than in previous years.

The use of electronics and informatics in modern warships has led to enhanced manoeuvrability, increased safety of close defence, automated driving in combat, and increased firepower, accuracy and speed of firing data calculations.

THE IMPORTANCE OF USING THE ELECTROMAGNETIC SPECTRUM

Currently, there is rather little emphasis on ground-based aviation routing through manual processing of radar data rather than on classic aviation routing to targets using uncoded links. The focus on equipping aircraft with autonomous or integrated navigation systems, in automated command and control systems, with airborne command points, with automated data collection, processing and display systems, as well as with modern weapon systems has led to outstanding successes of aerial actions.

The use of electronics and informatics in modern warships has led to enhanced manoeuvrability, increased safety of close defence, automated driving in combat, and increased firepower, accuracy and speed of firing data calculations. Completed with specific means of research and data interpretation, numerical navigation and ship management equipment, their interconnection in command, control, information and electronic countermeasures systems will ensure increased effectiveness in naval operations.

In the current conditions of the battlefield, the main problem is to maintain an intense pace of military actions. In order to satisfy this primordial condition, it is necessary to ensure, firstly, the continuity of the leadership of the troops, and secondly, the temporal correlation between the pace of combat actions and the time available for their preparation.

We can consider that achieving management continuity is mainly an information assurance issue. Therefore, a special emphasis is placed on the implementation and effective use of the ISR components, as follows:

- *the design of integrated systems for data collection and processing and real-time reporting to decision-making structures;*
- *the complexity of the information obtained, its veracity and timeliness by accumulating the data collected by the entire range of sensors;*
- *interconnection of fire control systems.*

Military IT systems ensure the collection, conversion, transmission, memorisation, and processing of data, as well as the distribution of the results to the beneficiaries, achieving, at all management levels, a representation that enables a quick, correct and as complete as possible awareness of tactical situations, so that the decision-making structures can issue an immediate and effective response regarding the timely engagement in action of available forces and means. The functioning of information systems entails the data exchange in a volume and at a speed corresponding to the possibilities of the means of automatic data processing and of those of communications connected in the information system.

The electronic components incorporated in the elements of military assets allow their use with high efficiency, becoming indispensable in adversary target detection, both day and night, ensuring their hitting with great precision. New categories of ammunitions resulted from the integration of modern types of sensors in computerized equipment, micro-communications, lasers and infrared radiation, which led to obtaining self-guidance systems for missiles, bombs, torpedoes etc., with great precision in hitting targets.

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In today's conditions, the prospect of armed conflicts, knowledge and mastery of the use of the electromagnetic spectrum in crisis and war situations has become a particularly important factor in achieving success. Within the military conflicts, there was a deep and spectacular shift of effort towards the informational side, and the struggle for supremacy in the use of the electromagnetic spectrum, as a medium and support for the acquisition, transmission and efficient use of information, was accelerated.

Under these circumstances, electronic warfare has become a basic component of modern military actions. It forms an important part of military strategy, focusing on researching and neutralizing the adversary's basic electronic elements.

Within the military conflicts, there was a deep and spectacular shift of effort towards the informational side, and the struggle for supremacy in the use of the electromagnetic spectrum, as a medium and support for the acquisition, transmission and efficient use of information, was accelerated.

"Electronic warfare, in a very general context, must be perceived as a continuous interaction between one's own and the adversary's electronic means and systems. In this regard, military history has proven that the discovery and use in combat of a new electronic system has always led the adversary to initiate scientific research in the field for the development of an electronic counter-action system, thus engaging the parties to the conflict in a continuous (and sometimes beneficial) process for the improvement of combat assets" (Boaru, David, 2022, p. 18).

THE CONCEPT OF ELECTROMAGNETIC SUPREMACY – ITS ROLE AND IMPORTANCE

Modern military actions take place in the physical space determined by the three classical dimensions, in six environments (land, naval, air, space, cyber and electromagnetic). This duality of electromagnetic processes and phenomena (viewed as environment and space), complemented by the extent of the technological advancement, determines the assessment that a fourth dimension of actions would take shape.

Between the kinetic actions, which take place in the three dimensions of physical space, certain relationships are established, some of which are of great importance for the subject addressed. Thus, the extraordinary strength that aviation has acquired since the Second World War means that, in modern warfare, operations of a certain level, both land and naval, cannot be carried out without

security and protection against this category of forces. This rule is so decisive that it has led to the abandonment of the historical terms *"land war or battle"*, *"air battle"*, respectively *"naval war or battle"* in favour of the terms *"air-land"* and *"aero-naval"* battle. Thus arose the concept of *air superiority*, meaning the need to conquer and dominate the third dimension of physical space before conquering and dominating the other two dimensions.

The kinetic actions that take place in the physical space, the generic nature of the threat, history as a fundamental factor of the current configuration, and the need to sequentially conquer and dominate its three dimensions to ensure total victory over the adversary configure the current physical space of tactical and operational actions of military confrontation. Obtaining and subsequently maintaining supremacy (superiority), in the previously stated environments, entails ensuring a continuous, active and integrated nature of all actions.

The kinetic actions that take place in the physical space, the generic nature of the threat, history as a fundamental factor of the current configuration, and the need to sequentially conquer and dominate its three dimensions to ensure total victory over the adversary configure the current physical space of tactical and operational actions of military confrontation.

The nuance of *"superiority"* through the use of the superlative term *"supremacy"* makes it possible to gradually express the difference between the parties in conflict, from the level of calculable and comparable force ratios (in the case of *"superiority"*) to that of expressing the obvious value gap (in the case of *"supremacy"*). It follows that the struggle for *"superiority"* may be fought by quantitatively and/or value-comparable adversaries, while the struggle for *"supremacy"* is certainly the prerogative of military powers.

The decisive influence of equipment on the transformation of the physical space of combat actions has already been well known. The application of a wide range of electronic techniques and technologies to today's war scenario has reached such widespread extent and importance that it has led to the emergence of the name *electromagnetic space* and its integration into military confrontation environments. This, as a particular form of manifestation of matter (wave and corpuscle), related to physical space dimensions and military confrontation environments, is characterized by a different nature from those previously presented.

We can define the electromagnetic space as *the field of existence of electronic and electromagnetic phenomena*, which are used in the current struggle for:

- data and information exchange (generally C2);

- intelligence collection (ISR);
- radionavigation, directing and striking.

The importance of this battle space is not secondary. More often than not, the action aimed at disabling the adversary's command and control system is subsumed under this framework.

Electromagnetic space is defined as a space with several characteristics. First, although chronologically electromagnetic space as a battlefield dimension predates airspace, the latter matured more quickly as the fundamental environment of combat actions, the actions of aviation and anti-aircraft systems having a much more relevant and decisive character than electronic warfare actions in the Second World War.

The electromagnetic space constitutes the environment in which electronic and/or electromagnetic signals are produced and evolve. From a kinetic point of view, the three dimensions of physical space are conquered and occupied.

The actions of electronic warfare carried out in armed conflicts after the Second World War can be considered the historical consequences of the research crowned with spectacular results from the period 1939-1945. Although electronic warfare traces its beginnings to 1905 (the Russo-Japanese conflict), it can be considered that the first battle in which the practical dominance of electromagnetic space resulted in victory was probably the Battle of the Atlantic, in which electronic anti-submarine warfare measures allowed the British and Americans to destroy German U-boats, based on the high-frequency radio messages they transmitted daily to their bases. Each of the subsequent armed conflicts has led to the increasingly accelerated configuration of the electromagnetic space as a component of the battlespace that must be conquered and dominated before the actual battle in order to achieve military success.

On the other hand, the electromagnetic space constitutes the environment in which electronic and/or electromagnetic signals are produced and evolve. From a kinetic point of view, the three dimensions of physical space are conquered and occupied. The electromagnetic space is conquered, dominated and used for the benefit of one's troops through the use of signals. Moreover, the electromagnetic space determines a particular threat, different from the common threat of physical destruction, which it does not exclude: *"The destruction or physical suppression of electronic defence is the destructive action of electronic warfare that involves the employment of weapons that use direct electromagnetic energy or weapons directed*

on an electromagnetic beam, in order to remove from combat or damage the electronic equipment of the adversary" (Joint Publication 3-13.1, 2012, p. IV-6).

The electromagnetic threat is a specific threat of ISR systems that affects only electronic devices involved in communications and obtaining data and information. According to the sources devoted to the field but also to the latest published articles, it is stated that immediate warnings about threats and updates on targets are provided by – SIGINT (Signals Intelligence) which is made up of two components, ELINT (Electronic Intelligence) and COMINT (Communications Intelligence). *"ELINT is information about enemy threats and capabilities of systems such as radars, surface-to-air missile systems, and non-voice data links. It also provides accurate location information. However, it is susceptible to deception and has the disadvantage that it can only intercept signals in direct line of sight. COMINT provides information about enemy intentions and helps determine the enemy's command and control structure. For tactical military commanders, SIGINT operations include a dynamic update capability in the execution phase of military operations, particularly in direct support of combat aircraft"* (Wildenberg, 2023, pp. XV-XVI).

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The need to dominate the electromagnetic space, i.e. to possess electromagnetic superiority, becomes obvious if the following arguments are considered:

- obtaining freedom of action and ensuring execution capacity are seriously compromised in the event of inactivation of C2 elements;
- surprise, security, coordination and flexibility are difficult to implement in the presence of a hostile electromagnetic spectrum;
- the importance of defining the target, any element of the ISR field being difficult to replace regardless of the moment of the action;
- the importance and especially the volume of electronic and electromagnetic threats have increased considerably, being possible materialized in:
  - detection, interception and radio bearing capability that can be provided by airborne or aerospace platforms;

- disruption of own signals by the enemy;
- the continuing danger of electronic disinformation;
- the threat of physical destruction that radiation can cause to electronic devices (there is the possibility of concentrating enough electromagnetic energy to cause the remote destruction of any type of means).

The struggle for electromagnetic superiority stimulates the dynamics of concepts, forms and methods of use of forces, the emergence of new weapons and specialties. The scale, diversity, subtlety, confidentiality and efficiency of actions in the electromagnetic space determined the development of a new concept for the development of electronic warfare. It describes and highlights a specific confrontation, using electronic and electromagnetic signals as a form of action in the latest conflicts.

Electronic warfare, unlike kinetic warfare, is a one-way confrontation. Electronic warfare structures always represent the aggressor. They carry out offensive actions, including for the search, processing and dissemination of the obtained information. Electronic systems are always targets of electronic warfare structures.

It can be argued that electronic warfare, unlike kinetic warfare, is a one-way confrontation. Electronic warfare structures always represent the aggressor. They carry out offensive actions, including for the search, processing and dissemination of the obtained information. Electronic systems are always targets of electronic warfare structures. They implement electronic protection measures able to electronically/electromagnetically protect their own signals.

There are interesting studies and scientific concerns exploring the practical realities arising from the use of geolocation for electronic warfare in real-world systems. Thus, we are interested in the target position, errors in sensor position, orientation or velocity, and the impact of repeated measurements over time. The problems that can be solved have direct relevance to accurately locating and tracking UAVs, aircraft and ships (O'Donoughue, 2022).

Another important feature is that signals are generated in the electromagnetic space, while the equipment and devices that produce them are in the physical space. Consequently, electronic warfare systems, like communications and ISR systems, are subject to both the kinetic threat resulting in physical destruction, specific to physical space, and the specific threat of electromagnetic suppression, much more common to electromagnetic space. Thus, the resilience capacity of the operational and tactical echelons, which exploit these systems,

is always linked to this double threat. *"Electronic warfare actions, especially at the tactical level, can be used effectively to reduce an adversary's effectiveness"* (Poisel, 2013, p. 1).

Electronic superiority can be defined as the difference between the quantitative and qualitative level of opposing adversaries in electromagnetic space. By extension, it follows that electronic supremacy represents the moment when one of the adversaries has a clear superiority in means of electronic warfare (especially electronic attack), having secured the initiative and the possibility of carrying out its actions in the electromagnetic space, without a strong response, while the adversary cannot act systematically and organized with its own electronic means.

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In modern military confrontations, electronic supremacy is achieved by gaining supremacy in electromagnetic space, which is an essential factor in the success of actions conducted in all environments. *"In modern radars, filtering, detection, and signal and data processors are implemented using digital techniques"* (De Martino, 2018, p. 39).

Depending on the extension in time, space and in the electromagnetic spectrum, electromagnetic supremacy can be:

- strategic (comprising the entire theatre of military actions, for the entire duration of strategic operations and the entire electromagnetic space used by the parties in conflict);
- operational (comprising important areas in the theatre of military action, long periods of time and wide but compartmentalized frequency bands);
- tactical (comprising districts, time periods and a limited frequency spectrum, but sufficient for a tactical level action).

The struggle to achieve and maintain electromagnetic supremacy encompasses:

- neutralizing the opponent's electronic means, including through their physical destruction;
- electronic protection of own forces;
- keeping the initiative in managing the electromagnetic space;
- ensuring the *electromagnetic surprise* of the adversary and preventing its production by the adversary among its own forces.

Supremacy in electromagnetic space can be achieved, even when the technological level is not very high, by:

- the correct identification and management of threats in the electromagnetic space;
- ensuring the flawless functioning of communications and electronic warfare systems;
- requisitioning performance categories of technology from other users (including captured performance technology);
- the skilful management of the electromagnetic space, in spectrum and time, for the benefit of one's own forces, through:
  - rigorous planning of all emissions;
  - strict management of the emission power regime;
  - thorough organization of radio traffic;
  - simultaneous use of several frequency ranges;
  - close collaboration between structures capable of using the electromagnetic space;
  - exercising competent and efficient control, both administratively and operationally;
  - impeccable execution of work in the electromagnetic space by all users and efficient use of allocated frequencies;
  - the high level of staff training;
  - integration of electromagnetic space actions in all operations and ensuring effective and complementary support between structures, weapons and specialties.

The implementation of high-performance electronic means is one of the necessary conditions for ensuring freedom of action in the electromagnetic space and creating the premises for the prevention of electronic surprise.

However, in order to achieve electromagnetic supremacy, the technological level of the means used, as well as the degree of their integration into the systems of conducting combat actions, remain fundamental issues. The implementation of high-performance electronic means is one of the necessary conditions for ensuring freedom of action in the electromagnetic space and creating the premises for the prevention of electronic surprise. *"Successful electronic warfare techniques require mature, efficient, high-power, high-frequency, and reliable electronic devices, where the choice of enablement technology depends on the scope of application"* (Lambrechts, Sinha, 2017, p. 5).

There is a growing interest in electronic warfare (EW) in space due to the strategic advantages that satellites provide. Due to their elevated

positions, they can see a great distance and remain operational for long periods. Although satellites can be kinetically attacked, it is a big problem to do so; they are few and far between. This makes them valuable as EW platforms (Adamy, 2021).

ELECTROMAGNETIC SURPRISE – THE NECESSARY ELEMENT TO ACHIEVE SUPREMACY IN THE ELECTROMAGNETIC SPECTRUM

Electromagnetic surprise is the result of an action designed, planned, organized, conducted and executed in such a way as to have an unexpected character for the adversary, for which it is not prepared, or to put it in a position to identify with difficulty the necessary countermeasures.

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Being an important principle of military strategy, surprise, in general, and electronic surprise, in particular, contribute substantially to the achievement of success in military actions. Being distinctly different from kinetic capture, through combat actions, electronic capture has a number of particularities:

- *it is highly technological, digitized, cybercrud, automated;*
- *it depends on a number of physical phenomena and processes (wave and corpuscular aspect of electromagnetic radiation, propagation and classification of waves, etc.);*
- *it is confidential, subtle and generally effective;*
- *it requires serious scientific training of those who conceive, plan, organize and manage it, as well as perfect professionalism of the executors, who are also required to have training at the highest level;*
- *can cause greater damage than the physical impact (destruction) of predominantly energetic weapons (aircraft, artillery, tanks etc.);*
- *it is effective at big distances and at extremely high speeds, beyond borders or contact lines.*

Electronic capture can be *strategic, operational* and *tactical* and is achieved through:

- preserving the confidentiality of the conception of the actions, in general, of the use of electronic means, in particular;

- misinforming the adversary about one's own intentions with the help of *false electronic animation* of the area of responsibility;
- the covert preparation and timely triggering of the electronic attack;
- executing manoeuvres in time, space, and the electromagnetic spectrum, as well as electronic attack where the adversary least expects it;
- the use of new means and methods of combat, less known by the opponent;
- combined use of the effects produced by heavy weather conditions, darkness, reduced visibility, inaccessible terrain, actions of special forces etc. with those specific to electromagnetic space;
- ensuring a constant level of traffic of electronic means throughout the preparation and implementation of the actions;
- the rigorous application of electronic masking measures by all users of the electromagnetic space.

Electronic capture can be strategic, operational and tactical and is achieved through the rigorous application of electronic masking measures by all users of the electromagnetic space.

In order to avoid electronic surprise, a permanent monitoring of the electromagnetic space is necessary, the identification and timely solution of threats in the electromagnetic space (priority of the immediate ones), maintaining a high response capacity of the forces (especially those of electronic warfare), the execution of certain actions dynamic and complex for electronic coverage of areas of interest and responsibility, thwarting the adversary's electronic disinformation actions, thorough organization of combat support and assurance.

Electromagnetic spectrum management (EMSM) is crucial to success on the modern battlefield. An example can be the following: In 2020, the Secretary of Defence, Hon. Mark Esper wrote: *"These challenges (from similar or near-echelon adversaries) exposed the intersectional dependence of US forces on EMS"* (O'Donoughue, 2022, p. 1). Later in that document, he introduced a significant organizational change in the way the United States approaches EMS Operations (EMSO). These doctrinal and policy changes underscore what the tone means for the importance of Electronic Warfare (EW) as a core component of modern military operations.

Impeccable logistics, firm leadership and discipline in the use of electromagnetic space must also contribute to the prevention

of electronic surprise as a premise and element of general surprise. At this time, the realization of electronic surprise is still difficult to achieve. The measures permanently executed, since peacetime, by all modern armies (and not only), determine a high level of difficulty in terms of meeting this end.

From this perspective, electronic warfare, within the modern actions of the third millennium, will be no less than ground forces, aviation or navy, whose operations must accompany them permanently, subtly and confidentially, as a power multiplier, as the main source of information and effective force support.

CONCLUSIONS

The nature of the electronic warfare (EW) domain has changed in recent years and is in a state of accelerated change.

Important changes in the field of electronic warfare include:

- recognizing the electromagnetic environment as a distinct battlespace;
- new and extremely dangerous guided electronic weapons;
- new technologies that affect both the accuracy and lethality of weapons (Adamy, 2015).

Electronic warfare, within the modern actions of the third millennium, will be no less than ground forces, aviation or navy, whose operations must accompany them permanently, subtly and confidentially, as a power multiplier, as the main source of information and effective force support.

Discussions about their role lead to new weapons but also to the nature and effectiveness of EW measures to counter these weapons. The challenges of electromagnetic space go far beyond the military battlespace. Electromagnetic space is repurposed for commercial mobile broadband technologies to support economic growth and prosperity, which further limits freedom of action in the military domain. These technologies, while representing new opportunities for the economy, also present new challenges in the competition continuum as the electromagnetic operational environment becomes increasingly crowded, contested and constrained (i.e., complex).

Supremacy in the electromagnetic spectrum requires the collection, analysis and validation of robust information in the following key areas: electromagnetic spectrum sensors, communications, data links, radars, jamming, directed energy and infrared systems, engineering data describing the performance, characteristics and signature information of associated equipment, weapons and platforms, combat support data, and modelling and simulation support.

Both traditional overt actions and clandestine employment offer extensive options for the party possessing electromagnetic supremacy. Electromagnetic supremacy provides capability and potentially persistent access to targets at high speeds where many other capabilities require extensive time, resources and troop movements to be used.

Due to the multiple means of research available to a potential adversary today, it is no longer possible to mislead him by unilateral measures, and an ingenious combination of them is necessary so that the adversary receives the same false data from as many sources as possible can be superimposed on effective concealment measures. On the other hand, *"vulnerabilities increase in direct proportion to the technological level implemented in the construction and operation of equipment (especially digital)*" (David, 2021).

Electromagnetic supremacy brings important advantages to any costing strategy. By developing innovative asymmetric electromagnetic spectrum capabilities, any state can protect its own costly capabilities from disruption or attrition, while denying or degrading the effectiveness of modern adversary systems.

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THINKING

LOITERING MUNITIONS – POSSIBLE *"GAME CHANGER"* IN FUTURE WARFARE

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While the nature of warfare remains constant, it is important to acknowledge that its character is evolving due to the influence of new technologies and weapon systems. Recent armed conflicts, such as those in Nagorno-Karabakh, Ukraine, and the Gaza Strip, highlight the importance of technology in military operations' planning and execution, as well as the need to integrate new technologies and weapon systems within the existing military capabilities in order to enhance their effectiveness.

Loitering munitions, also known as "kamikaze drones" or "suicide drones", are new and versatile weapons that are increasingly used in both conventional and unconventional military confrontations. Military organizations show growing interest in the opportunities and benefits of using these new capabilities. In this context, we aim to investigate the integration of these capabilities into land operations, with a focus on their potential to shape future battlefields and warfare. The study topic is of interest to military planners, military commanders, and defence decision-makers.

Keywords: loitering munitions; operational asymmetries; positions of advantage; windows of opportunity;

INTRODUCTION

Determining whether *loitering* munitions can be a game changer in the future is a challenging task due to the numerous factors that influence the nature of conflict and armed combat. Military organizations have continuously sought to anticipate how conflict and armed combat will develop. It is understandable, given the constant need to anticipate potential adversaries and counter their actions aimed at achieving doctrinal, operational, or technological surprise. Thus, military theorists, based on careful conflict assessments and taking into account emerging trends in the evolution of technologies, have often put forward solutions for preparing armed forces for success in future confrontations. These solutions have involved new doctrinal benchmarks for the organisation and deployment of forces[1], the employment of new weapon systems to gain a decisive advantage[2], and new tactics to compensate for existing asymmetries[3]. Not infrequently, however, scholastics have failed to correctly predict the character of a future conflict, with history providing ample examples of such mispredictions (Cohen, 2020, p. 5). The reasons for these failures are varied. They include: misidentification of the potential adversaries and the evolution of their capabilities, misjudging how present technologies and their products influence and shape the requirements of the future battlefield, ignoring the indicators needed to make timely adjustments to one's military capabilities.

Military organizations have continuously sought to anticipate how conflict and armed combat will develop. It is understandable, given the constant need to anticipate potential adversaries and counter their actions aimed at achieving doctrinal, operational, or technological surprise.

[1] This text refers to the German armoured divisions during the Second World War. Those tactical entities were an innovation, organised according to the combined arms' principle. They brought together tanks, mechanised infantry, self-propelled artillery, reconnaissance, air defence and engineer elements, all of them having the same mobility.

[2] The success of US forces during Operation Desert Storm (1991) was primarily attributed to the implementation of new weapon systems, collectively known as The Big Five. Those systems included the M1 Abrams tank, the M2 Bradley infantry fighting vehicle, the AH-64 Apache and UH-60 Black Hawk helicopters, and the MIM-104 Patriot air defence system.

[3] The conflicts in Iraq and Afghanistan required deployed forces to adapt their tactics, techniques and procedures, and the actions of insurgents in those conflicts necessitated such adaptation. The adaptation involved a reconsideration of doctrine.

In the case of *loitering* munitions, military theorists have considered their impact on the character of warfare (Williams, 2017). Therefore, it is obvious that exploring the performance of these new *loitering* capabilities is of interest, particularly to the military organization, as well as to the general public.

From a methodological perspective, I have established critical questions to guide the research effort and support the scientific approach. Answering these questions provides the basis for identifying how these munitions will be used in future conflicts. The correlation between the technical and tactical characteristics of the analysed models and the requirements of ground operations has allowed for the identification of opportunities to employ these capabilities, including the advantages and disadvantages arising from their exploitation. The analysis of image and video material, particularly from the Russian-Ukrainian conflict, has enabled a partial assessment of the effects created by these munitions, as well as the identification of patterns in their use. It is important to acknowledge that information on how to use these systems on the battlefield may be limited due to security concerns. In addition, media content demonstrating the effects of *loitering* munitions may be altered to manipulate a particular audience.

In the case of loitering munitions, military theorists have considered their impact on the character of warfare. Therefore, it is obvious that exploring the performance of these new loitering capabilities is of interest, particularly to the military organization, as well as to the general public.

WHAT ARE LOITERING MUNITIONS?

In 2019, Houthi rebels carried out an unconventional and asymmetric attack on two oil refineries in Saudi Arabia with the use of *loitering* munitions. Post-attack assessments initially referred to unknown drone-like strike capabilities in the shape of the Greek letter Delta. Later investigations revealed that the Iranian systems, Shahed 131 (Rubin, 2023), were involved. The attack served as a wake-up call to the international community, highlighting not only the existence of a new strike capability, but also the inadequacy of international law in this area (Block, 2019). In the Nagorno-Karabakh conflict a year later, such munitions were used in conventional combat operations. They were particularly effective in the battlespace shaping phase by neutralising the air defence systems of the Armenian armed forces (Shaikh, Rumbaugh, 2020). These weapon systems are constantly being developed for their utility in combat, as they have the ability to strike

targets across the area of operations by surprise and in unexpected ways. Their reputation has significantly grown during the Russian-Ukrainian conflict due to the diversification of their use, which has been further stimulated by the increased interest of military organisations in identifying the implications of using the system in military operations (Waechter, 2023).

This ammunition is a precision strike vector with Intelligence, Surveillance and Reconnaissance (ISR) capabilities, integrating modern technologies. Although it shares some technologies with Unmanned Aircraft System (UAS), it should not be classified as a drone, as it belongs to a separate category. Additionally, it incorporates features of smart missiles, as noted by experts in the field (Deveraux, 2022). Recent analyses suggest that these strike capabilities behave similarly to precision ballistic missiles, with preset target coordinates and consequently there is no need for prolonged overflight in search of the target (Rubin, 2023). As a result, these munitions provide the military with a versatile, lethal, and highly accurate capability. Their advantage lies in their ability to fly over the battlefield for extended periods, allowing for target selection, surveillance, and strikes. They can also act independently to strike pre-determined targets.

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WHAT ARE THE MAIN TECHNICAL AND TACTICAL CHARACTERISTICS OF LOITERING MUNITIONS?

The configuration of the weapon system depends primarily on its purpose and the intended effects. The system is designed according to *range, ammunition mass carried* and *flying range*. These technical benchmarks result in a series of tactical characteristics that enable effects to be achieved at all levels of military operations.

The munitions' relatively small size allows for easy integration into tactical force structures and transport. Targeting systems can be operated via radio up to a range of approximately 150 km (https://armyrecognition.com/, 2024) or through the use of a GPS inertial navigation system (GPS-INS) for very long-range systems (Militarnyi, 2023). The system integrates electro-optical or infrared technologies for battlefield surveillance and target guidance. Warheads used include explosive, anti-tank, incendiary, or thermobaric charges.

Target engagement is achieved through direct human control (*man in the loop*) or autonomously by pre-programming the targets. The operator's ability to remain in the air for a certain period of time provides the option to engage and hit the target at the appropriate moment. Many existing systems are referred to as *kamikaze* or *suicide drones* because they must engage the target once launched. However, there are also options that include aborting the mission and returning to base if the target cannot be engaged or is no longer a priority (https://www.rafael.co.il/, 2019). The versatility of these systems also comes from the fact that they can be launched relatively easily, using land, air or sea platforms.

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Table 1 presents a classification of the main *loitering* munition models tested in recent military conflicts. The classification is based on three parameters: range, ammunition type, and flight range of the system. Each system is classified according to the level of operations at which it can generate effects.

Table 1: Main types of loitering munitions and the level of operations at which they generate effects (author's design)

Model/Manufacturer/ Country of origin	Range	Time of flight	Warhead
TACTICAL LEVEL			
Hero 30/UVision/ USA	10 km	30 min	0.5 kg
Hero 90/UVision/ USA	40 km	45 min	1.2 kg
Hero 120/UVision/ USA	40 km	45 min	4.5 kg
Switch Blade 300/ AeroVironment/ USA	10 km	15 min	2.5 kg
Switch Blade 600/ AeroVironment/ USA	40 km	40 min	14.5 kg
Spike Firefly/Rafael/Israel	1 km	40 min	0.35 kg
Lancet-1/Zala/Russian Federation	40 km	30 min	1 kg
Lancet-3/Zala/Russian Federation	40 km	40 min	3 kg
KYB-UAV (KUB-BLA)/Zala/ Russian Federation	40 km	30 min	3 kg
Scalpel/Vostok Design Bureau/ Russian Federation	40 km	45 min	5 kg
RAM II UAV/Deviro/ Ukraine	30 km	1 h	4 kg

Model/Manufacturer/ Country of origin	Range	Time of flight	Warhead
ST-35 Silent Thunder/Athlon Avia/ Ukraine	30 km	1 h	3.5 kg
OPERATIONAL LEVEL			
Harop/IAI/ Israel	200 km	9 h	16 kg
Hero 350/UVision/ USA	150 km	2.5 h	10 kg
Hero 400EC/UVision/ USA	150-200 km	3 h	12 kg
STRATEGIC LEVEL			
Hero 900/UVision/ USA	250 km	7 h	20 kg
Hero 1250/UVision/ USA	over 250 km	10 h	30 kg
Shahed 131/HESA/Iran (Geran 1 Russian version)	900 km	Unspecified	15 kg
Shahed 136/HESA/Iran (Geran 2 Russian version)	1000-2500 km	Unspecified	30-50 kg

The analysis of the primary technical-tactical characteristics of *loitering* munitions reveals several advantages of their use in both conventional and unconventional military operations:

- The system offers high accuracy and precision, thanks to its varied possibilities to find the target and guide the hit vector;
- The multi-spectral footprint is reduced due to the relatively small size and low heat emissions of electric propulsion;
- It has a high flight range;
- The system provides observation and surveillance capabilities of the battlefield, both day and night, through the integration of high-resolution video cameras;
- It has the ability to hit static and moving targets of different sizes, depending on the model used;
- The system has the capability to hit a target other than the intended one and abort the mission without engaging the target (for some models);
- Certain models also have recoverability;

- Remote operation is possible without major security risks for the operator;
- The *man in the loop* function allows the operator to retain control of the system until the target is hit.

While we have not provided a comprehensive overview of the technical and tactical characteristics of the primary *loitering* munitions, it is important to note that the effectiveness of their combat engagement relies on additional factors. These factors include misleading the enemy, anticipating their decision-making cycle, joint-level integration, and the ability of commanders to exploit opportunities.

The system can be used by all military echelons, providing rapid deployment and launch capabilities, as well as rapid observation, surveillance, and target acquisition capabilities, either independently or with human intervention. It also has the ability to strike targets by surprise at various distances, generating effects at all levels of operations.

WHAT ARE THE EFFECTS OF LOITERING MUNITIONS IN COMBAT OPERATIONS?

Loitering systems have demonstrated their effectiveness against a range of targets, including moving vehicles, fortified positions, anti-aircraft systems, military facilities, and infrastructure elements. They provide a consistent advantage in executing contemporary combat operations. The system can be used by all military echelons, providing rapid deployment and launch capabilities, as well as rapid observation, surveillance, and target acquisition capabilities, either independently or with human intervention. It also has the ability to strike targets by surprise at various distances, generating effects at all levels of operations.

Effects generated at the tactical level of operations

Munitions for tactical level effects typically consist of small variants with a range of up to 50 km, lasting up to 3 hours, and carrying various warheads weighing up to 5 kg. Based on these characteristics, we can conclude that these systems are capable of engaging targets located in the rear area of manoeuvre brigades, and even in the area of the division's second echelon. The targets include the division's air defence system, artillery capabilities, and armoured formations. Additionally, command posts in the division's AO, logistic capabilities' deployment areas, moving or stationary logistic columns, isolated positions or patrols, observation posts, or retranslations points are also targeted.

An analysis of the use of these munitions in the conflicts in Nagorno-Karabakh and Ukraine shows that they are not effective

against cohesive and deep defensive formations, where mutual support and multi-layered air defence are crucial to the success of operations. The study also reveals that variants with low-mass payloads up to 1 kg are less effective against armour capabilities. Their effectiveness also decreases against fortified positions that are often concealed from aerial observation and protected against such threats.

Effects generated at the operational level of operations

Munitions that can achieve specific operational effects typically have greater range and autonomy, and their striking capability is enhanced by the increased payload mass. Despite being larger than tactical-level systems, they maintain a small multi-spectral footprint, allowing for infiltration and effects down to the theatre level. Targets include corps-level command points, long-range artillery, high-precision striking systems, corps air defence systems, airfields, command centres, logistics depots, reserves of forces not engaged in operations, fortified positions in depth, and infrastructure elements. An example of the effectiveness of operational level systems is demonstrated by the successful use of the Israeli IAI Harop system by the Azerbaijani armed forces to neutralise Armenian anti-aircraft defences (Shaikh et al., ib).

As targets may exceed the operator's ability to direct ammunition, target coordinates are likely preset and hit vector guidance is done autonomously.

Effects generated at the strategic level of operations

To create effects at the strategic level of operations, it is necessary to use munition variants with a long range and high destructive capability. Targets may include military objectives such as airports, airfields, depots, and command centres, critical infrastructure elements like bridges, tunnels, power plants, and dams, or civilian objectives such as radio and TV broadcasting stations and GSM communication networks. Attacks may also be directed against targets outside the theatre of operations. These attacks involve the use of swarm tactics and the movement of systems at low altitudes to avoid radar detection. The lessons identified show that, due to the small size of these capabilities, they may be overlooked. Additionally, air defence systems can become over-saturated during swarm attacks. The successful

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attacks on Ukrainian energy infrastructure by Russian forces using Iranian Shahed 131/136 munitions highlight the relevance of the impact of these munitions to the strategic level of operations.

Strategic value systems offer the advantage of creating asymmetries by targeting civilian infrastructure, which is often inadequately defended against anti-aircraft attacks due to insufficient capabilities.

WHAT ARE THE CHALLENGES OF USING LOITERING MUNITIONS IN COMBAT OPERATIONS?

Although the benefits of *loitering* munitions are acknowledged, they are not a decisive capability on the battlefield, especially in a conventional conflict. The asymmetries created by their use in the Russian-Ukrainian conflict have been gradually neutralised by both sides through the improvement of integrated air defence systems, adaptation of ground force tactics, and development of similar systems to counteract these asymmetries. Given these issues, the main challenge for the use of these capabilities remains their integration at the combined-arms level. The advantage of combined-arms integration of *loitering* munitions comes from the concept's essence: compensating for the disadvantages of one weapon system with other systems while reducing the limitations of those weapon systems (Biddle, 2004, p. 39).

Using tactical munitions to attack isolated enemy positions may have a various impact on morale. However, it is imperative to exploit the situation created and seize those positions through manoeuvre forces.

The main threats to *loitering* capabilities are integrated enemy air defence and EW systems. Therefore, the neutralisation of these systems to create windows of opportunity is a priority if their effects contribute decisively to achieving the operation's objectives.

Exploiting the effects of this type of munitions presents a challenge. The effects have limited persistence over time and often require augmentation or multiplication through other actions, regardless of the level of operations at which they are carried out. For instance, using tactical munitions to attack isolated enemy positions may have a various impact on morale. However, it is imperative to exploit the situation created and seize those positions through manoeuvre forces. The neutralization of a command post can temporarily disable the enemy's command and control system to some extent, but decisive action should be planned to exploit the tactical advantage created.

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HOW CAN LOITERING MUNITIONS INFLUENCE THE FUTURE OF WARFARE?

Loitering munitions have the potential to revolutionise precision strikes in warfare. Currently, such strikes rely on complex technological systems that use GPS guidance to direct the projectile. It requires access to satellite capabilities to guide the projectile and link it to the command centre. Advanced satellite systems and software are used to perform the target acquisition process, providing accurate target coordinates and updates during the projectile's flight. To effectively hit the target, both the accuracy of the target coordinates and the missile must be met simultaneously. *Figure 1* illustrates the mentioned requirements.

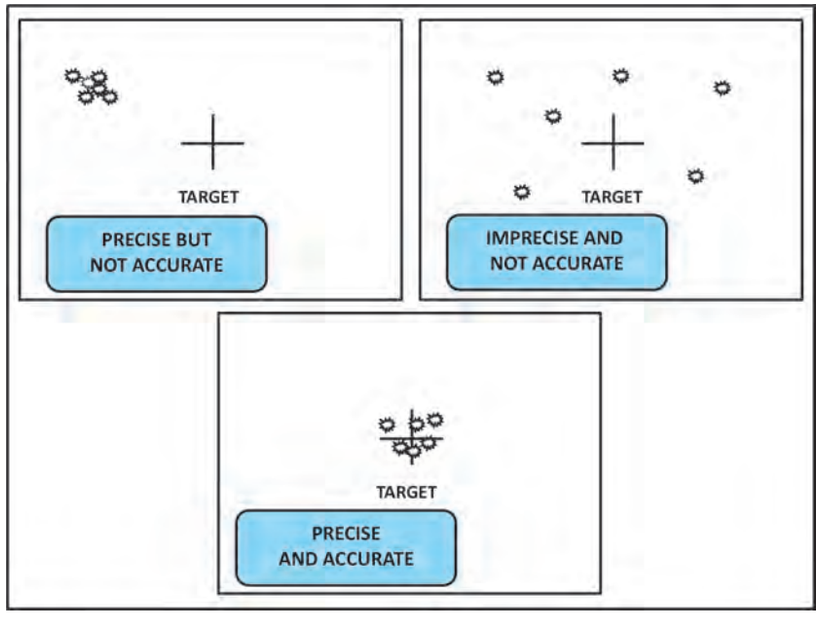

Figure 1: Requirements for the use of high-precision striking munitions
(author's design)

Loitering munitions have the potential to revolutionise precision strikes in warfare. Currently, such strikes rely on complex technological systems that use GPS guidance to direct the projectile.

Normally, precise and highly accurate strikes are achieved using *"smart ammunition"*. These striking capabilities are unique due to the sophisticated and expensive technologies incorporated in them, in terms of both development and use on the battlefield. The imprecision and inaccuracy of unguided munitions are compensated for by their quantity, which results in increased resource consumption,

low efficiency, and a high risk of casualties and collateral damage. High-precision systems have been used to hit important targets, but their accuracy has often been insufficient. The Russian-Ukrainian conflict provides an example, with many instances of Russian precision munitions striking civilian centres (Schneider, 2022).

Regarding *loitering* munitions, they provide an opportunity to utilise a capability that offers both accuracy and precision at a significantly lower cost than other similar options. The integration of multispectral camouflage, concealment and electronic warfare technologies into these systems could significantly enhance their effectiveness, while reducing the possibilities to counter them. Such innovative solutions could contribute to achieving surprise, further increasing the lethality of *"suicide drones"*. The simultaneous engagements using *swarm tactics* could cripple the enemy's command and control systems, neutralise their sensors and high-precision detection and strike capabilities, and subsequently cause the collapse of the entire defence system. In conclusion, *loitering* systems' lethality and increased ability to maintain their operational capability provide them with the opportunity to engage high-value targets (HVT).

Regarding loitering munitions, they provide an opportunity to utilise a capability that offers both accuracy and precision at a significantly lower cost than other similar options. The integration of multispectral camouflage, concealment and electronic warfare technologies into these systems could significantly enhance their effectiveness, while reducing the possibilities to counter them.

The use of this tactic at all levels of operations can create the conditions for disrupting the enemy's cohesion, inducing shock, and impairing their ability to comprehend. Thus, in future combat operations, these capabilities could render the historical 3:1 ratio irrelevant. Their increased lethality and ability to target critical opponent capabilities could turn them into a force multiplier, thereby changing the dynamics of the situation. If we consider the possibility of developing qualitatively superior warheads, the lethality of tactical systems will increase even further, impacting ground operations with mechanised forces. In this context, it will be necessary to adapt the principle of concentration, most likely through an economy of conventional forces and assets. The contribution of the latter will be offset by the use of *loitering* munitions. Recalibrating the integration of the principle of effort concentration at the operations level can directly impact the principles of economy of effort, surprise, and operational security. A leaner force is more difficult to detect, increasing its chances of survival on the battlefield and the possibility of achieving surprise against the enemy.

Human factor substitution in security operations, such as surveillance, cover, and protection, is a way in which these capabilities can affect the nature of combat operations. The systems' ability to monitor risk areas for extended periods and to engage the enemy makes them well-suited for such missions. Extending the autonomy of these systems will enhance their versatility. In order to create decisive operational asymmetries, infiltration can be achieved by remaining in the enemy's device and activating to engage pre-programmed targets.

CONCLUSIONS

Due to their versatility and relatively low cost, *loitering* munitions are expected to be increasingly developed and used on the battlefield across all levels of military operations. The predictions are reinforced by the potential for these weapons to be turned into autonomous ones and their high-precision strike capability, which is easily accessible to actors who do not typically have access to such technologies. Additionally, statistics show that, as of 2018, about two-thirds of existing models were developed in the USA and Israel, with only 12% of new models built in these two countries over the past 5 years. It is worth noting that approximately one-third of the new systems introduced during this time have been designed and developed in Asia (https://airdefence.in/contact, 2024). While we refrain from making any definitive statements about global armament trends, we do observe a trend among certain global actors to compensate for the technological lead held by Western states by developing these niche capabilities.

Statistics show that, as of 2018, about two-thirds of existing models were developed in the USA and Israel, with only 12% of new models built in these two countries over the past 5 years.

In conclusion, it can be assumed that this type of ammunition may have an impact on the armed conflicts of the future. However, it is difficult to determine the extent of this impact and whether these systems will be a *game changer* in the future. Western military organisations should increase their efforts to understand the requirements for integrating these capabilities into multi-domain operations. Subsequently, the integration of *loitering* munitions must be achieved through sustainable approaches at all echelons. It must take into account the nature and capabilities of potential enemies, the characteristics of the operating environment, and new technologies. By doing so, the Western military superiority of the North Atlantic Alliance member states can be preserved.

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A COMPARATIVE ANALYSIS OF CLAUSEWITZ AND LIDDELL HART'S MILITARY THEORIES AND THEIR APPLICABILITY IN MODERN WARFARE: INSIGHTS FROM SRI LANKA AND UKRAINE

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The celebrated idea of Prussian war strategist Carl von Clausewitz regarding conventional warfare played a dominant role up to the First World War in the West. In his seminal work "On War", Clausewitz posits: "If you want to overcome your enemy, you must match your efforts against the power of resistance!" In a way, his idea was akin to annihilating the enemy's army in major battles. However, this idea was challenged by British military strategist Basil Henry Liddell Hart in his book, titled "The Strategy", by proposing a different military theory called "Indirect Approach". The objective of this paper is based on making a comparative analysis between Clausewitz and Liddell Hart regarding the utility of their military theories in modern warfare. While taking a methodology based on a comparative analysis of the utility of the two doctrines, this paper explores the effectiveness of those military strategies against the current asymmetries in modern warfare. To buttress the reliability of this research, the examples from the Ukrainian war and the Sri Lankan civil war between 1990 and 2009 will be examined. The main objectivity of this paper lies in creating a novel discussion on the merits and demerits of Clausewitz and Basil Liddell Hart's theories of war in contemporary warfare. The results emerging from this research will demonstrate the relevance of re-reading both Clausewitz and Liddell Hart in an era where the orthodox idea of warfare is at stake.

Keywords: strategy; military; war; Sri Lanka; Ukraine;

INTRODUCTION

The dominant refrain of the present age is that we are in the *"post-Cold War era"*. Beyond that, we are not sure. We may be living amidst the triumph of liberal capitalist democracy and the end of history, a period of civilisational conflict, or – as the current worldwide turbulence would encourage us to conclude – the age of terrorism or AI. Whatever we choose to believe, we tend to think of the Cold War as a unique event, now the memory of a bygone age. However, the catastrophic events that took place last year with Russia's invasion of Ukraine suddenly ended the slumber of those who dwelled on the romanticising vision of liberalism and Cold War nostalgia. Russian invasion of Ukraine did sabotage Fukuyama's thesis along with Huntington, who assumed that a military conflict between Russia and Ukraine is an impossibility under their shared Orthodox values. (Huntington, 1989). Given such a turbulent time, the importance of tracing military strategies comes to the fore. It is in this context that this paper intends to make a comparative analysis of the strategic moves of two great military thinkers of human history. It is by no means an exaggeration to state that the military doctrines propounded by Clausewitz and Liddell Hart are antithetical as their philosophical approaches to the battlefield took different bents. Thus, any attempt to compare both of them in light of modern warfare can become a complexity. Yet, this study intends to take a nuanced approach in revising Clausewitz and Liddell Hart.

The celebrated idea of conventional warfare of Clausewitz arose when European powers engaged in complex geopolitical encounters in search of hegemony.

The celebrated idea of conventional warfare of Clausewitz arose when European powers engaged in complex geopolitical encounters in search of hegemony. It should be understood under the thread of European history of the 19th century. Wherein, Basil Liddell Hart emerged as a champion of a different military theory called the *"Indirect Approach"* in an era where conventional warfare failed

to achieve the objectivity of war. The military failures that Liddell Hart witnessed as a captain of the Yorkshire light infantry regiment on the Western front or in the battle of Somme compelled him to look for an alternative military theory to intensify favourable military outcomes. It appears to be evident that both military strategists have moulded their theories parallel to the historical incidents, which contained an empirical basis.

Based on a comparative analysis of both Clausewitz and Basil Liddell Hart, this paper explores the validity of their theories of modern warfare. The certainty of challenges encompassing modern warfare ranging from military asymmetries to the development of AI are obvious issues that may refute the theories of Clausewitz and Liddell Hart, but the task of this paper remains twofold. First, it examines the differences between two military doctrines separately while astutely analysing their applicability in the modern battlefield. In doing this task, this study looks into the Sri Lankan Civil War (1983-2009), which was by all means an unconventional war within a state and Russia-Ukraine military conflict. Secondly, this paper will assess how both military doctrines can become effective regardless of their orthodoxy in 21st-century warfare.

Carl von Clausewitz stands in a prominent position in the small pantheon of Western military theorists as his magnum opus "Vom Kriege" stands as a monumental work containing remarkable ideas, which are even useful for modern warfare in the 21st century.

ANALYSIS FROM *"ON WAR"*

Carl von Clausewitz stands in a prominent position in the small pantheon of Western military theorists as his magnum opus *"Vom Kriege"* stands as a monumental work containing remarkable ideas, which are even useful for modern warfare in the 21st century. The Prussian military theorist Clausewitz completed his celebrated thesis under the contemporary needs of the European giants. In fact, Clausewitz' own state Prussia was squeezed in between the Austro-Hungarian empire and France by creating a hostile environment for Prussian existence, which fervently impacted Clausewitz's understanding of war as the continuity of politics by the other means. Nonetheless, today Clausewitz is often quoted than read, more venerated than understood. (Shephard, 1991).

First-time readers of Clausewitz certainly find his style obtuse and confusing as it fills with more philosophical aphorisms than providing a more astute analysis of a military theory. For instance, in the opening chapter of *"On War"*, Clausewitz describes war as nothing but a duel on a larger scale, an act of force to compel the enemy to do our will or else he reiterates his most popular dictum *"War is a continuation of politics by other means"*. (Kennedy, 1988). Despite the aphorism filled with his text that tries to describe war as a dialect, one needs to understand Clausewitz as a military thinker rather than a soldier. The objective of writing his thesis *"On War"* was rooted in capturing the observation that is universal to all wars regardless of the geopolitical locations. After having studied the Napoleonic wars in his time, in which he served as a general, he uses a dialectical method of reasoning in exploring the nature of war. This usage of the dialectical method of critical examination by using a dialogue of contrary views seemed to have risen from the 19th-century German philosophical tradition, which frequently dealt with the dialect. (Mc Neil, 1982).

In his explanation of war, Clausewitz describes war as a social phenomenon that is aimed at imposing one's will on one's opponent using force. Based on his state-centric interpretation, written in an era where European powers were interested in consolidating the state power, Clausewitz acknowledged the fact that war can embody different ends depending on the actors, purpose and even means available at the time. He further understands man's inherent thirst for war as a part of human existence which can only be resolved through bloodshed. In continuing his lengthy analysis of war, Clausewitz describes war as a riddle, which constitutes no logical limit to its application of force. Each side will compel its opponents to follow suit: A reciprocal action that must lead, in theory to extremes. (Clausewitz, 1976).

The paradoxical Trinity is the phase initiated by Clausewitz in describing the three main pillars of the war: *the government, the army and the people*. The first factor to be constrained is the government. As Clausewitz emphasises the central role politics plays in war, he posits that war is not an end unto itself, but rather a tool in realizing

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the political objectives. Although he was a trained military general, Clausewitz was not a military exclusivist to rely only on military solutions as he regarded war as the last resort. The second pillar in his trinity is the people and Clausewitz believed that people should be zealous in war efforts for its successful needs. He states that *"passions that are to blaze up in war must already be inherent in the people as war is not an action of living force upon a lifeless mass but always the collision of two living forces"*. (Ib., p. 18). He understood the risk that awaits the people in war and duly explained the only way to reduce the human casualties on the war front was based on mutual coordination among the states, that distinguished civilized forms of warfare from savages. The third and final factor that Clausewitz highlighted was the army and he states that *"the political object is the goal, war is the means of reaching it, and means can never be considered in isolation of their purpose"* (Ib., p. 25). All in all, Clausewitz's paradoxical trinity comprised of the tendencies of the government, people and armies, in which the effects and contrasts among them produce outcomes which are difficult to predict.

The major military philosophy that Clausewitz developed was a combination of many distinct engagements, which consisted of defensive principles he emulated from Napoleon and Fredrick the Great. The cardinal approach he developed in his strategic thinking in war essentially focused on the directness of the troops and launching attacks on the enemy from the front and the flanks.

The major military philosophy that Clausewitz developed was a combination of many distinct engagements, which consisted of defensive principles he emulated from Napoleon and Fredrick the Great. The cardinal approach he developed in his strategic thinking in war essentially focused on the directness of the troops and launching attacks on the enemy from the front and the flanks. Clausewitz states: *"A fundamental principle is never to remain completely passive, but to attack the enemy frontally and from the flanks, even while he is attacking us. We should therefore defend ourselves on a given front merely to induce the enemy to deploy his forces in an attack on the front"* (Ib., p. 45).

It should be borne in mind that the geopolitical trajectories that encompassed Clausewitz's military upbringing decisively shaped his military philosophy in favour of major battles. He was truly fascinated with the Napoleonic way of overthrowing the enemy-to render him politically helpless and militarily impotent, thus forcing him to sign whatever the conditions that Napoleon determined. Also, Clausewitz was an admirer of the subtle military techniques used by Fredrick the Great of Prussia. Fredrick the Great often looked for an alternative objective in occupying the territories that would enable them to annex them or use them in a fair deal. These two characters more or less inspired Clausewitz in constructing his strategic approach on the battlefield based on the launching of massive attacks. (Langston, 1963). He proposed that the goal of any solid army was to annihilate the enemy. He states: *"We must pursue this goal with the greatest energy and with the last ounce of our strength"* (Ib., p. 56).

His faith in major battles in warfare can be further seen in his analysis of the strategic principles for the offence which illustrates his stances in the offensive lines of war. He states: *"We must select for our attacks one point of the enemy's position and attack it with great superiority".* Clausewitz was more conventional in using the infantry forces on the battlefield with greater confidence, which may have derived from his admiration of the French legion. Regarding the consistency of the use of force, he states: *"Even though we are strong, we should still direct our main attack against one point only. In that way, we shall gain more strength at this point. For to surround an army is possible only in rare cases and requires tremendous physical or moral superiority"*. (Ib., p. 67).

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Notwithstanding the grandeur held by Clausewitz in the field of military theory, his strategies reached the ebb in the Great War under their operational failures at the ground level. Amidst the Franco-Russian alliance, Germany opted for Clausewitz's admonition of attaining a quick victory against the foe, which was carried under General Moltke who desired to capture the French capital. In fact, this was a detrimental move made by the Germans as their intensity on the battlefield finally exhausted them by paving the path to complete military annihilation. (Liddell Hart, 1939). Although Clausewitz had seen greater European wars in his lifetime, he was not aware of what awaited him in the following century. The First World War made unprecedented demands upon the people of the warring nations on both the battlefield and the home front, which were impossible to address by the Clausewitzian approach. (Keegan, 2003).

LIDDELL HART'S BIG IDEA

Basil Henry Liddell Hart entered the annals of military history with his most celebrated idea called the *"Indirect Approach"*, but it is important to observe that his military doctrine arose as an answer for the catastrophic military failures of the Great War. In particular, Liddell Hart understood the extensive misreading of Clausewitz and the adherence to large-scale battles caused havoc in the war machinery of both allies and the central forces in the First World War. Liddell Hart witnessed the brutality of major war failures on the Western Front by deploying more soldiers that led the troops to slaughter. Liddell Hart described this as a result that stemmed from Clausewitz's emphasis on the great superiority of warfare, who held that *"Only a great battle can produce a major decision"* (Lewin, 1971).

Inspired by Chinese strategist Sun Tzu, Liddell Hart developed a new military theory in the 1920s. He realised how political dimensions, sea power, aircraft crafts and public uprising altered the face of war, which fundamentally distinguished from how Clausewitz viewed warfare. In his seminal work entitled *"Strategy"*, Liddell Hart analyses the war as a concept from the ancient time to the Great War and he juxtaposes himself against Clausewitz in the way he interprets the strategy. In his criticism of Clausewitz, Liddell Hart states that the scientific Prussian thinker looked at war from a parochial perspective, which unnecessarily stressed the importance of engaging the enemy as the only means to achieve a strategic end. On the contrary, Liddell Hart describes strategy as *"The art of disturbing and applying military means to fulfil the ends of policy"* (Liddell Hart, 1967, p. 335).

The indirect approach remains the monumental contribution made by Basil Liddell Hart to the military theory. It appears that Liddell Hart coined this indirect approach after a careful examination of the history, in which he realized that war is won when the means of war are applied in a manner that an opponent is unprepared to meet, that is, employed indirectly. He looked at how Hannibal marched across the Alps to strike Rome as a palpable example from history manifesting

the indirect approach. In his theory of *"Indirect Approach"*, strategy does not need to overcome resistance, but rather exploit the elements of movements and astonish to achieve victory by throwing the enemy off balance before a potential strike. He states: *"Direct attacks against an enemy firmly in position almost never work and should never be attempted"* (Liddell Hart, 1929).

This was a statement that came from him through a set of historical illustrations he presented, where attacks on formidable targets ended in unmitigated military disasters. He uses the word *"Dislocation"* as a keyword of the indirect approach as dislocating the enemy stands more paramount than seeking an instant victory. The subsequent results arising from dislocating the enemy open greater opportunities for military generals to exploit the chances. He discusses the chances that any military leader can accomplish in discussing his second principle of the indirect approach: *"To defeat an enemy, a commander must first upset his enemy's equilibrium; which is not accomplished by the main attack, but instead be realized before the main attack can succeed".*

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Unlike Clausewitz, who was fascinated with major battles and massive attacks, Liddell Hart never endorsed direct success in war. He explained that a commander should never employ a rigid strategy revolving around powerful direct attacks or fixed defensive positions. The Infantry was his favourite mode of war, which needed to be buttressed by the combined air and artillery forces and it was obvious that this mechanism generated the German military doctrine *"Blitzkrieg"* in the Second World War against British, French and Soviet troops. However, he was mindful of the political apparatus in achieving the military objectives. (Waltz, 1959). Liddell Hart believed if wars are waged to attain political objectives, then those objectives should not be beyond the accessible military means to achieve them. Generally, the task of war is what he calls a better state of peace, or the realization of a policy of goal that makes peaceful existence better for at least one of the combatants. He argues that military victory does not spontaneously ensure attaining the object unless it is aligned with the political object.

SHADOWS OF CLAUSEWITZ AND LIDDELL HART IN MODERN WARFARE

21st-century warfare is an enterprise epitomizing the changing dimensions of war blended with the use of modern technology, which is entirely different from the orthodox continental warfare during the time of Clausewitz. Nonetheless, the roots of the very genesis of war that emanates from the human mind remain consistent throughout the ages regardless of the influx of technology. Warlike element is such a timeless concept that Clausewitz elaborated in *"On War"*, which highlights Man's inherent enthusiasm for fighting driven by 19th-century German romanticism over the battlefield. (Aron, 1983). The spirit that Clausewitz revered is visible today as a key factor in setting the trajectories of war and those sentiments can be easily seen in examining some of the modern wars in different contexts.

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The Ukraine-Russian armed conflict is an ongoing war, which can be used as an ideal case study in assessing the relevance of Clausewitz's warlike element at the ground level. After Russia launched the military invasion of Ukraine in February 2022, the public morale among the Russian people seemed to have divided as some eagerly engaged in the war towards its end and some openly hesitated about whether Moscow could reach a favourable outcome. But, in the case of Ukraine, the people's zeal in defending Kyiv was high and the armed forces were combined with the volunteers who appeared to defend the capital. Early reports indicate most of the Ukrainian citizens came forward with the most basic weapons from Kalashnikovs to Molotov cocktails for the sake of defending the capital. To be sure, the strong Ukrainian resistance that Russian forces faced from the Ukrainian people stands as a microcosm of the warlike element of Clausewitz in action. While looking at how the warlike element propounded by Clausewitz came into the picture in armed conflict within a state, the Sri Lankan civil war becomes a clearer example. Unlike the conventional interstate wars that Clausewitz went on to discuss, the Sri Lankan example is a war within a state that lasted for 30 years between the government

and a terrorist organization called LTTE (Liberation Tigers of Tamil Elam). Therefore, applying a Western military theorist in analysing the nature of a civil war on an island seems to be an absurd task, but such an assumption is likely to be false as the nature of war remains the same regardless of the geopolitical distinctions. In his paradoxical trinity, Clausewitz's war is a strange trinity, composed of primordial violence, hatred and enmity; influenced by the play of chance and probability; and rationally subordinated to politics. The primordial violence, hatred and enmity are linked fundamentally to the people; luck and chance, to the armed forces and their commander; and rationality to the government. (Pereira, 2014). In the 4th Elam War, the public sentiment which stood in favour of the government war effort was akin to the manifestation of warlike elements by Clausewitz. In fact, the government mechanism intensified people's participation in the war by various means such as establishing civil security committees across the country, also the media projection depicting the warrior image of a *"Sri Lankan soldier"* affected on developing people's faith in the victory, which lasted until the complete elimination of LTTE in 2009. (Chandraprema, 2012).

Russian way of initiating massive attacks denotes the typical Clausewitzian manifestation of war, which preferred direct ferocious attacks on the enemy. But Russian war machinery was flabbergasted by the unexpected resistance of Ukraine.

It is by no means an exaggeration to describe Basil Liddell Hart as the most cited and well-received military theorist, whose military tactics have vanquished the conventional open war strategy of Clausewitz. The *"Indirect Approach"* that Liddell Hart coined in *"The Strategy"* becomes the main mode of resistance embraced by Ukrainians in their efforts to defend Kyiv. When the war broke out on 22 February 2022, Russians mounted an armoured and air assault on Kyiv with the benign expectation that Kyiv would easily surrender before the mighty Russian air power along with the artillery. Russian way of initiating massive attacks denotes the typical Clausewitzian manifestation of war, which preferred direct ferocious attacks on the enemy. But Russian war machinery was flabbergasted by the unexpected resistance of Ukraine. Rather than using the massive armed tanks, Ukrainians used handheld missiles such as Javelin to carry out sudden attacks on the Russian supply chain. In August 2022, Ukrainians attacked the Russian airbase

in Crimea, which was targeted by some Ukrainian fighters who bombed eight aircraft. When the fully-fledged war was taking place on the Ukraine front, the Ukrainian resistance fighters seemed to have taken it to Russia's heart Moscow itself. It has been reported that two Russian generals were killed on the war front while Russian military facilities were often targeted by Ukrainian rockets. Last summer Russia suffered heavy causalities as Ukrainian forces intensified counterattacks based on the *"indirect approach"* that included the attacks launched on the Russian garrison in Kherson and destroying the major bridges across the Dnieper River, which led to sabotage Russian supply line. Meanwhile, in Moscow, Russia's prime ideologist Alexander Dugin's daughter was assassinated in August, the US suspected that Ukrainians were behind the attack. Last September was a rather catastrophic month for Russians as Ukraine killed nearly 465 soldiers within a week which was followed by another surprise rocket attack on Russian troops on New Year's Eve in Makiivka. Both the attacks manifested Liddell Hart's two principles in the indirect approach, which states direct attacks on firm defensive positions seldom work and should never be attempted and to defeat the enemy one must first disrupt his equilibrium, which must take place before the main attack is commenced (Amarasinghe, 2023).

The utility of the *"Indirect Approach"* in Sri Lankan military apparatus dates back to the early 90's and it mainly sprang as a result of the massive failures suffered by Sri Lankan armed forces from their conventional combat strategies against the LTTE. Since the outbreak of the Elam war in 1983, the LTTE achieved an extraordinary combating capacity due to various factors and the morale of the Sri Lankan armed forces reached its nadir in the early 90's. By the time General Cecil Waidyaratna became the commander of the Sri Lankan Army in 1991, the array of military defeats of the Sri Lankan army before LTTE was catastrophic, which included LTTE's capture of Mankulam, retreat from Jaffna fort and daily attacks on military vehicles. In his unpublished autobiography, Waidyaratna describes the sorry state of the Sri Lankan army as one of the military documents praises the saving Elephant Pass military complex under the command of Brigadier Wimalarathne as the greatest military victory earned by the Sri Lankan army.

Even though General Waidyaratna was not a field officer or a great combatant, he was a genuine military theorist. In a work titled *"Gota's War"* veteran journalist C.A. Chandraprema states: *"Waidyaratna was the first army officer, who began to think of a comprehensive mechanism to annihilate LTTE terrorism completely through a prism of military theory"* (Chandraprema, p. 218).

Based on the previous operational failures of the Sri Lankan army, general Waidyaratna recommended that the Sri Lankan army should launch its operations separately. He acknowledged the inability to combat in both North and Eastern provinces together as the Sri Lankan army did not possess such an advanced power. Hence, he suggested that the army should focus on the Eastern province where the LTTE remained relatively weaker. In his further analysis, the general believed after capturing the weakest province of the enemy, the Sri Lankan army should use its fullest strength to defeat LTTE in the Northern province. This was what exactly Captain Liddle Heart explained as an indirect approach. Also, he suggested taking intensive actions to increase the capacity of the Sri Lankan navy to combat the supply network of the LTTE.

None of those recommendations were implemented during his tenure and General Waidyaratna passed away in 2001 as a retired general, but surprisingly the operational style adopted by the Sri Lankan army under then-General Sarath Fonseka resembled what Waidyaratna recommended. Between 2007 and 2009, Sri Lankan armed forces relied on the indirect approach rather than the direct approach. The capture of Toppigala and the subsequent military success in the Eastern province paved the path for the Sri Lankan army to consolidate their whole energy in liberating the whole Northern province in 2009.

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CONCLUSIONS

Both Clausewitz and Liddell Heart were products of their time. The historical antecedents, the events they witnessed, political ideologies they revered simply carved the military philosophies that both of them produced. None of those theories in war are

highly unlikely to be the most appropriate ones in an era, where the asymmetries of wars have come to the fore. Even the Ukrainian war efforts harboured by the indirect approach would be challenged by the growing massiveness of Russian attacks. The celebrated wisdom of Liddell Hart has clearly saved the Ukrainian military resistance from a complete collapse. But the bitter reality that looms before the war front is that sooner or later Ukraine will need to face significant battles for decisive results. In particular, the recent shift in Russian war strategy in Ukraine has embraced a more rigorous path consisting of unleashing heavy attacks by a new wave of missile strikes. The overarching analysis arising from this comparative analysis of both Clausewitz and Liddell Hart based on their utility in modern warfare proves the impossibility of adopting a single military strategy. Therefore, the future of the war is likely to be blended between Clausewitz and Liddell Hart by opting for a middle path.

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ROMANIAN
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TROOPS AIR DEPLOYMENT – A NECESSITY FOR MOUNTAIN FORCES –

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In the current context of war, adaptation to the ever-changing situation is very important. Mobility in the battlefield is one of the main factors that make the difference. This article aims to highlight the advantages of mountain troops air deployment, hence the need to develop this capability for Romanian mountain troops.

In this regard, the article addresses the mountain troops air deployment as an additional capability necessary for mountain troops to successfully conduct military actions in mountainous-wooded terrain. Resorting to a qualitative type of research, the author presents a series of advantages arising from the establishment, within the mountain troops structures, of the structures capable of being deployed or parachuted into areas of operations that are difficult to access, as they exist in countries with tradition in this military specialty (Italy, Germany)

Keywords: mountain troops; air deployment; mountainous environment; capability; alpine parachuting;

INTRODUCTION

Adapting to a modernized, easily deployable and unpredictable enemy is a topic that is increasingly on the agenda of the North Atlantic Alliance, even more so if we think about the evolution of the current conflicts in our country's neighbourhood or in the Middle East. The combat capability of a military structure, whether we refer to events that have unfolded or to the current geopolitical context with ongoing events, depends more and more on a series of factors and combat principles that are directly related to the understanding of the use of force in a confrontational environment.

In modern warfare, survival is essential, given the employment of increasingly sophisticated and lethal weapons in combat. Starting from the notion of *capability* (Petrescu, Ioniță, 2020, p. 16)[1] that a military structure can have at a given moment, the differences between the weapons used in a confrontation determine the emergence and development of a continuous process of research and development. In this context, technological change, which is in perpetual progress, can produce opposite effects, depending on how the forces are used (Biddle, 2006, p. 34).

Based on these considerations and the author's experience both in the specific field of mountain troops and in that of military parachuting, the article is intended to draw attention, by resorting to a qualitative type of research, to the need to develop capabilities so that the mountain troops could be air deployed. In this way, we believe we can design a research process in the field to establish guidelines for proposing and subsequently developing such a combat capability for mountain troops.

In modern warfare, survival is essential, given the employment of increasingly sophisticated and lethal weapons in combat. Starting from the notion of capability that a military structure can have at a given moment, the differences between the weapons used in a confrontation determine the emergence and development of a continuous process of research and development.

[1] *"The ability to perform actions in order to achieve objectives".* In *Law no. 203/2015 regarding defence planning,* in *Monitorul Oficial/Official Gazette*, no. 555, 27 July 2015, art. 13, para. (1).

MOUNTAINOUS AREA – GEOGRAPHIC AND MILITARY CHARACTERISTICS

The alpine area is that part of a massif, placed above the forested areas, at heights between 1.700-2.544 m, covered with pastures and dwarf trees (mountain pines and junipers) (Oancea et al., 1987, pp. 35-37), devoid of communications and settlements, with steep slopes, difficult to be approached, where strong winds and blizzards blow, characterized by very low temperatures in the cold seasons and at night, by the existence of a thick layer of snow during the winter, and by a higher temperature during the day in the summer, where ultraviolet rays dominate, which can affect the human species.

As part of military actions in mountainous areas, it is necessary to deploy specialized forces, military structures capable of carrying out combat missions, capable of survival, independent, self-supporting actions in such areas. These military structures are the mountain troops whose actions are carried out mainly in the alpine environment and against an adversary prepared to act in the same environment.

As part of military actions in mountainous areas, it is necessary to deploy specialized forces, military structures capable of carrying out combat missions, capable of survival, independent, self-supporting actions in such areas. These military structures are the *mountain troops* whose actions are carried out mainly in the alpine environment and against an adversary prepared to act in the same environment. Such structures reach a high degree of efficiency due to the level of training and the capabilities they develop. Under these circumstances, it is necessary to understand that certain principles of combat, such as effort capacity, manoeuvre, economy of forces and means, speed, surprise of the enemy, can significantly tilt the balance in favour of those who respect and can apply them. Moreover, in the context of profound technological developments in the military field, there is also a *"rapid evolution of mechanisms, equipment, techniques and procedures that must be maintained at a high level of development"* (Stanciu, Gimiga, 2023, p. 157). As the operational environment undergoes changes and transformations, the adaptation of all actors to the created situation is permanently required.

In the mountainous environment, these principles acquire a new physiognomy when the air, transport or fire support components are introduced into the equation. Whichever type of military action is addressed, a comparative analysis can be developed in the application of these principles, depending on the deployment capability that the mountain troops have at their disposal. The long-term resistance in the mountains, especially in the alpine area, implies the fulfilment of the decisive objectives of all operations – to stop, destroy (repel) the aggressor, to firmly maintain the strongholds in the field, to keep communications and localities under control, even when the opponent has deeply penetrated in some directions. The advantages in mountainous-wooded terrain are on the side of mobile, adaptable and flexible structures, with light combat assets, specialized in fighting in the mountainous operational environment, structures that are capable of conducting joint actions for longer periods of time (Petriceanu, Ghelegeanu, 1977, p. 45). In the mountains, the movements, manoeuvring and actions of the support forces, the technical or medical evacuations, as well as the supplies are much more difficult than in flat, open terrain.

TACTICAL FORCES AIR AND GROUND DEPLOYMENT – COMPARATIVE ASPECTS

Considering the trends of modern war, in the conditions of the execution of tactical actions and operations, both those of an offensive nature and those classified as defensive, the need to deploy one's own forces within a time that leads to favourable conditions for the development of troops manoeuvre, infiltration, exfiltration or prepositioning becomes an essential requirement in the execution of missions.

From the perspective of tactical ground deployment, the mountainous area leads to a thorough planning of actions/operations as well as to a much more careful analysis of terrain, so that the recognition of some areas of interest could be performed not only on the map but also in the field.

An eloquent comparative analysis to inform commanders' decision, whether we are referring to low-level military leaders or considering the conduct of large-scale military operations, should relate both types of deployments to both the components of terrain analysis and the factors that can influence the performance of the mission. For a better understanding of these considerations, we propose the simulation of military actions and operations in the mountainous environment. Thus, from the perspective of tactical ground deployment, the mountainous area leads to a thorough planning of actions/operations as well as to a much more careful analysis of terrain, so that the recognition of some areas of interest could be performed not only on the map but also in the field, while, in view of air deployment, the approaches are not limited/restricted by natural obstacles, but only by the weather.

Adverse weather conditions (low air temperature, precipitation, freeze-thaw phenomenon) influence the actions/activities carried out by personnel, the use of military equipment, as well as the operation

of specialized equipment (tracks, terrain vehicles – ATVs, utility task vehicles – UTVs, snowmobiles), exposing them to increased risks from the tactical ground deployment perspective (F.T./V.M.-8, 2015, art. 0222).

The use, by changing the destination according to the needs, of versatile equipment in the execution of different types of operations carried out within the air deployment can determine the reduction of some risks in terms of survival in the mountainous environment, whether we limit ourselves to sunstroke, frostbite, dehydration, or to the occupation of a patrol base.

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Observing some activities/actions of the adversary becomes much easier by air deployment, while, in the case of ground deployment, the forces have to either use forward elements or infiltrate reconnaissance elements into the adversary disposition.

Abundant vegetation or the lack of it, especially in alpine hollows, is a disadvantage in the execution of movements through the use of armoured or tracked vehicles, making tactical deployment difficult and/or even impossible. On the other hand, regarding the use of helicopters in carrying out air deployment, the abundant vegetation constitutes an impediment in establishing the landing zones.

Regarding the masking and covering of military actions/operations, the vegetation, the limitations and restrictions imposed by the mountainous-forested terrain, in conjunction with its key points, the tactical ground deployment requires additional efforts to surprise the enemy forces and avoid the own troops being surprised by them, as well as to maintain mobility, while air executing deployment would increase mobility and it would also lead to success in surprising the enemy.

Considering the fact that in the mountainous area most covers, mainly represented by the key points in the terrain (especially peaks, elevations etc.) are natural, they become obstacles both for tactical ground deployment and in terms of support by fire, especially that executed by ground artillery elements, while the air deployment, by helicopters, facilitates both the movement and the execution of close air support for the own forces.

The tactical advantages obtained by air deployment are greater than those derived from the use of key terrain points, whether

we are referring here to dominant elevations or valleys/watercourses, judiciously exploited especially by helicopters in tactical deployment. Thus, the stages of airborne operations, landing or disembarking from aircraft, as well as tactical air landing operations, are much more effective than embarkation/disembarkation/mixed tactical movements of own forces in terms of occupying a stationing/regrouping area.

The time necessary for the tactical ground deployment is sometimes much longer than that required for the own forces air deployment, which implies dosing the effort according to the deployment stages. The use of armoured or tracked vehicles in the mountainous environment entails a considerable disadvantage from a tactical point of view, if we were to consider the evacuation of combat equipment following some clashes/encounters with losses.

In the tactical ground deployment, the use of armoured/track mounted weapon systems can become problematic both in conditions of reduced visibility and taking into account the characteristics of the mountainous-wooded terrain (abundant vegetation, natural obstacles, narrow areas), while the tactical air deployment would allow both the execution of direct fire on some objectives and the possibility of using *"intelligent"* (e.g.: thermally guided, remote-controlled etc.) weapon systems/munitions, as well as the air command and control by establishing some command points (Rus, Cioabă, 1988, p. 156).

In the tactical ground deployment, the use of observation devices at night or in conditions of reduced visibility becomes even more difficult in unfavourable weather conditions (fog, temperature below 0° C), as well as considering the abundant vegetation. Tactical air deployment somehow solves the issue of too many variables of observing the actions of the opposing forces by exploiting the key points of the terrain, if we were to consider the fact that any point of the aircraft's trajectory becomes a location for the tactical exploitation of the adversary's actions.

The air transport of troops connects the point of departure with the point of destination through a straight line, thus reducing the time required for the own forces to reach the deployment area, while, by land, delays can be recorded either caused by the circumvention of natural obstacles or by the need for restoring the combat capacity of the subunits.

ROMANIAN MILITARY THINKING

In the tactical ground deployment, the use of armoured/ track mounted weapon systems can become problematic both in conditions of reduced visibility and taking into account the characteristics of the mountainous-wooded terrain, while the tactical air deployment would allow both the execution of direct fire on some objectives and the possibility of using "intelligent" weapon systems/ munitions, as well as the air command and control by establishing some command points.

The phasing of the effort of the own forces is directly influenced both by the level of performance achieved in the execution of the march in mountainous-wooded terrain and by providing them with equipment and materials intended to facilitate not only the advance in this type of terrain, but also the creation of minimum necessary rest and feeding conditions. Thus, the tactical ground deployment becomes problematic from the point of view of ensuring the logistics to carry out actions/operations prolonged either by rugged terrain, difficult to access with equipment, or by unfavourable weather conditions. On the other hand, providing logistical support by conducting tactical approaches/landings removes hard-to-reach terrain from the equation, and even if it does not completely solve the limitations/restrictions imposed by the weather, it proves much more effective.

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Even if they are more efficient in terms of the economy of effort, resources and, sometimes, from the perspective of costs, the operations specific to air deployment do not introduce into the actions/operations the own forces armoured assets. At the same time, air deployment solves the problem of much more easily extracting one's own personnel from an area that has become dangerous, whether we refer to withdrawal/regrouping, or whether it involves evacuating the wounded/victims.

The rough, mountainous-forested terrain often complicates the choice of flight paths and generates additional navigational burden and pressure on the entire crew, as they have a small margin for error. In this environment, commanders must avoid the human-created obstacles on more than 46 m above the area elevation, and high terrains or hills can be considered dangerous only if they are an evacuation obstacle (FM 3-99, 2015, p. 5, Chapter V). Direct routes can rarely be used without exposing the aircraft to an unacceptable risk of enemy detection and destruction.

Tactical flight routes follow valley corridors, where it is possible to obtain cover and concealment, while forcing the maintenance of the highest possible flight altitudes in such terrain. Flying in the mountains can prevent the use of closed formations. Multi-helicopter operations are normally planned to be executed in loose or staggered formations with greater spacing between aircraft.

The land suitable for the selection of several helicopter landing zones (Landing Zone/LZ) in mountainous regions is limited. Level areas that are suitable for mountain LZs frequently require little preparation, beyond engineering reconnaissance, as the ground is usually firm enough to support the weight of helicopters. When only single-aircraft landing zones are available, the distance between helicopters must be increased significantly (Air Transport Manual, 2019, p. 24).

Table 1 highlights some of the advantages and disadvantages resulting from a comparative analysis of the two types of previously mentioned force deployment – air and ground. For this purpose, four of the principles of combat, considered relevant for the approach within this research, are used as reference indicators.

Table 1: Forces air and ground deployment – advantages and disadvantages (author's design)

COMBAT PRINCIPLES	Air deployment		Ground deployment	
	ADVANTAGES	DISADVANTAGES	ADVANTAGES	DISADVANTAGES
Economy of forces/ Economy of effort	1. Capacity to transport a larger amount of assets, equipment, ammunition. 2. Maintaining the combat capacity of the military.	1. Aviation resource is much more expensive. 2. Airfields or take-off /landing grounds are needed.	1. Reduced logistic effort.	1. Weakening the effort capacity following movements, embarked, disembarked or combined. 2. Smaller number of materials, assets, equipment that can be transported.
Concentration of effort	1. Execution of the vertical manoeuvre for the inter-positioning of forces.			

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COMBAT PRINCIPLES	Air deployment		Ground deployment	
	ADVANTAGES	DISADVANTAGES	ADVANTAGES	DISADVANTAGES
Surprising the enemy and avoiding surprise	1. Surprising the enemy by quickly deploying structures in different areas or positions. 2. The introduction into battle of flexible force structures or support elements, in the right place and at the right time.	1. The adversary air defence, from the ground, prevents the free use of aircraft flight paths.	1. The covert movement of the force. 2. Weather conditions facilitate the interposition of forces in the enemy's disposition. 3. Avoiding surprise by the enemy, by using the terrain specific to the mountainous environment for movement.	1. The deployment of forces cannot be carried out over longer distances, when a reaction time is required.
Speed	1. Speed of introduction of reserves. 2. Reaction speed, adaptation of the combat disposition of forces.	1. Weather conditions affect aircraft flight regime.		1. Longer time for deployment.

It appears, following a *joint* analysis of the advantages and disadvantages, in different contexts, based on the chosen combat principles as benchmarks *(table 1)*, that air deployment is preferable for the support of mountain troop combat actions. Climatic factors and conditions, time and season, often make the difference, and in this sense, a rigorous planning of combat actions is necessary.

THE NEED FOR THE ALPINE TROOPS AIR DEPLOYMENT

Mountainous terrain does not facilitate mounted, dismounted or ski movement and manoeuvre. Climate and weather conditions frequently influence the conduct of combat actions in this operational environment, acting on the key factors of time and speed. Climate is defined, as *"the regular succession of meteorological processes determined by the complex of physical-geographical conditions and expressed through the regime of time over several years. The climate of the mountains is characterized by winters lasting 6-8 months with snow and blizzards, summers lasting 2-3 months with rains and showers, short springs and autumns, 10-30 days with cold rains, sleet and snow"* (Tactical Actions in Mountainous Areas Manual, 2015, art. 0211). In this context, we appreciate that it is necessary to develop an air transport capability, which would allow the forces movement in order to execute the manoeuvre, infiltration, exfiltration or prepositioning, at a much higher speed. In this way, significant advantages could be created and the responsiveness of alpine structures could be increased. The deployment speed advantage generates the successful application of another, essential and very important principle, namely the *enemy surprise*. The current battlefield requires for quick reaction, mobility, flexibility, ingenious manoeuvre and a continuous concern to surprise the adversary. It is necessary to understand that the mountainous terrain, being a very challenging environment for conducting military operations, imposes the seizing of initiative and versatility. The success of military actions in mountainous terrain depends on using *hic et nunc* actions and the well-known principle: the right man at the right place. This is the main reason behind backing up the idea of mountain troops air deployment for increased efficiency and enhanced capability to surprise the enemy.

In addition to the package of forces to be introduced into the operation, the helicopters have the ability to carry command elements, becoming real command points in the air, which ensure the coordination and command of the troops on the ground: *"(...) different command points have been set up on helicopters for some echelons of the ground troops, thereby achieving a more efficient, more elastic, timelier and, above all, continuous leadership. Such a command point*

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can move quickly, from one place to another, where the situation calls for its presence" (Rus, Cioabă, 1988, p. 156).

When talking about the economy of forces and unity of effort, an important issue arises, essential for making mountain troops more efficient. In the current structure of the mountain troops the transportation means for personnel, equipment, materials, munitions are not adequate for the mountainous terrain, thus leading to a supplementary effort on behalf of the combat forces that renders them combat ineffective by tiring them before entering combat actions. Air deployment, using rotary wing for transport, would not only solve this problem but also provide the solution for the resupply, according to the principle of vertical logistics, increasing the mountain troops self-sustainment capability.

Mountain troops are specialized in conducting operations in alpine environment, being categorised as specialized light infantry that conducts a large variety of military actions in a hostile environment, both from the point of view of weather conditions and terrain, and from the point of view of the enemy's possibilities of action.

Beside surprise, obtained when forces are air deployed, deception is achieved, by denying the enemy access to indicators on movement. Mountainous terrain provides the proper environment for the actions of an airmobile force, a force that becomes indestructible and effective if rapidly deployed.

Mountain troops are specialized in conducting operations in alpine environment, being categorised as specialized light infantry that conducts a large variety of military actions in a hostile environment, both from the point of view of weather conditions and terrain, and from the point of view of the enemy's possibilities of action. Nowadays, mountain troops would need modern deployment capabilities, which allow the execution of military activities within large tactical units or independently. (Toader, 2019, p. 7).

The current context shows us that most military actions take place in or near towns, but their preparation is carried out in mountainous, remote, hard-to-reach areas. That is why we appreciate the need for a highly mobile force, specialized in conducting actions in such a confrontational environment, that can be easily deployed to long and very long distances, a force that can be inserted by air, either by disembarking, rappel, the *"fast rope"* procedure or by parachuting. Thus, *"air deployed alpine troops"* can be established. Moreover, the idea of establishing small structures, company-level ones at the beginning, specialized to act in this way, within mountain troops, is rooted in the previous one.

The forces specialized to operate in the alpine environment must have a higher level of training, be strictly and rigorously selected and have specific training programmes, similar to special operations forces and reconnaissance structures. In order to improve their action and reaction level, I consider that they need to be certified as military paratroopers and trained at parachuting in the alpine environment. There are mountain troops in Europe that have in their composition alpine paratroopers, the most famous being *Il 4^{0} Reggimento Alpini Paracadutisti/*The 4th Alpini *Paratroopers Regiment* (Grey Dinamics, 2022). The German armed forces also train mountain troops for obtaining the *alpine paratrooper* qualification. It would not be hard to make a comparison between a mountain trooper deploying on foot in level 2 or 3 mountainous terrain towards the crest and a mountain trooper airdropped in an alpine clearing or glade, as close to the objective as tactically viable. In order to do this, he obviously needs wing or ram-air parachutes, training in precision landing, training in parachute controlling in high-speed winds, equipment to carry weapons and ammunition, water and food. In other words, mountain troops would train and conduct operations like paratroopers, the difference between the two being the environment in which they specialize. This additional capability would create advantages like gaining speed in military actions, achieving surprise, concealing actions, unity of effort, improved self-sustainment etc.

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CONCLUSIONS

The air deployment of alpine troops must be addressed, in the current geopolitical context, as an additional capability necessary for mountain troops, for the successful conduct of military actions in mountainous-wooded terrain. In this presentation, the characteristics of this capability have been highlighted, in conjunction with the entire range of mountain troops missions, due to the necessity to develop them within the alpine troops and in order to highlight the need to create an additional mountain troops transport capability to ensure their deployment in all areas of the mountain environment. If the combatant structures could have the possibility to airlift and airdrop, maintaining the capacity for effort, speed and surprise, the logistics component would certainly encounter great difficulties in carrying

out the tasks of supplying, evacuating and transporting weapons and equipment. In this context, we appreciate that, in the near future, drones will be able to be used to provide the element of vertical logistical support, an essential function of fighting in mountainous-wooded terrain.

The mountain troops have performed and regularly perform training in terms of their air deployment, and the research hypothesis considers the presentation of the need for the force air mobility. If equipping mountaineers' structures with helicopters is not taken into account at this time, we consider it appropriate to train them as military paratroopers by qualifying platoon/company level structures. It would be a major advantage in the use and projection of force at long distances. Effects in depth, created by the actions of the projected force, provide advantages to the attacking force both by disorganizing the enemy through manoeuvre and by disrupting the enemy's supply lines and combat equipment. For this reason, the joint actions at the operational level can have a replica at the tactical level through *combined arms* actions or through aviation support actions for the design of tactical elements.

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If we were to analyse the current situations, in the context in which combat actions are carried out nowadays, we notice that, in order to maintain a tempo corresponding to that of the opponent, it is necessary to think of airlift and airdrop as opportunities that must be supported and implemented. Thus, speed is gained, the opponent is surprised, the manoeuvre is judiciously executed, and an important effort capacity is preserved. In this regard, we propose that, within the Romanian Armed Forces, mountain troops structures, capable of being air deployed or parachuted into hard-to-reach areas of military action should be established. These structures could follow models already existing in countries with tradition in this military specialization (Italy, Germany).

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SOCIETAL RESILIENCE AS INTANGIBLE CRITICAL INFRASTRUCTURE

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The concept of societal resilience – the central concept of the National Defence Strategy – is, to a certain degree, not only semantically, but especially pragmatically ambiguous, as the concept has not been operationalised in the literature, on the one hand, and the state societal resilience, implementable through formal, non-formal and informal education, has not benefitted from adequate levers for application, on the other hand. The recent educational reform, achieved through the two laws, on pre-university education and on higher education, adopted in 2023, does not directly contribute to societal resilience. Under these circumstances, of an inadequately designed security education and of a pragmatic ambiguity of the strategy, which means that the communication intentions (obligation, recommendation, suggestion) are not clarified, it is necessary to exceed the classical normative framework that regulates the national educational system and to design the education-resilience binomial as critical national infrastructure. Resilience, coming from the field of safety culture studies, can be considered intangible critical infrastructure, which needs a tangible system defined or possibly defined in the Romanian legislation regarding critical infrastructure, so that it can trigger the mechanism for implementing the projection of the National Defence Strategy. The present article contributes to the identification of possible projective directions of the education-resilience binomial as critical infrastructure.

Keywords: societal resilience; educability; individual resilience; hybrid warfare; national critical infrastructure;

SOCIETAL RESILIENCE. CONCEPTUAL CLARIFICATIONS

The concept of *societal resilience* has been defined as *"the ability of communities to flexibly absorb major disturbances and quickly recover from the inevitable decline in basic functionality"* (Elran, 2017, p. 301), but this term, born at the crossroads to ecology, social sciences and psychology, has increasingly migrated to the territory of security sciences. In the new situation, the concept has become widely used in NATO terminology and constitutes an essential term in the *European Union Global Strategy*, as well as in the national security and/or defence strategies of NATO and EU member states. Despite this expansion, the term is still sufficiently fluid from a semantic point of view, being confused with that of *social resilience*, frequently used, having its origin in the concept of *community resilience*. For example, from the mapping of the concept of social resilience carried out by S.R. Joey Long in 2008, researchers Tomas Jermalavičius and Merle Parmak took the definition given by the Singaporean professor and accepted it as applicable to societal resilience, as follows: *"the ability of a nation-state to preserve its societal cohesion when faced with internal or external stress caused by socio-political changes or violent disturbances"* (Jermalavičius, Parmak, 2020, p. 27).

The concept of societal resilience has been defined as "the ability of communities to flexibly absorb major disturbances and quickly recover from the inevitable decline in basic functionality".

In essence, the definition is correct and comprehensive. However, two remarks are mandatory, in relation to the confusion between *"social"* and *"societal"*. The two terms, originating in English – the language in which the concept has been preponderantly developed and the most important studies in the field have been written –, are **not** synonyms. The adjective *"social"* is strictly related to the human individual, while the concept *"societal"* refers to society in the aggregate

and cannot describe people and interpersonal relationships[1]. The two terms are different in French too, *"sociétal"* being similarly defined as the English equivalent. Moreover, the confusion between *social resilience* and *societal resilience* is amplified by another confusion, namely that between social and community. Hence, syllogistically, the terms *"societal"* and *"community"* become interchangeable, although the types of human groups – society and community – were differently defined in the late 19th in the studies of Tönnies. To be situated outside the scope of inconsistent interpretations and sources of errors, we will understand *community resilience* as the nation resilience to the threats to the state, more precisely, to its security. Societal resilience is expressed, in the global challenges equation, as *"government philosophy on nature and society"* (Walker, Cooper, 2011, p. 145), while, from the perspective of national security, it is mainly related to the interpersonal relationships architecture.

Societal resilience is expressed, in the global challenges equation, as "government philosophy on nature and society", while, from the perspective of national security, it is mainly related to the interpersonal relationships architecture.

RESILIENCE AS A THREAT RESPONSE. INDIVIDUAL RESILIENCE

To understand societal resilience in relation to threats, the most appropriate approach is probably that of individual resilience, which is defined as the optimal response or adaptation to adversity, trauma, tragedy or significant sources of stress (Newman, 2002), i.e. to different categories of vulnerabilities and threats. This definition, including the adaptive response to threats, is the reference definition of the American Psychological Association. However, the concept is difficult to operationalise due to the fact that there is, on the one hand, a static perception of it, being seen as a response given at a certain moment in relation to threats, and, on the other hand, a dynamic one, in which it is understood as an adaptive process (Yang, 2021, p. 4): *"Resilience is difficult to operationally define, because each psychologist measures and tests this phenomenon differently. Some psychologists*

[1] *DifferenceBetween.com* exploits this dichotomy from the ideological perspective too, highlighting the connotations of the word *"social"*, having resonance in relation to socialism, while the word *"societal"* is neuter from this perspective. The same site expands the distinction, providing some examples: *"A man can be social or not social, but he can never be societal"*, which cannot be applied to the term *societal*. In other words, Aristotle's *zoon politikon* cannot be translated in societal-related terms, https://www.differencebetween.com/difference-between-social-and-vs-societal/#google_vignette, retrieved on 22 January 2024 (A.N.).

see resilience more as a process, while others see it as an outcome. The approach tends to determine which aspects of resilience are measured: aspects such as its indicators, purpose, duration (long or short term) and object (individuals or communities)" (Alsazadeh et al., 2017). *"Also, it is difficult to assess whether the outcome of an individual's recovery from severe trials is sufficiently ‹good› for the individual to be considered resilient"* (Masten, 2001).

These uncertainties regarding the application of the concept make its use problematic in the field of security, all the more so as a number of other terms, which have not been operationalised, are still frequently used and cause confusion: *hybrid warfare*, *grey zone* etc. The development of resilience depends on the wider context, i.e. the set of cultural, social, as well as economic and political factors that influence the development of resilience and that contribute to establishing the minimum threshold of resilience accepted in a society. In essence, this concept is applicable to measuring the adaptive capacity at the individual or social level – in the case of the debate on societal resilience, applicable at the level of the entire society –, and it also explicitly deals with the capacity of institutional structures to adequately respond to challenges. Resilience can be developed, meaning that the conditions for learning and practicing it can be created. Becoming a fashionable concept in the years of the COVID-19 pandemic, resilience has permeated almost all fields, including that of project documents that have built security frameworks, against which it can be properly evaluated once implemented. However, through the confusion in the definition of the application fields or sectors, the very term resilience contributes, through the upheaval it produces, to the inadequate response in relation to the risks and threats to national security.

Becoming a fashionable concept in the years of the COVID-19 pandemic, resilience has permeated almost all fields, including that of project documents that have built security frameworks, against which it can be properly evaluated once implemented.

In order to transform this still ambiguous concept into an effective tool for responding to threats to national security, its exact potential to be internalised must be identified, which, from the reverse perspective, i.e. from the object of education, would mean identifying the potential of *educability* in the field of resilience in relation to the aforementioned category of factors with harmful effects on security. In our case, educability, i.e. that human capacity to be receptive to the issue of resilience, to be aware of the need for education in the field

and to be subject to educational action, could be measured, but I have no knowledge of any quantitative research undertaken in this regard. Moreover, the convergent concepts: security culture (and education) and societal resilience, present in the body of the national defence strategy and in other documents of a projective nature – in certain doctrinal apparatuses, even of an applicative nature[2] –, are not the object of interest from the perspective of education sciences, as if the security issue did not represent one of acute interest and topicality.

SOCIETAL RESILIENCE ACHIEVED THROUGH EDUCATION

It is this inability to transform the strategic directions established at the level of the national defence strategy into concrete actions – not in the military field or in what represents the basic structure of the restricted system of security, defence, public order and intelligence[3],

[2] For example, the Australian Armed Forces have developed a guide, the *Commander's Guide to Resilience*, which defines resilience at the individual and organisational level, *"Based on contemporary research, FORCOMD has developed the following definition of resilience for the military context: Resilience is the ability of individuals, teams and organisations to adapt, recover and thrive in situations of risk, challenge, danger, complexity and adversity"*. (Bond, 2021, p. 10), and which suggests a model for education/training in relation to resilience, in five directions, domains or key resources: psychological (cognitive, affective and self-regulatory or self-control), behavioural, physical, social and in terms of character, which contribute to training a continuum: build (through the BattleSMART programme) – strengthen (through the All Corps Officer and Soldier Training Continuum) – improve (through the culture of performance, by transforming military structures into *"learning organisations"* and through the development of psychological capital, PsyCap) – rebuild: *"The purpose of this phase is to rehabilitate members not only through appropriate professional intervention, but also through an organisational culture that encourages social resilience, minimizes stigma, removes barriers to care and promotes unity as a positive part of a member's recovery process"* (Bond, p. 20) – reintegrate. In the US Armed Forces there is also a resilience guide, actually a commander's guide to building resilience in soldiers, *The Leader's Guide to Building Resilient Soldiers*, which suggests a model for a resilient leader and a series of training methods for developing resilience in subordinates: Global Assessment Tool (GAT), Realistic Training, Resilience-Based After Action Review, and Leader-Led After Action Debrief, resulting in the military training that includes mental preparation, family support, mobility, medical training, checklists and preparation for transport/deployment (Orhan, 2020). Both analysed tools are not imposed at the doctrinal level, by means of combat manuals adopted by the Australian Defence Forces (ADF) or the US Armed Forces, but represent documents implemented in a distinct training context, with the aim of obtaining a high degree of the military resilience (A.N.).

[3] The current National Defence Strategy uses the same concept of *"extended national security"*, which entails considering, besides national and allied defence, *"foreign policy, public order, intelligence, counterintelligence and security activity, crisis management, education, culture, healthcare, economy, demography, finance, environment, energy security, critical infrastructure and historical and cultural patrimony"* (SNAp, 2020, p. 7), meaning a constructivist approach to security (A.N.).

but in the other domains having a role in national security – that I have focused on. I have been directly interested in the way the mentioned directions have been translated into educational policies, thus becoming projections in educating a generation that is security literate and resilient from this perspective (Lesenciuc, Lesenciuc, 2017, pp. 23-30; Lesenciuc et al., 2018, pp. 93-101; Cozmanciuc, Lesenciuc, 2020, pp. 235-240). Moreover, I have been interested in societal resilience per se (Lesenciuc et al., 2022, pp. 25-31; Lesenciuc, 2023), as a central concept of the current National Defence Strategy (SNAp., 2020). However, I have not identified the way in which societal resilience is translated into the educational or the other policies included in the concept of *"extended national security"*. The National Defence Strategy (2020) projects resilience as a principle of the adaptation/ adequacy of the response to risks, threats and vulnerabilities, but also sets as its level of ambition *"the transformation of our country into a resilient state, able to adequately relate to the unpredictability and extent of developments in the security environment"* (SNAp, 2020, pp. 6; 8), defining this quality in relation to the set of vulnerabilities that contribute to *"the unpredictability of developments in the global security environment (conventional, economic-financial, as well as cyber, hybrid or associated with pandemics and environmental changes)"* (Ib., p. 8). An entire subchapter in the strategy is dedicated to this issue, the concept being defined in strategic terms: *"The concept of Romania's resilience is approached in a double key: the inherent capacity of entities – individuals, communities, regions, the state – to resist and adapt, in an articulated manner, to violent events, causing stress, shock, disasters, pandemics or conflicts, on the one hand, and the ability of these entities to quickly return to a functional, normal state, on the other hand"* (Ib., p. 11), identifying the implementation stages and the efforts to strengthen resilience, as well as the major directions for strengthening societal resilience and critical infrastructures (considered together): improving the level of awareness in relation to the intended influence through classical and new media, designing the tools to indicate or expose the sources of disinformation, increasing the awareness of the population and institutions in relation

The National Defence Strategy (2020) projects resilience as a principle of the adaptation/ adequacy of the response to risks, threats and vulnerabilities, but also sets as its level of ambition "the transformation of our country into a resilient state, able to adequately relate to the unpredictability and extent of developments in the security environment".

to the need to protect critical infrastructures, and, in particular, a series of tools of an educational nature:

- *"enhancing the capacity of educational and research institutions, think-tanks and the media to identify and combat disinformation movements supported by hostile state or non-state actors;*
- *increasing the level of functional literacy for the development of critical thinking and for reducing the population vulnerability to the phenomenon of spreading false information, which can have negative consequences for national security;*
- *supporting healthcare and emergency situations education;*
- *adopting measures that contribute to reducing the brain drain phenomenon while implementing programmes to attract international talents;*
- *starting extensive secondary and high school education programmes in the field of digital skills and online security as well as in developing the necessary skills to combat false information so that the young generation vulnerability to such hybrid challenges can be reduced and societal resilience can be enhanced"* (Ib.).

Societal resilience is ensured, according to the National Defence Strategy, through the national educational system, but this system, recently reformed at the normative level, with the establishment of the new legislative framework, the Pre-University Education Law no. 198 and the Higher Education Law no. 199 of 2023, does not explicitly provide the instruments to meet the strategy's goal.

The five educational tools that explicitly address aspects of the nature of formal education are complemented by the previously mentioned ones, which refer to non-formal and informal education. Societal resilience is ensured, according to the National Defence Strategy, through the national educational system, but this system, recently reformed at the normative level, with the establishment of the new legislative framework, the Pre-University Education Law no. 198 and the Higher Education Law no. 199 of 2023, does not explicitly provide the instruments to meet the strategy's goal. The only aspect that tangentially refers to the problem of resilience is the one related to cyber security (Art. 24 par. 2, art. 88 par. 10, art. 91 of Law no. 198), while Law no. 199 provides for no explicit measure to meet the objectives of the National Defence Strategy. Combining the establishment of the major directions for strengthening the resilient state at the societal level – intended to be achieved exclusively through formal, non-formal and informal education – with the directions for action regarding the *"educational, healthcare, social and demographic*

dimension", also called the *"societal dimension"* in the body of the strategy[4], we can find that the projective documents of a security nature and those of an educational nature are opaque to each other, resulting in even greater upheaval at individual, social (and societal) level.

EDUCATION-(SOCIETAL) RESILIENCE BINOMIAL AS POSSIBLE CRITICAL INFRASTRUCTURE

To overcome the simple observation of the dysfunctional relationship between security and educational directions – in a constructivist projection of national security, as it results from the pattern on which the latest two national defence strategies (SNAP, 2015 and SNAP, 2020) were built, the educational dimension is subsumed under the societal one –, I suggest an understanding of the functional education-(societal) resilience binomial as critical infrastructure. This subsector, which could be dubbed *Security Culture and Societal Resilience*, could be included in Annex 1 to the List of National Critical Infrastructure (NCI) sectors (a) under sector 6, dedicated to national security, (b) under sector 10, educational, established by Emergency Ordinance/EO no. 98/2010, (c) within sector 12, cultural – by Law no. 225/2018 regarding the amendment and completion of EO no. 98/2010 on the identification, designation and protection of critical infrastructures, sector 10, educational, called *"Space and Research"*, to which two more subsectors are added, 11 Financial-banking and 12 Culture and national cultural heritage (the latter with subsectors 12.1. Public cultural institutions and 12.2. Protection of national cultural heritage – or (d) as an independent, societal sector, defined by a legislative framework required by the future national strategy.

[4] This direction includes, among others, the promotion of cultural values and freedom, of democratic values, the promotion of scientific research, the optimisation of funding in the educational system, the reduction of inequity in the system, the correlation of educational policies with those in related areas, *"the strengthening of the security culture", "the implementation of projects to reform the educational and professional training systems"* (SNAp., 2020, p. 38), the latter, probably, implemented precisely through the package of education laws, without, however, configuring the coordinates of implementing and strengthening societal resilience as a key element of national security (N.A.).

Practically, the understanding of education-(societal) resilience as critical infrastructure requires its acknowledgement as intangible infrastructure, but it is likely this perspective that results in a high degree of reticence, leading to the exclusion of the educational sector from the sectors defined as national critical infrastructures. For a more correct projection, I suggest a review of the issue of intangible critical infrastructures, with the same aim of identifying the way in which, similar to the concept of *safety culture* (to which it is related), the concept of societal resilience can become a functional, applicable one, imposed through the national legislative framework, not suspended in a document, the National Defence Strategy, which does not produce effects on the Executive and, through the Executive, on the citizens.

The understanding of education-(societal) resilience as critical infrastructure requires its acknowledgement as intangible infrastructure, but it is likely this perspective that results in a high degree of reticence, leading to the exclusion of the educational sector from the sectors defined as national critical infrastructures.

PHYSICAL DIMENSIONS OF CRITICAL INFRASTRUCTURES

Critical infrastructures, although they more often than not refer to the supposed physical resistance structure of some systems, constituting those skeleton elements on which the stability, functionality and security of the systems as such and of their related processes depend, can actually go beyond the physical framework. One of the criteria on the basis of which a type of infrastructure is defined as critical is the very physical or presence criterion, which requires the precise identification of its place among other infrastructures and of some quantities that are directly connected to the physical criterion: surface, dispersion etc. (Alexandrescu, Văduva, 2006, p. 8). In the context in which the information infrastructure, for example, in the current global security environment, is not limited to the physical dimension of the information environment, but implicitly entails the actual information dimension as well as the cognitive (or decision-making) dimension, we can admit that critical infrastructures have broadened their semantic coverage and designate intangible components alike.

The concept of *"critical infrastructure"* has been used in this formula since 1996, when the President of the United States of America summarised, with this phrase, those vital elements of the national infrastructure, which, once destroyed, can lead to considerable negative effects on defence or economy, thus being

designed, from the very beginning, the association with the actual physical domain. Obviously, after the crucial moment of 11 September 2001, these infrastructures have become increasingly significant, and the set of elements that entered the wide and incompletely defined area regarding the conceptual operationalisation of the term have exceeded the list of the initially identified elements. Since the early attempts to define these infrastructures, the range of goods have also included the intangible, virtual ones, which can extend their meaning to the tangible ones that they imbue with critical value, such as material heritage elements, which have a decisive role in preserving the collective memory. Therefore, not only cyberspace, databases and communication systems qualify to be understood as critical infrastructures, but also elements of a symbolic order, which are part of a nation's cultural heritage.

With the development of the constructivist concept of "securitisation", applicable to critical infrastructures, it has been associated with the process of materialisation, in the field of intangible critical infrastructures included, shifting the focus on heritage elements carrying symbolic/ cultural values.

PHYSICAL AND VIRTUAL IN CRITICAL INFRASTRUCTURES

The literature in the field increasingly expands the concept of critical infrastructures in the virtual domain, focusing on social and cultural values, the latter being explicitly defined in a series of documents such as *The National Strategy for the Physical Protection of Critical Infrastructures and Key Assets* of the United States of America, 2003/NSPPCIKA: *"A key asset category includes a diverse range of monuments, symbols, national landmarks that represent our nation's heritage, traditions and values, as well as its political strength. They include a wide variety of sites and structures, such as relevant historical sites, monuments, living human treasures, government and commercial centers…"*. (NSPPCIKA, 2003, p. 71), as well as in the subsequent planning documents in this essential domain of security. On the one hand, with the development of the constructivist concept of *"securitisation"*, applicable to critical infrastructures, it has been associated with the process of materialisation, in the field of intangible critical infrastructures included, shifting the focus on heritage elements carrying symbolic/cultural values (Aradau, 2010). To counterbalance this trend in the first decade of the new millennium, the focus has been increasingly shifted on intangible values, especially social values, not only as a theoretical direction of study (Burgess, 2007), but also

at the level of public policies. On the other hand, cultural heritage – remaining connected to the concept of material heritage – projects links with the past for communities and thereby contributes to local economic development (Kamran, 2022), also constituting the foundation of a harmonious development of societal resilience around common values. It should also be brought into discussion that, even in the case of critical physical infrastructures, being visible and loaded with the significance of the role they have in national security, they also acquire an adjacent cultural significance, positive or negative, i.e. a kind of immaterial envelope with potential of social coagulation around the values they project. At the same time, an intangible dimension of these infrastructures is also created inside the organisations that serve the tangible critical infrastructures, consisting of the organisational culture with direct effects on the security culture within the limits of the critical objective (e.g. in the case of an airport or a nuclear power plant). This intangible envelope of critical infrastructures, included in or predetermined by the tangible elements of this infrastructure, is one of the possible starting points in shaping the debate on the cultural dimension of these infrastructures. For example, a number of niche concepts have developed in specialised terminology, such as that of nuclear security culture, defined as a *"... a set of characteristics, attitudes and behaviours of individuals, organisations and institutions that serve the means supporting and strengthening nuclear security; nuclear security culture aims to ensure that the implementation of nuclear security measures receives the attention justified by their significance"* (IAEA INSAG-24, 2010; apud Kosmowski, Śliwiński, 2016, p. 140).

A number of niche concepts have developed in specialised terminology, such as that of nuclear security culture, defined as a "... a set of characteristics, attitudes and behaviours of individuals, organisations and institutions that serve the means supporting and strengthening nuclear security; nuclear security culture aims to ensure that the implementation of nuclear security measures receives the attention justified by their significance".

The concept of *safety culture* (that led to the development of an independent area of study, dubbed *safety science*, out of which was, subsequently, developed the concept of societal resilience as an emanation of *societal safety*[5]), a term particularly developed in aviation,

[5] *"Safety science serves as an international environment for research in the field of human, technological, organisational and societal security"* (Boustras, Waring, 2020, p. 651, apud Haavik, 2020), in which *societal safety* is considered the area of interference of *human security, national security, incident management and sustainable management* areas. The concept of resilience developed on this dimension of societal safety, explicitly formulated by Haavik (2020): *"The notion of societal resilience suggests an expansion of the more popular discourse on societal safety and security, which will allow the safety science to reach a more broadly audience and to communicate with a wider research community, addressing development trends with significance not only for resilient criticalities and infrastructures, but also for socio-ecological-political resilience".*

is one of the concepts that define the intangible aura of physical critical infrastructures, contributing to the understanding of the fact that these infrastructures have a virtual component too, regardless of the physical characteristics of the critical structure. Therefore, talking about the two dimensions, tangible and intangible, of critical infrastructures, it can be concluded that all physical infrastructures have also an intangible envelope, while not all intangible critical infrastructures entail an associated physical dimension.

CONCLUSIONS. EDUCATION-SOCIETAL RESILIENCE BINOMIAL AS NATIONAL INTANGIBLE CRITICAL INFRASTRUCTURE

Virtual critical infrastructures, more often than not understood as the communication/information systems on which the security of the metasystems they are part of depend, are not limited to the virtual environment. For example, in the *Strategy for the Development of Romania in the Next 20 Years*, proposed by the Romanian Academy in 2016, project 9, *"Romanian culture between the national, localisation in the nearby, and universal areas – multilingual Europe, European culture"*, the integrated cultural projection is explicitly related to the information culture (in the second volume of the paper it is called digital culture), which exceeds simple digital literacy at the societal level, necessarily involving critical analysis and reflection, suggesting the cognitive dimension as an element of critical infrastructure or even an infrastructure in itself (Surdu, 2016, pp. 375-410). The strategy proposed by the Romanian Academy can be improved by adding to the field the subfield of security culture, which contributes to societal resilience. At the same time, this component included in the aforementioned strategy represents, in fact, only one of the already mentioned directions of security definition of the Romanian state as a resilient state. The other elements that contribute to meeting this desired end cannot be found in the pages of the document.

The National Defence Strategy is coherent, explicit and applicable. One of the ways in which the concept of resilience could be translated into concrete measures is its inclusion among critical infrastructures.

On the other hand, the National Defence Strategy (SNAP, 2020) is coherent, explicit and applicable. One of the ways in which the concept of resilience could be translated into concrete measures is its inclusion among critical infrastructures. However, resilience could be understood

as a purely intangible infrastructure (developing in the conceptual and research family of *safety culture*), which means that it would strike a discordant note with the aggregate of national critical infrastructure sectors defined by national legislation. This is the reason why the proposal formulated in chapter 4, whereby resilience can constitute the intangible envelope of a physical, tangible infrastructure, the national educational system could lead to the creation of an instrument through which the national defence strategy becomes applicable. The national educational system is not included in the set of sectors that contain critical infrastructures, and the relevant ministry is eliminated by Law no. 225/2018. The most appropriate formula would be to create a new NCI sector, of national education, within which to define the resilience subsector. However, as education means the transmission of culture from one generation to another, in the interest of a coherent implementation of all disparate and divergent projective documents, there is also the option of exploiting sector 12. Within the limits of this projective and theoretical framework, coming up with the arguments of a theme already debated in the specialised literature (Trump et al., 2017) regarding the convergence of the issue of societal resilience with that of critical infrastructures, the subsector *"Security culture. Societal resilience"* may be most appropriately included in the NCI sector 12 – *"Culture and national cultural heritage".*

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TERRORISM AND ORGANIZED CRIME – 21ST CENTURY THREATS TO CRITICAL INFRASTRUCTURES. AN ANALYSIS OF MOTIVATIONS AND *MODUS OPERANDI*

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In today's world, where globalization has led to the emergence of various state and non-state actors, including sub-national ones, with differing interests and motivations that often conflict with one another, the provision of essential services such as transportation, electricity, drinking water, medical and digital services, and others is of critical importance to contemporary society. About half a decade ago, when the critical infrastructures that provide these services were built, threats to them, such as terrorism, organized crime, asymmetrical or hybrid ones, were almost non-existent and not as much of a concern to the critical entities responsible for protecting them.

The present research is intended to carry out an analysis of two threats to critical infrastructures – terrorism and organized crime, with the aim of identifying their typology, the effects they produce, the method of operation employed by the non-state actors that conduct such activities.

The article's findings have demonstrated that ideological, political, and religious motivations of terrorist organizations, as well as the financial motivations of organized crime hold special significance as they yield effects in the modus operandi of these entities and also shape the response of law enforcement authorities.

Keywords: organized crime; terrorism; critical infrastructures; essential services; critical entities;

INTRODUCTION

The increase in the level of interconnectivity and the dynamics of vulnerabilities and threats to critical infrastructures have determined that the scope of critical infrastructure security should acquire new valences (National Critical Infrastructure Security Liaison Officer's Handbook, 2021) in increasingly diversified fields. Within these new types of threats, terrorism and organized crime have taken on new dimensions that require different approaches and resource allocations compared to previous periods. Moreover, in many countries, since the 1980s and 1990s, the transfer of key elements of critical infrastructure to private companies has been achieved. (Boin, Smith, 2006, p. 295).

The increase in the level of interconnectivity and the dynamics of vulnerabilities and threats to critical infrastructures have determined that the scope of critical infrastructure security should acquire new valences in increasingly diversified fields.

Under these conditions, the privatization of these companies has produced another dilemma due to the critical nature of the infrastructures. Although these infrastructures are of major importance in the framework of public management, they have moved out of the close sphere of control of state actors with the transfer of ownership from the public to the private sector (Ib., p. 296). This shift has made critical infrastructures possible targets for both state and non-state actors, such as terrorist organizations and organized crime (Riedman, Warden, 2017, p. 19).

This fact has brought benefits in terms of administration and private management, but it has also created new vulnerabilities, especially in the sphere of preventing and combating terrorism. In many cases, the fear of a possible terrorist attack paralyzed the operation of critical infrastructures for certain periods, as demonstrated by the false alarms following the 9/11 attacks (Boin, Smith, ib., p. 297).

TERRORISM – A THREAT TO CRITICAL INFRASTRUCTURES

Within the framework of research related to the impact of terrorism on critical infrastructures, there are three main approaches:

- the terrorist threat that uses non-lethal methods and means, namely the cyber threat (Lewis, 2002; Haimes, Longstaff, 2002; Shea, 2003; Chittester, Haimes, 2004; Wilson, 2014; Bologna, 2015);
- the lethal terrorist threat, or brute force, explosive devices, light weapons, vehicles etc. (Stewart et al., 2006; Frolov, Baecher, 2006; Patterson, Apostolakis, 2007; Stewart, Mueller, 2020);
- the terrorist threat that uses both non-lethal and lethal methods (Bennett, 2018).

Mueller and Stewart compare the financial damages of the 11 September 2001 terrorist attacks on the World Trade Center with those of natural disasters over time for which there is reliable information.

Terrorist acts share similarities with natural hazards but are distinguished by the malicious use of all the synergies they can produce (Apostolakis, Lemon, 2005, p. 361).

In this context, Mueller and Stewart (2011) compare the financial damages of the 11 September 2001 terrorist attacks on the World Trade Center with those of natural disasters over time for which there is reliable information. They find that the destruction caused by the 9/11 attacks resulted in approximately $123 billion in financial damages, far exceeding those caused by any natural disaster.

In an ideal environment, critical infrastructures would only be affected by minor errors. However, because of the impact of globalization on society, the technological developments and the easy access to disruptive technologies, threats such as terrorism and organized crime are increasingly present in critical infrastructures. This necessitates constant efforts to stay ahead of new types of actors (Pîrjol, Chisega-Negrilă, 2020, p. 14).

Boin and Smith (2006, p. 297) argue that most public state organizations, and especially private ones, lack administrative structures and have not developed processes to mitigate the risks

of a crisis caused by a terrorist event. They identify the challenges these organizations face in implementing measures to prevent and combat terrorism, such as:

- the impossibility of preventing and taking preparation measures against possible attacks;
- the ability to implement an early warning system;
- the decision-making capacity in crisis situations;
- the ability to respond to the crisis through measures of coordination, communication, management of complex events and public-private networks;
- the ability to return to the situation existing before the crisis.

Stewart and Mueller (2020, p. 1) analyse terrorist risks to critical infrastructures by examining the number of victims from attacks involving the use of lethal ammunition, explosives, or vehicles, correlated with the probability of death risks.

Stewart and Mueller analyse terrorist risks to critical infrastructures by examining the number of victims from attacks involving the use of lethal ammunition, explosives, or vehicles, correlated with the probability of death risks.

Analysing recent terrorist events, Stewart and Mueller (ib., p. 10) argue that a large-scale terrorist attack like the one on 11 September 2001 is not a predictor of similar future events but contributes to spreading panic and fear among the population. They note that the attacks in Madrid and London in 2004 and 2005, which involved explosive materials, were not followed by similar events in subsequent years. Instead, terrorist groups have used light weapons and vehicles to achieve their objectives. It suggests that, for terrorist organizations, the primary goal is not the specific target of the attack, but the message and magnitude of the event created through that target. The target is merely a means to produce an effect, and if the same effect can be achieved through a cyber attack, then that will likely be the means used.

Other researchers have focused in their analyses on the interpretation of the terrorist phenomenon from the perspective of the organizational capacity they have developed to which Zoli et al, (2018) attribute the name *"terrorist critical infrastructure"* (TCI). In their interpretation, the concept of TCI represents those physical or virtual systems or assets designed and appropriated by terrorist

actors to achieve certain objectives (Zoli et al., ib., p. 1). Stewart et al. (2006) analyse the correlation between critical infrastructures and the terrorist threat starting from the premise that this threat materializes through the use of explosives. Thus, they analyse the impact of the terrorist phenomenon on critical infrastructures from the perspective of the effects produced by the explosions caused by this threat and perform a probabilistic risk assessment that can be used to reduce the effects of explosion damage on critical infrastructures.

In the same context, Frolov and Baecher (2006, p. IX) appreciate that terrorist attacks represent those events that are very well planned and carried out on targets that can cause a strong social response. Therefore, they consider it an urgent measure to develop techniques and methods to estimate which the most likely targets for terrorist organizations are.

Rudner emphasizes the effects of terrorist attacks on public opinion and believes that a possible successful terrorist attack on critical infrastructure can erode public trust in the authorities. In this regard, the author considers that even an attack of this kind carried out on critical infrastructure on the territory of Canada can produce this type of effect on the territory of the United States of America and vice versa.

Rudner (2009, p. 777) emphasizes the effects of terrorist attacks on public opinion and believes that a possible successful terrorist attack on critical infrastructure can erode public trust in the authorities. In this regard, the author considers that even an attack of this kind carried out on critical infrastructure on the territory of Canada can produce this type of effect on the territory of the United States of America and vice versa (Ib.).

Patterson and Apostolakis (2007) use Geographic Information Systems (GIS) to correlate the geographical location of critical infrastructures and classify the geographic regions where these infrastructures are located according to the probability of terrorist acts. This classification provides decision-makers with the necessary information to manage the resources allocated for preventing and combating terrorism on critical infrastructures in correlation with the identified vulnerabilities.

Yao et al. (2020, p. 1), following the analysis of a case study of a *power-supply substation*, suggest that when the threat is solely of a terrorist nature, improving critical infrastructure protection measures is more effective than enhancing the redundancy of that critical infrastructure. Cyberspace represents the nervous system of a country,

composed of hundreds of thousands of interconnected computers, servers, routers, and networks that contribute to the functioning of critical infrastructures (Bush, 2003). All these devices in cyberspace, which control physical objects such as public transport networks, electrical stations and transformers, warehouses, fuel pumps, and more (Ib.), along with the Internet of Things (IoT), contribute to the operation, protection, and resilience of critical infrastructures (Pătrașcu, Nicoară, 2023). These technologies create both vulnerabilities and benefits for states, as they contribute to the increase in the gross domestic product and improve the quality of life for their citizens (Chittester, Haimes, 2004, p. 1).

Haimes and Longstaff (2002, p. 443) argue that the physical and cyber vulnerabilities of critical infrastructures cannot be interpreted separately within civil sectors compared to those of national security. It is because the strong dependencies between them, particularly in the realms of security and civil infrastructure, which can lead to cascading effects that amplify risks to critical infrastructures.

Cyber terrorism is a method by which actors can create a strategic vulnerability. Therefore, much of the early literature on cyber attacks is similar in description to the literature analysing air attacks on critical infrastructure in the two world wars.

Cyber terrorism is a method by which actors can create a strategic vulnerability. Therefore, much of the early literature on cyber attacks is similar in description to the literature analysing air attacks on critical infrastructure in the two world wars (Lewis, 2002, p. 2). Starting from this idea, the author compares the air attacks of the First and Second World Wars, when strategic bombing of critical infrastructure such as power stations or factories of military equipment and armaments created the same effects as cyber attacks today (Ib.)

ORGANIZED CRIME – A THREAT TO CRITICAL INFRASTRUCTURES

Although it does not receive as extensive analysis in specialised literature as the terrorist threat, organized crime plays a significant role in the analysis of threats to critical infrastructures, given that these infrastructures are major sources of financial resources. Marjanović and Nađ argue that, regarding the threat of organized crime on critical infrastructures, there are insufficient measures in place to protect

them and mitigate the risks posed by such criminal activity (2013, p. 77).

Moreover, the Europol report (EU SOCTA 2021) identifies organized crime as a source of instability for society and associates critical infrastructures with it by exemplifying the actions of organized crime through attacks carried out in cyberspace related to critical infrastructures. In the same vein, Grabosky (2014, p. 1) analyses the term organized cybercrime in correlation with national security and believes that the latter is threatened by organized crime that makes use of cyber methods and means.

The Europol report (EU SOCTA 2021) identifies organized crime as a source of instability for society and associates critical infrastructures with it by exemplifying the actions of organized crime through attacks carried out in cyberspace related to critical infrastructures.

Zabyelina and Thachuk (2022, p. 1) analyse the relationship between the private sector and organized crime and consider that the latter is primarily a threat to the private sector, which also creates consequences for government organizations arguing that, by establishing monopolies over entire sectors, competitiveness within the economy is weakened and government tax collections are reduced.

CONCLUSIONS

Today's critical infrastructures were constructed approximately half a century ago, a time when security was not the primary concern for critical entities or public authorities. However, in the present day, man-made hazards such as hybrid threats, including terrorism and organized crime, pose significant challenges to the protection of these critical infrastructures.

Cyber vulnerabilities are poised to become the primary threat to critical infrastructures (Cockayne, Roth, 2017, p. 25). This is because individual data, such as online activity, medical device data, or network data from sectors like transportation or critical infrastructure will increasingly be automatically stored. This trend creates vulnerabilities related to theft, destruction, or ransom.

Thus, the protection of critical infrastructures is a serious and essential matter for all state actors and critical private entities responsible for providing essential services to the population. This issue cannot be addressed by a single policy or institution since

critical infrastructures are targeted by both terrorist organizations, planning and executing attacks for ideological, religious, or political reasons (Romanian Law no. 535/2004), and organized crime groups carrying out actions for financial gain.

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DEMOCRATIC CIVILIAN CONTROL OVER THE ARMED FORCES IN THE CONTEXT OF THE ASPIRATIONS OF THE REPUBLIC OF MOLDOVA TO JOIN THE EUROPEAN UNION

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Based on the experience of other countries, in the current context of regional security, the enhanced relations with NATO, and the status of candidate country for EU membership, the Republic of Moldova has to pay increased attention to its security and defence. It includes not only increasing budget allocations for the defence sector, professionalizing the armed forces or participating with troops alongside other European countries in various theatres of operations, but also ensuring institutional transparency and rigorous implementation of EU standards of civilian democratic control over the armed forces. The effectiveness of democratic civilian control will contribute to enhancing national security and will bring the Republic of Moldova closer to the European community. This article briefly discusses the evolution of democratic civilian control over the armed forces of the Republic of Moldova from a theoretical and practical point of view and sets up some recommendations.

Keywords: civil military relations; democratic civilian control; armed forces; Republic of Moldova; defence and security;

PRELIMINARIES

With the fall of the Iron Curtain, most of the former Warsaw Pact states and those newly formed after the collapse of the Soviet Union chose the Western path of development, striving to build market economies and democratic institutions. In this process of democratization, reform of security and defence institutions, along with other institutional reforms, was and still is vital to ensure success. A genuine democracy can only function when transparent mechanisms for the oversight of security institutions, including the armed forces, are developed and implemented. For these reasons, most of the given states, including the Republic of Moldova, have adapted to their national needs the visions and experience of Western democracies in building civil-military relations, including the model of exercising democratic civilian control over the Armed Forces.

A genuine democracy can only function when transparent mechanisms for the oversight of security institutions, including the armed forces, are developed and implemented.

In the context of regional security, the deepening of relations with NATO, the acquisition of the status of candidate country for accession to the European Union (EU), the major social-economic changes in the country and the experience of other countries show us that the Republic of Moldova, in its process of accession to the EU, will have to pay increased attention to the field of security and defence, including rigorously implementing European standards in the military field. This involves not only increasing budget allocations for the defence sector, professionalizing the army or participating with troops alongside other European countries in various theatres of operations, but also ensuring institutional transparency by making civil-military cooperation more effective, an important part of which is democratic civilian control. Based on these considerations, in this article we will briefly discuss the evolution of democratic civilian control over the armed forces of the Republic of Moldova from a theoretical and practical point of view.

THE SITUATION IN THE RESEARCH AREA AND IDENTIFICATION OF THE INVESTIGATED PROBLEMS

It is a well-known fact that the tendency to impose the state by military force in international relations and those of state power generate destabilization and turbulent socio-political situations. Within society, the armed forces have always had a distinct position due to the fact that they are arms holders, being homogeneously designed, built and organized. At the same time, as they represent an element of stability and order, a possible lack of clarity in their roles and missions can produce negative aspirations and tendencies at the macro-social level (Năstase, Nicolae, 2006, p. 17).

Democratic control over the armed forces is exercised through democratic institutions, through the delimitation of the functions of state powers, to include security and defence, and also through the involvement of civil society organizations and media representatives.

Democratic control over the armed forces is exercised through democratic institutions, through the delimitation of the functions of state powers, to include security and defence, and also through the involvement of civil society organizations and media representatives. In the absence of functioning democratic institutions, control escalates or diminishes and can lead to conflict (Fluri, Johnsson, Born, 2003, p. 1).

In democratic states, civilian control over the military is ensured through the work of the relevant committee in the legislature, through the participation of civil society representatives in the development and implementation of policies in the defence and security sector, and through the supervision by various government institutions, nongovernmental organizations and the media of the activities implemented by the security institutions. The complexity of social actions or social organization, any *"social fact"* cannot develop if the security dimension, including the military one, is ignored, as well as its geopolitical, geo-economic and geo-cultural contexts. Building and consolidating the rule of law, by ensuring the functionality of the law, human rights and fundamental freedoms in the exercise of power, is also valid in the military field (Chirtoacă, 2003, p. 117).

Analysing the scientific literature, we can identify two stages in the research of civil military relations: until the end of the Cold War, when the studies carried out represented rather an analysis and detailing of the ideas put forward by the founders of the theory of civil-military relations; post-Cold War-period in which researchers analyse the establishment of civil-military relations in the post-communist space.

Despite the fact that civil-military relations emerged as an object of study at the intersection of several socio-political disciplines in the late 1950s-early 1960s, with the publication of monographs by Samuel P. Huntington (Huntington, 1957 p. 186) and Morris Janowitz (Janowitz, 1960, 528), it has attracted a steady interest especially from Western scholars. B. Abrahamsson (Abrahamsson, 1972, p. 16) and others also subjected the views of early researchers to criticism, which has contributed to the dynamic development of this field.

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Barry Buzan presented a clear delineation between the military and non-military aspects (Buzan, 2000, p. 122). Researchers J. Burk and Morris Janowitz were sceptical about the applicability of civil-military models of relations in advanced democracies to post-socialist states in Eastern Europe (Burk, Ianowitz, 1993, pp. 167-168). Aurel Croissant and David Kuehn analysed the process of reforming the defence system and military policy in the newly democratized states by looking at emerging (or failed) civilian control over the armed forces (Croissant, Kuehn, 2017). After the annexation of Crimea by the Russian Federation, Western analysts warned that the political instrument of arms control in Europe was severely damaged (Staak, 2018, p. 26), which became evident after the invasion of Ukraine by the Russian Federation on 24 February 2022.

In post-revolutionary Romania (1989) the conceptualization of civil-military relations has been analysed by several scholars, including Irina Ioana (Irina, 2015, pp. 221-226) and Marian Zulean (Zulean, 2007, pp. 275-278). Dan Laurențiu Mocanu, another Romanian researcher, has studied the issue of relations between the military and the civilian factor (politicians) who rule the state in a wider space (Europe, Africa) (Mocanu, 2020, pp. 76-82).

The research conducted in the academic environment of the Republic of Moldova on the reform of the armed forces also tangentially refers to issues related to the exercise of democratic civilian control. In this context, we highlight Vitalie Ciobanu's studies on the historical dimension (Ciobanu, 2011, p. 75). Political analyst Nicolae Chirtoacă specifies that the Republic of Moldova finds it difficult to assess the military-civilian connection due to the slow process of reforming the national security system (Chirtoacă, 2005, p. 64). Vadim Enicov has addressed the issue of the Supreme Security Council and democratic

control over the armed forces (Enicov, 2006, pp. 54-55). Researches of the democratic factor in the institutions of the military establishment in the Republic of Moldova have been carried out by political scientist Constantin Manolache and General Ion Coropcean (Manolache, Coropcean, 2008, pp. 237-242). In his previous works the author of the article addresses the issue of civil-military relations from a political science point of view in the worldwide scientific thinking (Marinuța, 2011) and civil-military relations in the Republic of Moldova in the context of building the rule of law (Marinuța, 2013). More recent relevant contributions to the study of the topic of democratic control over the Security sector have been made by the researcher Natalia Albu (Albu, 2020, pp. 28-52).

In the Republic of Moldova the subject of investigation is in the process of study, but insufficiently explored in scientific research, given the fact that democratic civilian control itself is in the process of being established, and the study of the process has not been of major interest to researchers or political exponents.

In general, we acknowledge that in the Republic of Moldova the subject of investigation is in the process of study, but insufficiently explored in scientific research, given the fact that democratic civilian control itself is in the process of being established, and the study of the process has not been of major interest to researchers or political exponents.

INSTITUTIONALIZATION OF DEMOCRATIC CIVILIAN CONTROL OVER THE ARMED FORCES IN THE REPUBLIC OF MOLDOVA

In the Republic of Moldova there is no separate document that would establish how to exercise civilian-democratic control over national security sector structures in general and the armed forces in particular. However, there are several legal acts and documents containing various provisions, which allow us to analyse the general approach to the subject. The most important documents in this context, presented chronologically, are: Constitution of the Republic of Moldova (1994); Concept of National Security (1995); Military Doctrine (1995); Law on State Security (1995); Law on State Security Bodies (1995); Concept of Military Reform (2002); Law on National Defence (2003); Concept of National Security of the Republic of Moldova (2008); National Security Strategy (2011); National Defence Strategy and Action Plan on the Implementation of the National Defence Strategy for 2018-2022 (2018); Information Security Strategy of the Republic of Moldova for 2019-2024; Information Security Concept of the Republic of Moldova

(2018), National Security Strategy of the Republic of Moldova (2023) and other sectoral normative acts.

The Constitution of the Republic of Moldova, adopted by the Parliament on 29 July 1994, defines the attributes, operating principles and main objectives of the state. The Supreme Law serves as the legal basis for state legislation and defines the basic principles of the rule of law and market economy. The Republic of Moldova is committed to building its institutions of government on the basis of respect for the fundamental rights of its citizens, which is derived from universal human rights (Constitution of the Republic of Moldova, 1994, Art. 5).

The Constitution of the Republic of Moldova, adopted by the Parliament on 29 July 1994, defines the attributes, operating principles and main objectives of the state.

In Article 11 of the Constitution, the Republic of Moldova proclaims its permanent neutrality and does not allow the deployment of military troops of other states on its territory. The Constitution only mentions the permanent neutrality status of the Republic of Moldova without specifying the means of achieving it, the rights and obligations of the state and of other internal and external actors deriving from this status. Over the years, this provision has been interpreted differently and has often been misused by the political class. It should be noted that, due to the misinterpretation of this permanent neutrality status, most governments after 1994 neglected the field of security and defence, which contributed to the weakening of national security capabilities especially in the field of defence. Also, Moldova's permanent neutrality was not and is not an effective tool to convince the Russian Federation to withdraw its military troops and ammunition from the territory of the eastern districts of the state.

According to the Constitution, the Parliament is the supreme representative body of the people of the Republic of Moldova and the sole legislative authority of the state. In order to exercise democratic civilian control over the armed forces, the Parliament uses the following constitutional provisions: it adopts laws, resolutions and motions; approves the state military doctrine; approves and exercises control over the state budget; declares partial or general mobilization; declares a state of emergency, siege and war; initiates the investigation and hearing of any matters concerning the interests of society. The establishment of a state of emergency, curfew and war is established also by the legislation in force.

The President of the Republic of Moldova is the supreme commander of the Armed Forces. According to the Constitution *"in the event of armed aggression against the country, the President of the Republic of Moldova shall take measures to repel the aggression, declare a state of war, and bring them to the attention of the Parliament without delay"* and *"may take other measures to ensure national security and public order, within the limits and under the conditions of the law"*. As part of the democratic civilian control exercised by the President is also the prerogative to confer distinctions and honorary titles, as well as supreme military ranks established by law. The fact that the President of the Republic of Moldova, a civilian, is, according to the Constitution, the supreme commander of the Armed Forces, shows the intention of the Moldovan authorities to develop democratic civilian control over the security and defence institutions.

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The Government ensures the implementation of the state's domestic and foreign policy, exercises the general management of public administration, and in performing its duties, is guided by the program of activities accepted by Parliament. The Government is accountable to Parliament and provides the information and documents requested by Parliament, the relevant committees and MPs. After the approval of the Constitution, the Parliament of the Republic of Moldova drafted and approved the legislation necessary for the proper constitutional functioning of the basic elements of the national security and defence system, including the tasks of the armed forces and state security structures.

One of the first important documents that defined the security and defence policy of the state was the National Security Concept of the Republic of Moldova, approved on 5 May 1995. Only after more than a decade, in 2008, this document was abolished and replaced by a new Conception. The 1995 National Security Concept of the Republic of Moldova included definitions of national security, state security and public security. According to this document *"national security means the protection of the individual, society and the state, their rights and interests, established by the Constitution and other laws of the Republic against external and internal threats"* (National Security Concept of the Republic of Moldova, 1995).

An important role in the initial determination of the defence role and responsibilities was played by the Military Doctrine, approved in 1995, the first strategic document regulating the basic principles of the organization of the defence sector of the Republic of Moldova. As it was based on the requirements of the hierarchically superior documents, the doctrine included the whole spectrum of elements of the state's national security. The main purpose of the military policy of the Republic of Moldova, as set out in this document, was to ensure the military security of the people and the state and to prevent wars and armed conflicts by applying the means of international law. Although over the years there was never any political will to implement this strategic document, its provisions were in force for more than two decades, being replaced in 2018 by the National Defence Strategy. One of the basic principles in the Construction of the Armed Forces stipulated in this Military Doctrine was *"democratic control by the supreme public authorities over the military leadership authorities and the Armed Forces decision-makers".*

The main purpose of the military policy of the Republic of Moldova, as set out in this document, was to ensure the military security of the people and the state and to prevent wars and armed conflicts by applying the means of international law.

Due to the lack of political will, other basic documents in the field of national defence were drafted and approved only at the beginning of the third millennium, after the Military Reform Concept was approved in 2002. According to the Concept, the foundation of the unitary national military security system was to become *"qualitatively reformed armed forces, effectively led by civilian and military authorities and equipped with mobilization resources and adequate military infrastructure"*. This strategic document required military reform to be carried out in three stages over the years 2002-2014 with a gradual increase in budget allocations *"from 0.7 per cent of GDP in 2002 to 2.5 per cent in 2014"* (Military Reform Concept, 2002).

The authors of the military reform warned the state leadership in the document itself that *"launching a military reform that is not financially secured leads to the destruction of the armed forces and the entire system of military security, as well as to discrediting the idea of such a reform"*. It may be noted that the budget allocations for defence from 2002 until now have not even come close to the figures proposed in this document, which has led to the complete deterioration of the national defence system and the capabilities of the armed forces to perform the constitutional missions *(table 1).*

Table 1. Budgetary allocations for defence in the Republic of Moldova for the period 2002-2024
(Author's design. Sources: SIPRI Military Expenditure Database, Moldova 2002-2021, https://www.sipri.org/databases/milex, retrieved on 15 March 2024).

YEAR	MIL. LEI MD	MIL $	% of GDP
2002	947.00	6.98	0.4
2003	115.00	8.25	0.4
2004	115.628	9.38	0.4
2005	150.696	11.98	0.4
2006	216.000	16.45	0.5
2007	275.800	22.72	0.5
2008	382.900	36.85	0.6
2009	276.700	24.91	0.5
2010	226.800	18.34	0.3
2011	269.600	22.97	0.3
2012	289.100	23.87	0.3
2013	336.200	26.71	0.3
2014	386.900	27.57	0.3
2015	433.800	23.05	0.3
2016	547.300	27.43	0.3
2017	571.200	30.93	0.3
2018	628.300	37.40	0.3
2019	746.900	43.01	0.4
2020	769.900	44.53	0.4
2021	914.400	52.29	0.3
2022	1.057.000	57.14	0.38
2023	1.697.163	91.74	0.55
2024	1.960.000	110,5	0.65

Budget allocations during this period were also much lower compared to other neutral states in the world *(table 2)*.

Table 2. Defence budget allocations in some neutral countries. % of GDP
(Author's design. Sources: SIPRI Military Expenditure Database, Moldova 2002-2021, https://www.sipri.org/databases/milex, retrieved on 15 March 2024).

YEAR	Moldova	Ireland	Austria	Finland	Sweden	Switzerland	Australia	Ukraine
2002	947/ 0.4	1289/ 0.6	3369/ 0.9	2599/ 1.2	6218/ 1.6	5239/ 1.0	17064/ 1.9	1382/ 2.0
2003	115/ 0.4	1236/ 0.6	3508/ 0.9	3300/ 1.4	3499/ 1.6	3600/ 0.9	17382/ 1.8	1665/ 2.1
2004	116/ 0.4	1254/ 0.6	3514/ 0.9	3499/ 1.5	5809/ 1.4	5885/ 0.9	18098/ 1.8	1823/ 2.0
2005	150/ 0.4	1271/ 0.5	3439/ 0.9	3600/ 1.5	5885/ 1.4	4930/ 0.8	18730/ 1.8	2424/ 2.4
2006	216/ 0.5	1260/ 0.5	3303/ 0.8	3665/ 1.4	5793/ 1.3	4693/ 0.8	19731/ 1.8	2720/ 2.4
2007	275/ 0.5	1269/ 0.5	3928/ 0.9	3453/ 1.3	5945/ 1.3	4722/ 0.7	20943/ 1.8	3306/ 2.5
2008	383/ 0.6	1315/ 0.6	3807/ 0.9	3722/ 1.4	5288/ 1.2	4837/ 0.7	21707/ 1.8	3234/ 2.3
2009	277/ 0.5	1298/ 0.6	3555/ 0.8	3907/ 1.6	5186/ 1.2	4832/ 0.7	23342/ 1.9	2311/ 1.9
2010	227/ 0.3	1237/ 0.6	3554/ 0.8	3821/ 1.5	5612/ 1.2	4667/ 0.7	23614/ 1.9	2400/ 1.9
2011	270/ 0.3	1172/ 0.5	3454/ 0.8	3882/ 1.5	5277/ 1.1	4792/ 0.7	23287/ 1.8	2159/ 1.5
2012	289/ 0.3	1110/ 0.5	3408/ 0.8	3930/ 1.5	5387/ 1.1	4704/ 0/7	22471/ 1.7	2440/ 1.6
2013	336/ 0.3	1104/ 0.5	3276/ 0.8	3954/ 1.5	5418/ 1.1	5107/ 0.7	22276/ 1.6	2497/ 1.6
2014	386/ 0.3	1101/ 0.5	3303/ 0.7	3751/ 1.5	5741/ 1.1	4627/ 0.7	24176/ 1.8	3431/ 2.2
2015	434/ 0.3	1103/ 0.3	3158/ 0.7	3835/ 1.4	5802/ 1.1	4819/ 0.7	26650/ 2.0	4187/ 3.3
2016	547/ 0.3	1112/ 0,3	3399/ 0.7	3850/ 1.4	5879/ 1.1	5013/ 0.7	29183/ 2.1	4278/ 3.2

YEAR	Moldova	Ireland	Austria	Finland	Sweden	Switzerland	Australia	Ukraine
2017	571/ 0.3	1118/ 0.3	3569/ 0.8	3785/ 1.4	5879/ 1.0	5043/ 0.7	29130/ 2.0	4276/ 2.9
2018	628/ 0.3	1142/ 0.3	3590/ 0.7	3895/ 1.4	6073/ 1.0	5079/ 0.7	28435/ 1.9	5087/ 3.2
2019	747/ 0.4	1199/ 0.3	3671/ 0.8	3935/ 1.4	6610/ 1.1	5453/ 0.7	29206/ 1.9	5811/ 3.5
2020	769/ 0.4	1215/ 0.3	4094/ 0.9	4101/ 1.4	6879/ 1.1	6602/ 0.9	30633/ 2.0	6455/ 3.8
2021	914/ 0.3	1267/ 0.3	4196/ 0.9	3752/ 1.3	7582/ 1.2	6214/ 0.8	32718/ 2.0	5942/ 3.2
2022	1057/ 0.4	1208/ 0.3	3783 /0.8	5089/ 1.7	8491/ 1.3	6241/ 0.8	32824/ 1.9	43983/ 33.5

One of the basic principles of the construction and cooperation of the armed forces with similar structures of other states was to become democratic control over the armed forces.

In the course of his work, including as Minister of Defence of the Republic of Moldova in the period 2009-2014, but also afterwards, the author of this study has mentioned on several occasions in the national and international press, at various events and debates about the lack of investment in the defence system of the Republic of Moldova, warning about the consequences of ignoring investment in the defence field and about the fact that this attitude of governments towards the defence field makes the state very vulnerable to future external threats. With the invasion of Ukraine by the Russian Federation, the Moldovan government started to pay more attention to the armed forces and the defence sector.

According to the Concept, one of the basic principles of the construction and cooperation of the armed forces with similar structures of other states was to become democratic control over the armed forces. This is the document that, for the first time, mentions the implementation of civil society control over the defence sector and outlines the principles underlying this control: a) democratic election of public authorities and their accountability to the people; b) delimitation of the powers of public authorities in the field of national defence; c) legislative regulation of the organization and functioning

of the armed forces; d) legal assistance to civil authorities in carrying out control.

Although the 2002 Military Reform Concept paid particular attention to democratic control over the armed forces, the Law on National Defence, approved by the Moldovan Parliament a year later, says practically nothing about the importance of this control for the democratic development of the state and the national defence system.

On 22 May 2008, the Moldovan Parliament adopted the National Security Concept of the Republic of Moldova, which made a general assessment of the national and international security environment, and also defined the *"purpose of national security, basic guidelines for national security, values and general principles"* that were to be protected. In that Concept, as in the 2002 Military Reform Concept, the participation of civil society, the media, human rights organizations and relevant international bodies in monitoring the activities of security and defence structures was encouraged. One of the objectives of the national security sector reform process, according to this strategic document, was supposed to be *"the establishment of mechanisms for effective civilian control over the armed forces and the entire national security sector, as well as the creation of appropriate instruments for the formation of the national security sector budget"* (Concept of National Security of the Republic of Moldova, 2008). However, at that time the involvement of civil society in the Armed Forces control activity was practically non-existent.

On 15 July 2011, the Moldovan Parliament approved the National Security Strategy, which states that the national defence policy *"is based on the fundamental principle of ensuring democratic control over the armed forces by promoting transparency and accountability of the national defence system to society"*. According to the provisions of this strategy, one of the main objectives of Moldova's cooperation with NATO in the framework of the Individual Partnership Action Plan is to *"establish mechanisms for genuine democratic control over the national security sector"* (National Security Strategy, 2011, art. 3.3).

On 19 July 2018, the Parliament of the Republic of Moldova approved the National Defence Strategy and Action Plan on the Implementation of the National Defence Strategy for 2018-2022, which entered into force on 3 August 2018. In this document, the definition of democratic

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Although the 2002 Military Reform Concept paid particular attention to democratic control over the armed forces, the Law on National Defence, approved by the Moldovan Parliament a year later, says practically nothing about the importance of this control for the democratic development of the state and the national defence system.

control over the national defence system is given, which is *"a series of mechanisms, procedures, laws, standards and traditions, through which h civilian political authority (examination and supervision of the decision-making process) is exercised, by empowered institutions, over the components of the national defence system"* (National Defence Strategy and Action Plan on the Implementation of the National Defence Strategy for 2018-2022, 2018). It should be noted that the essence of control over security and defence structures is not only its implementation by a civilian power, which can be authoritarian or even dictatorial, but the existence of a democratic system of control, which has its legitimacy as a result of free elections and acts strictly in accordance with the Constitution and legal norms and includes the civil society and the media.

The Strategy Implementation Plan also includes a point on strengthening civil-military cooperation mechanisms, which are supposed to be exercised on a permanent basis, including through various external technical and financial assistance projects and programs between Parliament, the Government and other public authorities.

Although this strategy specifically mentions that its implementation will take into account the civilian-democratic control over the national defence forces, transparency in decision-making and strategic communication, the implementation plan of this strategy only mentions the application of parliamentary control mechanisms to the processes of reforming the national defence system. This control is supposed to be implemented on a permanent basis by the Committee on National Security, Defence and Public Order within the limits of budgetary allocations by requesting reports and organizing hearings of institutions with responsibilities in the processes of reforming the national defence system. The Strategy Implementation Plan also includes a point on strengthening civil-military cooperation mechanisms, which are supposed to be exercised on a permanent basis, including through various external technical and financial assistance projects and programs between Parliament, the Government and other public authorities.

Shortly after the approval of the National Defence Strategy and the Action Plan for the Implementation of the National Defence Strategy for 2018-2022, the Government, at the proposal of the Ministry of Defence, approved the Military Strategy and the Action Plan for the Implementation of the Military Strategy for 2018-2022 (2018). According to this document, *"democratic control over the armed forces means that all decisions on defence policy and the construction of the armed forces are made in a transparent manner, being controlled by civilian authorities, democratically elected or appointed"*, and *"respect for the principle of democratic control of the armed forces is the basic idea that legitimizes the actions taken by state authorities, through the armed forces, for the military defence of the Republic of Moldova"* (Sect. 2, art. 18). Although the Military Strategy establishes democratic control over the Armed Forces as the basic idea limiting the state's actions in the military field, this document does not have any specific objectives from the perspective of democratic civilian control, and no activity in the implementation plan of this Strategy is dedicated to this field. Also, in this document, as in many others, the role and importance of the civil society and the media in the implementation of civilian-democratic control over the armed forces is not mentioned.

ROMANIAN MILITARY THINKING

On 29 November 2022, in response to the dramatic changes in the global and regional security environment imposed in particular by the Russian Federation's invasion of Ukraine, Maia Sandu, President of the Republic of Moldova, set up a commission to *"conduct a comprehensive analysis of the security sector"* and *"draft the National Security Strategy of the Republic of Moldova"* (Presidential Decree of the Republic of Moldova, 2022). In the Commission were included most members of the Cabinet of Ministers, presidential advisers and representatives of civil society (Ib.). The process of drafting the National Security Strategy was transparent and involved also our international development partners.

The Strategy is a document valid for the current period and the only strategic document since the proclamation of Moldova's independence in which the Russian Federation is clearly mentioned as a threat to national security.

On 15 December 2023, after a series of public consultations, the National Security Strategy was approved by the Moldovan Parliament. The Strategy is a document valid for the current period and the only strategic document since the proclamation of Moldova's independence in which the Russian Federation is clearly mentioned as a threat to national security. The strategy also specifies that the war in Ukraine is most affecting national security, including the economic, financial, energy, law and order spheres. According to the document, hostile actions against the Republic of Moldova by the Russian Federation will continue in the future, which means that we are about to find ourselves in the conditions of a long-lasting and high-intensity hybrid war. The document pays particular attention to the fight against corruption, the strengthening of the security and defence sector and the resolution of the Transnistrian conflict (Ch. IV, art. 19.4).

The new National Security Strategy outlines three key objectives: a) protecting and guaranteeing the safety of all citizens; b) creating a strong and respected state; c) joining the EU, where peace is guaranteed. According to President Maia Sandu's statements, *"to achieve these objectives, action will be taken along several lines: increased investment and strengthening of the defence and security sector; gradual progress towards the resolution of the Transnistrian conflict; security partnerships will be established with the most developed and prosperous democratic countries of the world; the fight against corruption will be intensified and strong law enforcement institutions will be created; the Republic of Moldova will contribute to regional and international security"* (President Maia Sandu, 2023).

In order to achieve the President's Vision, which is part of the strategy, attention will be paid to "strengthening civilian control over the entire security system".

The need to implement control over security and defence structures in the new National Security Strategy is mentioned only once. In order to achieve the President's Vision, which is part of the strategy, attention will be paid to *"strengthening civilian control over the entire security system".* In the view of the author of this article, the use of the term *"civilian control"* instead of *"civilian-democratic control"* or *"democratic control"* essentially diminishes the importance of the control exercised by society over defence and security structures and could contribute to its excessive politicization.

On the same day as Parliament approved the National Security Strategy, the Moldovan Government extended for another year the implementation of the *Moldova-NATO Individual Partnership Action Plan for 2022-2023*, originally approved in January 2022 (Moldova-NATO Individual Partnership Action Plan for 2022-2023, 2022). In this basic document of cooperation with NATO, the Republic of Moldova considers *democratic control* (not civilian control) over the armed forces as essential for a *democratic society* and an indispensable element for stability and security (Ch. I, art. 1.5). Moreover, the Individual Partnership Action Plan states that strengthening the role of *democratic control* over the armed forces will contribute to good governance and to guaranteeing and ensuring the security, including military security, of citizens (Ib.). The Republic of Moldova is committed to increasing the role of Parliament and its committees in overseeing the security and defence sector, strengthening the role of civilians in decision-making at all levels, implementing democratic standards in the restructuring process, involving civil society in policy-making etc. (Ib.).

Analysing the National Development Strategy *"European Moldova 2030"*, the Governance Program of Natalia Gavriliță and Dorin Recean, the National Development Plan 2023-2025, as well as the new National Security Strategy, we can see that none of these documents refer distinctly to the need to implement a rigorous *democratic civilian control* over the institutions of the national security and defence sector and the necessary instruments for this process. In the current context of fighting corruption and increasing financial allocations to the security and defence sector, the National Security Strategy has failed to send a strong signal to society not only about the dangers and threats to national security or the need to develop the structures ensuring national security and defence, but also about the intention of the current authorities to keep them under *democratic civilian control*, which is no less important than the first two aspects.

CONCLUSIONS

Some experts consider that the Republic of Moldova is facing several major systemic shortcomings in the security and defence sector, which have consequently contributed to the emergence and evolution of most of the current problems in the social, economic, informational, military and other fields. In their opinion, the exclusion of the military instrument from the strategic act of governance is the main cause of most of the state's problems not only in the field of security and defence and has contributed to *"missing the opportunity to promote the security culture among the political elite and society as a whole, a deficiency recently accentuated by the regional security situation"* (Tinevschi, 2023, p. 2). Under these circumstances, the increase in defence budget allocations by the Republic of Moldova in recent years following the Russian Federation's invasion of Ukraine is beneficial and much needed, but other systemic measures are also needed, which would produce long-lasting strategic effects and benefits (Analysis, 2024).

Under these circumstances, the increase in defence budget allocations by the Republic of Moldova in recent years following the Russian Federation's invasion of Ukraine is beneficial and much needed, but other systemic measures are also needed, which would produce long-lasting strategic effects and benefits.

Following the adoption of the National Security Strategy, the process of reviewing the National Defence Strategy was initiated. Representatives of civil society, academia and science are missing

from this commission and are no longer included in the defence policy-making process. The composition of the Commission for the development of the National Defence Strategy of the Republic of Moldova includes only representatives of state institutions, most of them being nominated to their positions based on political affiliation. The role of the associative structures of experts in the field of national and international security and defence in this commission is limited to providing assistance in case of need.

In this context, the impression is created that the state authorities, even if they are currently represented by a party with European aspirations, which is much more open to the possibility of civil society and media involvement in state policy making, on the subject of democratic civilian control over the armed forces, like all previous governments, do not do much, but pretend to implement a transparent and inclusive process. This could in the future erode citizens' trust not only in the armed forces, but also in the process of European integration and democratization of the Republic of Moldova.

In the context of the Republic of Moldova's aspirations to accede to the European Union and the regional security situation, it is necessary to re-evaluate civil-military relations and the way democratic civilian control over the armed forces is exercised in order to ensure institutional transparency and increase public confidence not only in the military but also in the government.

In conclusion it can be mentioned that:

- ❖ Effective *democratic civilian control* over the security and defence sector, including the Armed Forces, is a vital necessity for ensuring the democratic development of any state, national security and prosperity of the people.
- ❖ Due to democratic development aspirations, the cooperation with NATO and with Euro-Atlantic strategic development partners, the imperative of *democratic civilian control* over the armed forces is reflected in most of the strategic documents of the Republic of Moldova.
- ❖ However, a genuine system of *democratic civilian control* over the armed forces has not yet been created in the Republic of Moldova, and its implementation is more likely to be carried out on a permanent basis through a mix of *civilian control* approaches, exercised by ruling party representatives and some loyal to them civil society representatives.
- ❖ In the context of the Republic of Moldova's aspirations to accede to the European Union and the regional security situation, it is necessary to re-evaluate *civil-military relations* and the way *democratic civilian control* over the armed forces is exercised in order to ensure institutional transparency and increase public confidence not only in the military but also in the government. The effectiveness of *democratic civilian control* will contribute to enhancing national security and bring the Republic of Moldova closer to the European community.

In order to develop an effective system of democratic civilian control over the armed forces, it is not only necessary to rely on the experience and specialists of advanced democracies but also to involve national military and civilian specialists, representatives of the associative sector and the local media.

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ROMANIAN
MILITARY
THINKING

INFORMATION FLOW MANAGEMENT REGARDING THE FUNCTIONING OF PUBLIC AUTHORITIES IN CRISIS SITUATIONS

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For the management of information flow, the use of the functional modelling methodology is proposed, as part of the graph theory for describing the functioning of systems, such as public authorities as organizational-management structures. The methodology is based on concepts such as functional block and interface arc (flow). In organizational-management structures, one of the functional blocks is the manager, and the others are managed. Each of the blocks is a source of information and generates information flows, transferring information to a managed functional block or several ones. For the implementation and management of information exchange by the public authorities in crisis management, processing and protection of data flow, when working in a group environment, it is proposed to build an adequate communication and information system using the methodology of functional modelling.

Keywords: functional modelling; information flow; crisis management; public authorities;

INTRODUCTION

In order to describe information flows, the methodology of functional modelling is used, as part of the graph theory for describing the functioning of systems, such as administrative structures. As a standard, it was developed in 1981 and offered to the United States Air Force. The methodology is based on concepts such as functional block and interface arc (flow).

The functional block is expressed as a rectangle with an input, an output, a controlling effect and a mechanism.

Between two blocks flows are created, called interface arcs and expressed by arrows. Flows could be as follow:

- Material (materials, details, goods);
- Financial (money, investments);
- Resources (employees, machines, equipment);
- Informational (information, data, documents, oral orders etc.).

In organizational-management structures, one of the functional blocks is the manager, and the others are managed. Each of the blocks is a source of information and generates information flows, transferring information to a controlled functional block or several such blocks. They, in turn, transform the information and create new flows that carry information to other subsystems, data stores or external entities.

In organizational-management structures, one of the functional blocks is the manager, and the others are managed. Each of the blocks is a source of information and generates information flows, transferring information to a controlled functional block or several such blocks.

DATA FLOW, INFORMATION ENVIRONMENT AND GROUPWARE

Data flow defines the information transmitted by a given transport (communication) medium from a data source to a data receiver. Information can be transferred between:

- Two devices, such as service control signals circulating between modems or more modern data transmission equipment – hub, switch and others;
- By non-electric means, such as military postal and signal;

- Through an electrical medium, such as wired or wireless means and networks – radio, radio relay, tropospheric, satellite, optical and others.

The flow of data can go through or bypass the routes created by the communication environment built, through different communication means and networks.

Each data stream has a name that defines its intended use structure. For example, leadership, management, interaction, coordination or cooperation etc. Such flows circulate, both horizontally and vertically, between officials from the various organizational units of the organizational structure.

Information flows represent the sequential movement of information, data and documents from the moment of their creation or receipt, through processing and use, to the moment of their transmission for storage in or outside a given functional (organizational) unit.

It can be summarized that information flows represent the sequential movement of information, data and documents from the moment of their creation or receipt, through processing and use, to the moment of their transmission for storage in or outside a given functional (organizational) unit.

Streams have the following characteristics:

- Every object has flows – incoming and outgoing;
- Control flows are only information flows and document flows. For document flows, the following is important:
  - The mutual relationship between the documents;
  - Timeliness of their preparation;
  - The rationality of processing;
  - The route taken by each document and the operations performed on it sequentially by the different organizational units.

Functional modelling methodology is also associated with the theory of Data Flow Diagrams (DFD).

For the implementation of information flows in the organization, the information environment is built. It is part of the functional (working) environment of the command-and-control authorities and consists of **information resources** and an **organization created for their use.** The goal is to optimize the processes of perception and processing of information flows, by meeting the quality requirements, presenting data and information in the appropriate type, form and manner (method), in order to maintain general situational awareness (Demirov, 2019).

Thus defined, the information environment is both a subsystem of the Communication and Information System (CIS) and an important component of the process that supports decision-making in a crisis situation. Thanks to the performed functions, conditions are created and monitoring is carried out on the optimal perception of the generally connected operational picture, as well as proposals for corrective actions in case of their violation.

Information resources cover:

- the individual means of exchange, display and primary processing of data and information (directly or indirectly);
- End terminal devices, for the relevant type of data and/or information;
- Local networks, distinguished by the type of exchanged data (information);
- Systems for storing information arrays and data arrays, on a local scale;
- Systems for secondary processing of data and/or information forming the set of information services provided to a specific authority for command and/or control and its infrastructures;
- Software applications for monitoring the processes of perception of the provided data and information, as well as for developing proposals for their correction;
- Software applications for the management of the information environment.

The information environment is both a subsystem of the Communication and Information System (CIS) and an important component of the process that supports decision-making in a crisis situation. Thanks to the performed functions, conditions are created and monitoring is carried out on the optimal perception of the generally connected operational picture, as well as proposals for corrective actions in case of their violation.

The organization for the use of information resources is a system of rules, procedures, activities, protocols, standards, which describes the specifics of working with the provided information resources and is based on the requirements arising from the accumulated knowledge. It should be taken into account that the basis for the creation of such an organization is represented, first of all, by the accepted concepts about the use of forces and means, supplemented by regulatory documents related to the use of a given information technology.

As it is known, the most popular model for making a management decision is described by the conditional division of the activities of the command-and-control system into four processes – **observation, orientation, decision** and **action**. The effective and efficient running of these processes and their results, as well as the characteristics

of the management system depend significantly on the availability of data and information, on their quality indicators and on the processes and speed of perception and processing by the subjective factor. At the same time, the optimal information environment provides not only the appropriate conditions for it to take place, but also allows:

- Additional redirection of data and information flows to those elements of management bodies (departments/teams of experts) that have defined needs and are authorized users, in accordance with their duties and area of current tasks;
- Prioritization if necessary;
- Monitoring and evaluation of the relevance of the developed general operational picture to the real operational situation.

For the achievement of information flows in a group environment, the created information environment for groupware is based on the classical approach of the methodological sequence of describing the structure of the environment, by using three types of architectures: functional, system, and technical.

In the day-to-day management activity, things depend on the repeated implementation of events related to the change of the operational environment in the functioning of the organization. For its continuous and reliable existence, the main activities of the management cycle are carried out, and these are the collection and processing of data about the situation, decision-making and the setting of tasks for implementation. Since these activities are repeated and labour-intensive, they are automated by creating an information environment for group work (Groupware). Thus, the accepted understandings of daily operational work are the main factor determining the content of the information environment. Working in a group environment (Groupware) can be defined as an activity carried out by employees to perform tasks in real time (on-line) using a set of information and communication services based on modern technical and software solutions.

In an informational aspect, working in a group environment (Groupware) is seen as the integration of applied software products to support employees in their daily activities.

For the achievement of information flows in a group environment, the created information environment for groupware is based on the classical approach of the methodological sequence of describing the structure of the environment, by using three types of architectures: functional, system, and technical (NATO Open Systems Working Group).

The **functional architecture** describes the functions that the created information environment must provide. The **system**

architecture is a description of the integration between the individual systems, subsystems and modules providing information services. The **technical architecture** covers the implementation of these services, through appropriate technical and software tools and their standards.

Functionality is related to the description of the purpose, services, processes, flows and tasks that are for a particular operation. The services and information flows depend on the assignment of the specific command and control system, the mutual relations and dependencies between the officials in the collective body (headquarters) and what part of them is subject to automation.

Flows in groupware are physical and virtual sequences of activities – actions, connections, dependencies and others, which result in a certain completion (achievement of a certain result), for example, organizing a document flow.

The flows are related to the tasks and processes performed by the officials in the course of the execution of certain collective activities, for which the implementation of certain information services is necessary.

Information services are developed based on the use of the methodology for the architectural configuration of the information environment (NATO Open Systems Working Group). It passes successively through three levels – functional, technical and software. Each of these levels consists of three groups of physically distinct objects or interfaces and delegated subordination (or coordination) relationships to them. The latter represent the directions for integration of the respective objects according to the one-to-many, one-to-one or many-to-many rules.

The methodology for the architectural configuration of the information environment ensures that the belonging of any object to the correct level will be preserved and that the definition of essential aspects of the information services will not be omitted.

The methodology for the architectural configuration of the information environment ensures that the belonging of any object to the correct level will be preserved and that the definition of essential aspects of the information services will not be omitted. On the other hand, in the planning process, sufficiently clear criteria can be set, both in relation to a given information service and to the qualities of the communication and information system.

The definition of information services is the starting point for meeting the information needs of the management bodies at a given

level. In this regard, user services are defined and individualized, and adequate work or information processes are organized.

Workflows for collaboration include:

- Defining a work process and determining a process schedule;
- Definition of sub-processes and assignment of tasks between officials;
- Publication of process execution results;
- Starting a stopped process and operational jump;
- Managing and administering processes.

The management process includes the definition of a process related to the management of various objects and entities, for example, material, technical and informational resources, personnel, transactions etc.

Tasks are elements of the workflow, which is accompanied by a certain information flow, for which an information environment and information networks are created, for which software and technical means are needed. These are, for example, MS Office and a suitable computer and computer network.

A process can consist of one or more streams and in general can be considered as a graph. The flow is actually a one-dimensional process, i.e. a chain sequence of activities, such as:

Document flow – organizing a flow for working with a document (Workflow) in the Web – the environment between users who have different roles: creator of a document, approver, readers of documents, filing the document with a registration number, printing the document and others;

Work flow – organizing a flow related to the execution of a sequence of activities between different users or groups during data processing (collection, processing with relevant mathematical means, publication);

Information flow – organizing a flow related to receiving, processing, summarizing, analysing and providing information to the relevant head of the organization.

Tasks are elements of the workflow, which is accompanied by a certain information flow, for which an information environment and information networks are created, for which software and technical means are needed. These are, for example, MS Office and a suitable computer and computer network.

Operations are components of tasks (subtasks) and describe specific actions that can be automated through the capabilities of the collaborative environment. For example, preparing a table or graph in a given document.

Summarizing, it can be concluded that in group work, activities such as *information processing, joint discussion, document handling, workflow management* are performed (Vasileva, 2020). Some examples and characteristics are briefly presented as follows:

❖ *Information processing*

- E-mail: preparation of messages; send/receive messages; file sharing;
- Geographic information system (GIS): use of map information – 2D and 3D images; use of geographic database and analysis of information; means of depicting situations etc.

❖ *Joint discussion (briefing)*

- Information exchange of the *"black (white) board"* type: exchange of graphic information – maps, schemes, diagrams etc.; exchange of text information – sending messages – between two and more users.
- File transfer: file sharing (text, graphics, audio, video etc.) between two or more users.
- Video and audio conferencing: video and audio connection between users; videoconferencing mode.
- Web-portal: publishing documents and information; this also applies to the use and exchange of information from a website.

In group work, activities such as information processing, joint discussion, document handling, workflow management are performed.

❖ *Document handling:*

- Office services: document preparation; use of spreadsheets; preparation and presentation of reports; preparation of event schedules; file management and more.
- Compilation of tabular and text documents: entering information; summarizing information from different users; collaborative work on documents; integration with automated information systems and GIS; publishing and electronic signing.

❖ *Task setting.*

- Sending/receiving commands and alerts.
- Workflow Management
- Creation and transfer of mobile user profiles: user authorization; loading the user profile from a given workplace.
- Use of common network resources: printers, faxes, scanners; projection device with a screen for presenting information.

- Connection between two separate points: data exchange; video and audio connection.
- Connection with automated and field security information systems.
- Internet connection (on a separate network).
- Integration of the systems from the individual points: organizing a distributed database; creating a virtual user environment for accessing information; use of shared information resources.

The next step of the approach is to define the system characteristics, i.e. how the described functionality is provided at the system level. An important element in the system design is to have a clear vision of the collaborative environment that will be built. For example, it should correspond to the actual state of affairs, be based on the corresponding information and communication platforms that will be used, analyse the existing experience in this field etc. Before defining, in detail, the individual subsystems, it is necessary to clarify the system integration between them, i.e. the degree of dependency, compatibility, and interface connections that will be built.

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The **functionality** set above, based on the relevant **services**, **processes**, **flows**, **tasks** and **operations**, is achieved through the design of appropriate **functional subsystems**, **operational subsystems** and **software-technological subsystems**.

The **functional subsystems** are mainly information and communication subsystems, through which the necessary spectrum of services is provided. Examples of such systems providing the above services are the following: groupware system, geographic information system, modelling and simulation system, decision support system; messaging system; video conferencing system and communication system.

Operational subsystems are various information-accounting, planning and other subsystems, which serve mainly for data processing, calculations, performing various operational actions etc.

The software-technological subsystems ensure the functioning of the remaining subsystems – operational and functional, being the basis that the latter use. The most important systems (subsystems)

from this group for building the information and communication work environment are as follows:

- Operating systems –MS Windows server, Linux server, MS Windows, Linux, Ubuntu, Mac OS, Android OS etc.;
- Database management systems – MS SQL, Oracle, IBM Db2 DBMS, Amazon RDS, Postgres SQL etc.;
- Technological systems – MS Share Point Portal server, MS Office Communicator, GIS-server, Web-server, Cisco Call Manager (IP-telephone exchange) and others.

The final step of the approach to building an information system for collaborative work is defining the technical characteristics, i.e. the technical means employed to achieve this environment (at the physical level). Initially, an overview is given of the **overall technical implementation** of the collaboration environment, paying attention to all the more essential components. This is followed by a **check of the technical compatibility** of the various software and technical tools that make up the information and communication work environment, a check of the standardization of the interfaces etc.

The final step of the approach to building an information system for collaborative work is defining the technical characteristics, i.e. the technical means employed to achieve this environment (at the physical level).

The information and technical means serve to provide information to the systems. As such, the following can be mentioned:

- Information servers – physical computer machines with specified parameters for providing general (mainly information) services;
- Personal computers or other user devices (BYOD – Bring Your Own Device) – physical machines for individual work and for obtaining information services;
- Peripheral and auxiliary devices – printers, scanners, plotters, web cameras etc.

The communication-technical means serve to ensure communication of the systems. As such, the following can be mentioned**:**

- Communication servers – physical computer machines with specified parameters for providing general communication services;
- IP-phones – physical machines for individual work and for receiving communication services;

- Network devices – switches, routers and other intermediate devices, structured cabling system, communication cabinets and more.

The general technical means serve to provide the information and communication environment for reliable work. As such, the following can be specified: guaranteed power supplies, air conditioning installations, electric cable network etc.

Based on the characteristics specified in this way, by using the proposed approach, an architecture of the information environment is defined to support both the daily activities of the administrative employees of public authorities and the activities in crisis situations.

The proposed communication and information infrastructure for ensuring the information flows of the management system in organizations has the possibility of achieving reliable functioning in daily activities, as well as in crisis situations management.

CONCLUSIONS

In conclusion, it can be summarized that the information environment is built for each specific organizational unit, therefore it has a distributed nature and fully follows the structure of the management system of the organization. It can also be pointed out that the proposed communication and information infrastructure for ensuring the information flows of the management system in organizations has the possibility of achieving reliable functioning in daily activities, as well as in crisis situations management. The created information environment and information services provide an opportunity to work in a group environment and secure the subordinate structures, both at the local level and when performing daily tasks in the most remote (geographically isolated) areas of the organization. In addition, the information needs and the building of adequate information environment impose important requirements on the quality of the communication and information systems. That is why it is necessary to plan the information environment to precede the planning of the communication and information systems.

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ROMANIAN
MILITARY
THINKING

UTILITY OF SCENARIOS IN UNDERSTANDING PUBLIC PROCUREMENTS CONDUCTED IN THEATRES OF OPERATIONS

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Currently, operational logistics is a significant challenge: to resupply Romanian forces located in various theatres around the world. Involvement in an international mission is contingent not solely on the mission's nature or the structures of the assumed forces but also on the requisites and logistical capabilities for supplying goods and services within the designated area. The international security environment is challenging. Political tension, military conflicts and economic problems have intensified security concerns. In this context, organizing the procurement processes efficiently is a major preoccupation for specialists. Moreover, the legal framework for public procurement opens up room for different issues. Given the multinational context and specific procurement regulations, the execution of procurements within operational theatres is exposed to distinct challenges compared to those encountered in the national territory.

In this complex and ambiguous environment, understanding the legal means of addressing challenges in the procurement field is desirable. Moreover, considering the importance of procuring goods and services to achieve the mission goal, a proficient procurement specialist is a crucial asset. In this regard, the main objective of this study is to demonstrate that Scenario-Based Learning could be transformed into a useful tool for preparing future specialists in procurement.

Keywords: procurement; operational logistics; scenario; theatre of operations; resources;

INTRODUCTION

Against the background of the current context of uncertainty and ongoing conflicts at regional level, the need to strengthen the European Union's security and defence policy and to support economic and political goals through action plans calls for joint efforts by all actors involved in this process. The National Defence Strategy for the period 2020-2024/SNApT (2020), which was drawn up in accordance with European security principles, promotes the concept of extended national security. The relevance and the value of this concept are divided, generically, on two main directions: one internal, with direct applicability at national level and the second, international, which concerns the external commitments that Romania has undertaken. (Ib., pp. 10, 23).

Identifying trends in the evolution of security phenomena at regional level and analysing, with an anticipatory purpose, the premises of the future are current concerns within the military academic environment. Educating and training future decision-makers in line with the requirements of the present and anticipating the needs of the future is a priority. Taking into account the current security enhancement actions at the European Union level, the present research aims at modelling a learning scenario in line with the specific requirements of procurement planning and execution in international theatres of operations. Through this scenario we aim both to demonstrate the usefulness of this learning tool in the training of adults working professionally in the field of logistics and to bring attention to a current challenge in the field of operational logistics - procurement in the theatres of operations abroad.

The National Defence Strategy for the period 2020-2024, which was drawn up in accordance with European security principles, promotes the concept of extended national security. The relevance and the value of this concept are divided, generically, on two main directions: one internal, with direct applicability at national level and the second, international, which concerns the external commitments that Romania has undertaken.

INTEGRATING CONTEXT

The field of national security and defence has a number of features that define its identity. Starting from its fundamental mission, on the fulfilment of which depends the safety and security of all Romanian citizens, this social field is characterised by a number of particularities. The complexity as well as the sensitivity of the problems assigned to its management require an adequate legal framework, an adapted institutional architecture, specialised staff and sufficient resources. In the context of current challenges and the degree of novelty they bring, the military system is faced with new situations. The achievement of internationally agreed objectives depends on the proper management of the mentioned situations. Operational logistics covers the entire range of activities that provide the goods and services necessary for the direct logistical support of the fighting forces for subsistence, training and participation in military operations/ actions (DLIAR 2023, art. 0201-0206). Thus, one of its responsibilities is the resupply of Romanian forces in various theatres of operations. The proper understanding of the legal framework describing the field of public procurement, the managerial mechanisms that can be accessed and the importance of this activity in a theatre of operations become prerequisites for achieving the objectives of the missions undertaken.

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The specificity of the context in which direct acquisitions or procurement procedures are conceived, planned and carried out, as well as the particularities of the way contracts are carried out in theatres of operations, require more than knowledge of the specific rules in force. Moreover, most of the experiences that the Romanian Armed Forces have had in theatres of operations have not required the planning and implementation of procurement processes, the provision of the necessary resources being achieved through other mechanisms developed within the North Atlantic Alliance and financially supported by the *Lift&Sustain* program of the US Department of Defense. The current global security context calls for the presence of Romanian military forces in missions under the aegis of NATO, the European Union, the UN or the OSCE, with different mechanisms for accessing

resources. The restricted need to use public procurement in theatres of operations has led to a certain fear and reluctance to apply procurement legislation in theatres of operations. The increase in the number of military structures in international missions sponsored by the European Union brings with it the multiplication and diversification of resupply needs, and the proper understanding and use of procurement legislation in theatres of operations becomes essential.

In this context, *Scenario-Based Learning/SBL* is a learning method that can be used to provide contexts for reflection on the ambiguous and complex nature of the real world. SBL opportunities bring multiple benefits: from leveraging collaboration, developing critical thinking, and the ability to solve complex problems (Norton et al., 2012), including, of course, in-depth understanding or familiarity with different problem-solving mechanisms. Such learning scenarios can be designed with the aim of bringing closer to domain specialists not only the estimation or planning of the procurement portfolio but also the actual execution of direct procurement or procedures as well as the conduct/monitoring of contracts in theatres of operations outside the national territory.

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METHODOLOGICAL ASPECTS OF THE RESEARCH APPROACH

Based on the identified problem, i.e. the need to use appropriate learning tools for the target group, the main objective of this approach is to demonstrate the usefulness of the scenario in understanding public procurement in theatres of operations outside the national territory. In this context, the target group is represented by Romanian officers whose responsibilities may be directly connected or only partially related to the field of procurement of Romanian forces in theatres of operations. At the same time, it is necessary to mention three essential landmarks that have been taken into account in the design of the learning tool, namely: *the age of the target group, its status,* and *the purpose of learning*. Generically, this research approach has the following structure *(figure 1).*

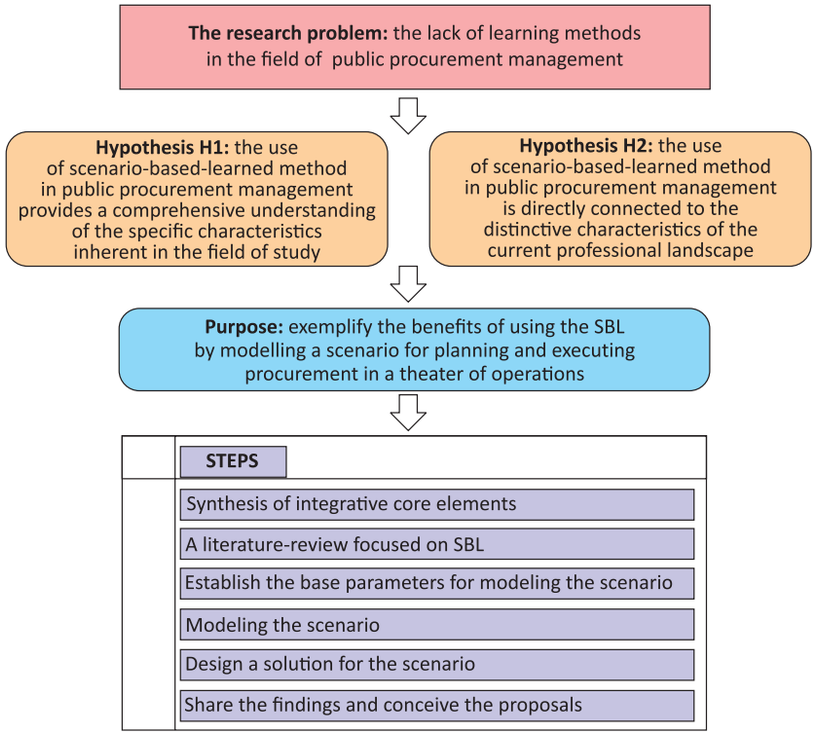

Figure 1: Main aspects of the methodological approach (Source: authors)

Scenario-Based Learning is a modern learning method used by Harvard Law School and Harvard Business School to reflect the ambiguous and complex nature of the real world.

RESULTS OF THE LITERATURE REVIEW

Nowadays, educational trends and theories have emerged that keep pace with the nature of the times and the life we live in, which aim to provide learners with knowledge, skills and positive tendencies towards what they learn (Areej, Sabah, Ban, 2023). In this context, *Scenario-Based Learning* is a modern learning method used by Harvard Law School and Harvard Business School to reflect the ambiguous and complex nature of the real world (Mehall, 2021).

The literature confirms the wide use of SBL in the educational sphere: from the use of scenarios in business schools (Rosenbaum, 2010), to the mediation of learning communication skills (Mariappan, 2023), mathematical thinking skills (Areej, Sabah, Ban, 2023), to the modelling and use of scenarios in experiments related to the medical sphere. In addition to the operational (concrete) goals that can be

achieved through scenario-mediated learning, the transformation of an ordinary learning process into a memorable one reinforces the trend towards their use in more and more areas. In addition, scenarios play a significant role in learning higher-level thinking techniques (Willingham, 2023, p. 76). Among them we can mention not only the ability to analyse and synthesise information but also critical thinking, connecting concepts from multiple domains, constructing a solution to a problem reflecting different situations of reality. Both the decision-making process and critical thinking involve, at the very least, taking in several types of information, interpreting them and constructing meaningful mental schemes, which are essential skills for any decision-maker working in the defence system.

Operationalising the concept of scenario-based learning in the field of public procurement, it can be defined as a systematic approach to the specific stages of a learning process in the field of public procurement using activities that describe contextual elements of reality from which, through active involvement, knowledge or working skills specific to the field can be acquired. SBL is based on the principles of situational learning theory (Areej, Sabah, Ban, 2023), an approach focusing on the importance of learning in the context of real-life scenarios. Anchoring in reality or describing, based on information, hypothetical contexts of the future turn scenarios into truly realistic tools.

The pandemic context as well as the connection of individuals' current activities to a wide range of electronic devices has led to increased passivity in learning. The development of such passive behaviours manifested by non-engagement in learning activities is detrimental to individual development in a fast-paced world. The demand for active involvement in analysing data, linking the legal framework to the situation identified, finding possible options, analysing the risks but also the opportunities offered by these solutions, compel the participants in the learning activity to filter, through their own effort, a range of information, becoming actively involved in the learning process. Mariappan (2023) said that SBL is a promising instructional approach that can make learning more engaging.

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Operationalising the concept of scenario-based learning in the field of public procurement, it can be defined as a systematic approach to the specific stages of a learning process in the field of public procurement using activities that describe contextual elements of reality from which, through active involvement, knowledge or working skills specific to the field can be acquired.

The learning activity needs to be designed in direct relation to the target group. Thus, an instructional or educational context aimed at a target group of adults will be different from one designed to support the learning of undergraduate students. In this sense, the modelling of the present scenario will be carried out considering *a target group made up of Romanian officers* (graduates of bachelor degree programmes), familiar with the professional military environment, the scenario method providing potential to promote the values of equality in adult education. Also from the requirements guiding the design of the scenario, we mention the following: use of the legal framework specific to public procurement, anchoring the situation in the current security context, use of concepts and constructs specific to the field of operational logistics.

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Designing and presenting this scenario allows us to build, using appropriate information resources and giving value to personal expertise, a comprehensive picture of an actual or potential context. Among the (concrete) operational objectives that can be pursued by using this scenario in practice, we mention the following:

- Identification of the legal framework governing public procurement in theatres of operations;
- Analysis of procurement needs in relation to the specificities and particularities of the theatre of operations;
- The design of the planning documents needed to carry out public procurement (annual procurement plan);
- Estimating the value of procurement and identifying the procedures to be carried out;
- Analysing the potential for carrying out the procedures, taking account of the specific conditions (specialised staff, market to be accessed, information resources required etc.);
- Identifying the limitations and constraints imposed by the security context and so on.

These objectives need to be formulated in relation to the explicit educational context and may be reformulated, scaled or adapted.

We mention some related benefits of achieving the learning objectives, namely: familiarity with the specific activities of operational logistics in a theatre of operations, awareness of needs in the contemporary security context, increased confidence in one's own potential, improved analysis and decision-making skills. Connecting to the realities of the operational environment in theatres of operations leads to not only familiarisation but also preparation for a possible mission in such areas.

SCENARIO FOR PLANNING AND CONDUCTING PROCUREMENT PROCESSES IN THE *VERDE* THEATRE OF OPERATIONS

Scenario Design – Methodology and Approach

The concrete objectives pursued by this scenario can be divided into two directions. Firstly, we aim to develop a situation as close as possible to the reality in the theatres of operations to which our country is party. The purpose of presenting this type of situation is to underline and emphasise the national logistic responsibility, as provided, in its essence, by the NATO Allied Doctrine for Logistics (NATO recognizes that the ultimate responsibility for support of national forces lies with the respective nations). On the other hand, by outlining courses of action that consider possible solutions, we aim to provide relevant information from the sphere of current practice while leaving open the cognitive-analytical approach. At the same time, based on the proposed courses of action, an analytical process can be initiated with the aim of highlighting the potential for a paradigm shift in logistics support in the Afghanistan theatre of operations. Specifically, we recognize that it is desirable to outline a different set of principles for the support of joint operations of Romanian forces strategically deployed outside the territory of the Romanian state: while Romanian forces benefited from operational logistical support through the Lift&Sustain funding program of the US Department of Defense, in theatres of operations to which Romania contributes troops, at this time, the entire logistical

The concrete objectives pursued by this scenario can be divided into two directions. Firstly, we aim to develop a situation as close as possible to the reality in the theatres of operations to which our country is party. On the other hand, by outlining courses of action that consider possible solutions, we aim to provide relevant information from the sphere of current practice while leaving open the cognitive-analytical approach.

responsibility for the preparation and deployment of the mission is in our nation's charge. Essentially, it is necessary to identify alternative options for innovative and cost-effective ways to support forces executing international missions.

Thus, we will carry out, in the scenario developed, the following cognitive and action analysis steps specific to the field under study:

- in the first part of the case study, we will create the premises of an international mission, under the aegis of the European Union, based on the Athena payment mechanism, which legislates the logistical responsibility of troop contributing nations (TCN);
- in the second part, we will identify the activities required for planning procurement outside the national territory, based on the legislation in force at the time, using different scenarios for situations regulated separately by the legislator. In this way, pathways will emerge that will lead to principled levels of understanding, valid in any legislative situation that may arise in the near or distant future;
- in the third part, we will give space to the resolution of specific procurement problems, through solutions that we consider possible and that can be of use for the further development of missions in theatres of operations in conditions of increased efficiency and economy.

In the first part of the case study, we will create the premises of an international mission, under the aegis of the European Union, based on the Athena payment mechanism, which legislates the logistical responsibility of troop contributing nations.

General Situation of the Verde State

The Verde State, geographically located in the south of the Malerian continent, has throughout its history been at the confluence of the interests of the great empires and has never been independent and autonomous, but part of a larger political organisation. For this reason, the specific characteristics of the Verdean population are multiculturalism, ethnic diversity and religious diversity. After the Second World War, the Verdean state was part of the Ylian confederation led by the Ylian Communist Party, which was made up mostly of ethnic Ylians. Following the referendum in 1980, in which

the Verdean population, with a majority of 82%, expressed their desire for independence from the Ylian state, a satellite of the Red Union, dissatisfied with the differences in treatment and rights granted to ethnic Ylians compared to ethnic Verdeans, in 1981 the Verdean state proclaimed its independence, which was recognised internationally. In the same year, the Ylian state, with the support of the Red Union, through ethnic groups with Verdean citizenship, launched a broad hybrid and insurgent attack on the Verdean state, which lacked experienced political power, and its own military forces, adequate equipment and alliances created to ensure its own security. The conflict soon degenerated into a war between the Ylian military forces and the Verdean population, who had to form their own armed forces while the conflict was going on. UN forces tried unsuccessfully to stop the war, resulting in a state drained of resources, with more than 30% of the population killed or refugees, but with experienced armed forces and intact borders four years after the outbreak of war. By Security Council resolution and NATO intervention, measures were taken in order to stop the atrocities and the danger of escalation of the conflict in the west and south-west of the Malerian mainland, characterised by numerous disturbances caused by the hybrid intrusions of the Red Union, directly interested in extending its influence in the area.

By Security Council resolution and NATO intervention, measures were taken in order to stop the atrocities and the danger of escalation of the conflict in the west and south-west of the Malerian mainland, characterised by numerous disturbances caused by the hybrid intrusions of the Red Union, directly interested in extending its influence in the area.

The Special Situation

The NATO-led joint operations deployed on the Verdean territory for a period of seven months, by UN Security Council resolution, succeeded in stopping the atrocities committed by the Ylian state through political and military support of the Red Alliance, restoring peace and providing support for the normal functioning of the state's power elements. The Verde state still possesses poorly equipped armed forces, having a developing economy based on the exploitation of natural wealth, trade and tourism, terrorist, insurgent and secessionist elements within its territory, but the majority population desirous of peace, the state-independent union, and the desire to accede to the liberal-democratic values of the Western world. In a short time, NATO and international

forums were able to hand over the authority to the Verde state and restore the instruments of power (political, military, economic, social, infrastructure and intelligence). NATO's presence on the Verdean territory was also significantly diminished, and it was taken over by the European Union. The purpose of the military presence under the aegis of the European Union was to maintain peace in the area, to monitor and deter secessionist elements and illicit arms trafficking, to identify security indicators to be made available to the political powers in the European Union and to implement the defence plan in the event of an imminent attack by the Ylian state or a Red-Ylian coalition.

In order to accelerate its ascension to the Western Malerian Economic Union (WEUMaleria), which shares strongly democratic, competitive values based on respect for dignity, human rights, equal opportunities and the rule of law, the Verdean government has tried on numerous occasions to accede to the euma single currency, but has not been successful.

In this context, Romania's Supreme Council of National Defence/ CSAT has decided to contribute a manoeuvre battalion to the EU4FREE peacekeeping mission *"Strong Together"*, intelligence, military police, communications and IT structures and staff personnel to the two headquarters in the Verde State area of operations. The Verde state's economy is strongly supported by the European Union, but the Ylian-Red investment in the area continues amid less support from within the Verde state. The economy is growing, with the procurement and payment system in the Verde armed forces being highly centralised, driven by suspicions of corruption throughout the state. The underground economy is developed, which is why smaller companies prefer cash payments. Energy supplied to the population (electricity, firewood, coal, natural gas) is regulated and is a state monopoly, except for fuel where there is strong competition. In order to accelerate its ascension to the Western Malerian Economic Union (WEUMaleria), which shares strongly democratic, competitive values based on respect for dignity, human rights, equal opportunities and the rule of law, the Verdean government has tried on numerous occasions to accede to the euma single currency, but has not been successful. The greeny currency of the Verdean state is relatively stable, but the population prefers to define prices in eumali.

The Verde state has been very open to the deployment of EU4FREE alliance military bases on its territory, aware that the allied military presence increases the sense of confidence and deters further

aggression by the Red state on its independence and sovereignty. The EU4FREE Headquarters has carried out countless procurements in accordance with the rules applicable to pooled funds (CFSP, 2015) and has encountered some reluctance in the initial phases from the economic environment in its early stages of post-conflict recovery about the security of payment for works and services rendered and goods supplied, but competition has increased exponentially as profitable business has been done with EU4FREE and as confidence in the presence and reliability of Allied Malerian power has grown quickly. The mechanisms for the use of pooled funds through the Althea mechanism are similar to the legislation of the Romanian state that has contributed troops to the EU4FREE *"Strong Together"* mission. This is due to Romania's membership of EUMaleria, with legislation in the field of public procurement being aligned with EU directives. The main differences between the legislative approaches to public procurement between EU4FREE and Romania are the following:

- EU4FREE is much more permissive in granting advance payments and advances, as well as direct payment of invoices for purchases of products/works/services whose estimated value does not exceed the threshold of €5,000;
- The value thresholds relating to the organisation of competitive procedures are different;
- NSE is obliged to receive certain opinions and approvals from the authorising officer in the higher echelon and from the General Directorate for Armaments of the Ministry of National Defence for purchases exceeding 75,000 euros (according to the estimation principles laid down by the legislator), an entity from which clarifications, guidelines and provisions are expected for such situations, given that it is the regulatory authority in the field within the Ministry of National Defence.

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Basic Data

The situation:

The Romanian contingent totals 644 military personnel, deployed in two EU4FREE *"Strong Together"* military bases, as follows:

- In the military base Pescici in the south of the Verde state, a military police squad of 32 soldiers, a communications and information detachment of 40 military personnel, an intelligence unit of 18 military personnel, 3 Romanian national representative and liaison personnel and 20 military personnel in the southern region headquarters of the theatre of operations;
- At the Mericenek military base in the northern part of the Verde State, a manoeuvre battalion of 450 military personnel, an intelligence cell of 22 military personnel and 21 military personnel in the EU4FREE *"Strong Together"* headquarters and the northern region of the theatre of operations;
- In view of the numbers presented, the CSAT decided to deploy a National Support Element of 38 military personnel, deployed as follows:
  - 32 military personnel in NSE North;
  - 6 military personnel in NSE South, subordinate to NSE North (Forward Support Element), with the mission of supporting the forces operating within the Southern Headquarters.

The missions of the national contingents are carried out on a rotational basis, every six months, their missions being forward presence and deterrence, interaction with the population in the area, deployment to military units on the territory of the Verde state and carrying out forward presence and deterrence missions, as well as intelligence gathering and monitoring of security indicators.

The missions of the national contingents are carried out on a rotational basis, every six months, their missions being forward presence and deterrence, interaction with the population in the area, deployment to military units on the territory of the Verde state and carrying out forward presence and deterrence missions, as well as intelligence gathering and monitoring of security indicators. The Military Police and Communications and Information Technology Detachments are responsible for specific missions in support of the EU4FREE *"Strong Together"* mission.

NSE Mission:

The National Support Element provides general (mainly human resources and legal) and specific support to the 3rd logistic support line in the Verde State theatre of operations. Also, on the basis of Law 121/2011 on the participation of the Armed Forces in missions and operations outside the territory of the Romanian State, Law 98/2016 and GD 925/2016 on public procurement, as well as the Order of the Minister of National Defence No. M-97/2011 on procurement outside the territory of the Romanian State, NSE carries out procurement of works, services and products, on the territory of the Verde State, in particular for:

- Food for the manoeuvre battalion during movement and stationing in military units on the territory of the Verde state, necessary for the preparation and serving of food;
- Ecological toilets, where the conditions of execution of missions lack sanitary facilities;
- Spare parts for the technical equipment of the structures, shared with those of the national economy of the Verde state;
- Hiring of vehicles or transport services for the structures or personnel participating in the mission;
- Hiring of premises for the conduct of activities and accommodation of intelligence staff in intelligence units in the territory of the Verde state outside the deployment camps;
- Resupply of drinking water for structures and staff working outside the deployment bases;
- Procurement of translation services for structures and personnel carrying out missions outside the deployment bases;
- Purchase of the mobile communications service with the economic operators in the sector for communications needs within the Verde state;
- Procurement of various works and services for setting up Romanian camps and various national facilities in the deployment bases, installation and payment of utilities provided by the mission headquarters for the installed infrastructure.

In addition, the National Support Element in T.Op. Verde conducts deployment/re-deployment support in the area, provision of RSOM, allocation/removal of feeding entitlements in the two bases, resupply of specific Class III supply items through the EU4FREE *"Strong Together"* mission by settling the nation's expenses through the NBC Athena mechanism, the hiring of various services (personnel and cargo transport, airport services, manpower, equipment hire), national strategic supply and re-supply, certification and sending of EU4FREE *"Strong Together"* invoices in-country through the above mentioned payment mechanism, as well as the settlement and payment of invoices for purchases and contracts concluded.

The staff performing the tasks of the specific procurement function, together with the LEGAD (legal advisory) department staff, shall advise the NSE commander on specific issues, and the commander or chief of staff shall be responsible for collecting data and providing the procurement department with the necessary support through the specialist departments/ staff.

Settlement

A procurement procedure requires the cumulative fulfilment of a number of administrative and organisational conditions. They relate to:

- The ability to manage a budget or to be supported, by a superior entity, with a budget of funds;
- Having, in the organisational state, a specialised procurement department or a person in charge of procurement who has a minimum level of training in understanding the processes required to plan, organise and carry out public procurement;
- Having in place the technical means and tools to carry out the specific tasks.

The staff performing the tasks of the specific procurement function, together with the LEGAD (legal advisory) department staff, shall advise the NSE commander on specific issues, and the commander or chief of staff shall be responsible for collecting data and providing the procurement department with the necessary support through the specialist departments/staff.

In the particular case of support to forces deployed in the Verde state, the NSE commander needs support from higher echelons as well as from intelligence structures in order to know the *"security situation, the operational needs of the supported structures and local customs"*, which give particularity or hinder the application of national legislation. Also, although the Verdean population is strongly English-speaking, procurement documents for the structures may need to be

drawn up in the local official language. Details of the security situation, operational needs and local customs for the scenario developed have been presented above.

In carrying out the necessary procurement in the theatre of operations, the logistics staff of the NSE must cooperate with the structure holding OPCOM, i.e. Joint Force Headquarters, and receive the annual requirements for goods, services and works in the Verde theatre of operations from the (operational) force service headquarters and the armed forces services generating support headquarters. The measure of direct liaison with the highest tactical level headquarters is necessary as structures and personnel participating in missions in theatres of operations operate on a 6-month rotational basis and cannot have the annual budget picture (or multi-year projections, if applicable, in the Verde theatre of operations) for which the justification notes have been centralised and drawn up 6-8 months before the start of the budget year. However, the command, coordination and integration role of the Joint Force Headquarters requires it to initiate the whole process of planning procurement processes in theatres of operations. In principle, this task is a complicated one, as long as the JFH has operational command (OPCOM) and the force services administrative control (ADCON). We say this because the clarity regarding the logistical tasks of the JFH commander for the benefit of the structures in theatres of operations and the administrative tasks of the force services exercised on the structures they have generated within the same force packages, is far from ever having been delimited or regulated. Moreover, the performance of procurement in theatres of operations is more of an administrative task, yet the NSE, as a structure within OPCOM at the JFH, has the operational task of performing this activity. The analytical reasoning in this manner can continue until an acceptable clarification is reached, but it will be the subject of further research.

In order to sum up all the actions to be undertaken, the headquarters or forces involved in the procurement process, according to the scenario developed, we have found it appropriate to represent, schematically, the flow of information/orders/activities underlying the implementation of procurement in theatres of operations *(figure 2)*.

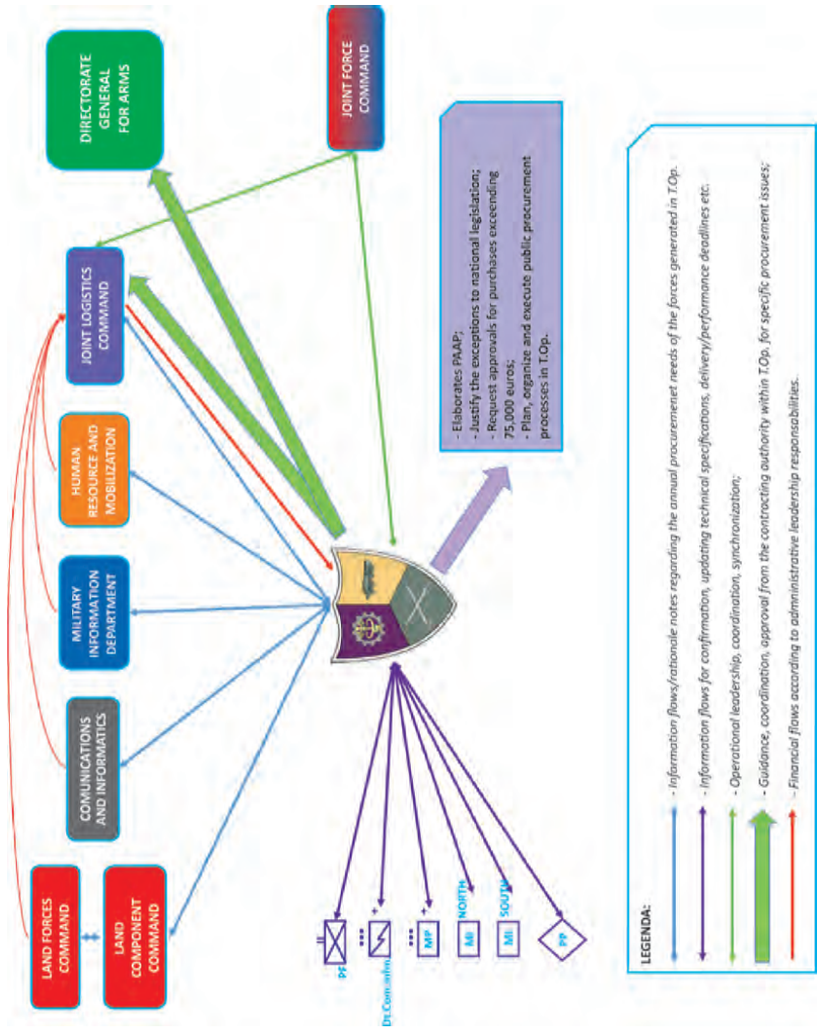

Figure 2: The main flow of information according to the developed scenario
(Source: authors)

From a legislative point of view, the procurement activity in theatres of operations is based on certain derogations according to value thresholds specified by the basic legislation and by the order of the Minister of National Defence as follows:

- Outside the national territory, the national legislation does not apply to purchases whose value exceeds the regulated threshold for direct purchases (which, at this date, is at the level of approximately 145,000 euros, expressed in lei, for purchases of products and services and 5,220,000 euros);
- For purchases not exceeding 15,000 euros, the commanders of the structures are authorised to make purchases outside the national territory;
- For purchases between 15,000 and 75,000 euros, the NSE, as the contracting authority in the theatre of operations, makes purchases for the benefit of the military structures participating in operations in that area;
- For purchases exceeding 75,000 euros, the NSE is obliged to request the opinion and approval of the General Directorate for Armaments and the senior authorising officer, i.e. the Joint Logistics Headquarters, from whom guidance, clarifications and provisions are expected, depending on the specifics of the theatre of operations, the degree of urgency of the purchase, the estimated value etc.

In order to determine the thresholds at which the needs of structures in theatres of operations are raised, the forces services must substantiate the needs to be procured and estimate the annual amounts in accordance with the only regulatory act that defines and describes both the notion of procurement from public funds and the criterion for estimating a procurement.

From this perspective, the following aspects related to the principles of public procurement are the responsibility of the various actors involved in the generation, operationalisation, management and execution of military operations in theatres of operations:

a) In order to determine the thresholds at which the needs of structures in theatres of operations are raised, the forces services must substantiate the needs to be procured and estimate the annual amounts in accordance with the only regulatory act that defines and describes both the notion of procurement from public funds and the criterion for estimating a procurement;

b) The armed forces services generating structures participating in theatres of operations must make available to the NSE the products, services and works that are the subject of procurement outside the national territory;
c) Whether or not the products, services or works are subject to public procurement legislation (as is the case for the rental of buildings, for example, which is not subject to public procurement legislation), the NSE must centralise the requirements to be procured, draw up the annual procurement programme (as part of the principles of transparency and accountability, for each stage of the construction of the PAAP, under the signature of those who have drawn up the documents) and relate to the two essential values for the conduct of public procurement processes: 75,000 euros and 145,000 euros;
d) For the categories of products and services exceeding these thresholds, the General Directorate for Armaments and the Joint Logistics Headquarters must issue clarifications, provisions and approvals to the NSE, which, according to the reasoning of the authors of this article, can be:
   - Directly procure products and services with values between 75,000 and 145,000 euros;
   - Register in the electronic procurement system for the conduct of procurement processes in the theatre of operations, a process visible throughout the European Union, in parallel with the conduct of an advertising process on the territory of the state in which the mission is deployed;
   - The delegation of procurement competence for requirements in theatre of operations to a specialised entity in the country, which shall carry out the procurement supply/provision processes in theatres of operations;
   - Order the conduct of procurement processes in theatre of operations, by the NSE, in accordance with the provisions of the European Union Athena mechanism, through certain

mechanisms derogating from national legislation;
   - Proceed further direct acquisitions accompanied by detailed justification for reasons of security, operational necessities, or local customs (a course of action deemed unlikely, given the specific economic data of the state, the mission of EU4FREE forces, and the level of economic development in the area).
   - A combination of the above.

CONCLUSIONS AND PROPOSALS

The demands of the contemporary security context require us to take steps to ensure that we are able to provide appropriate responses. By identifying the issues posed by the new trends in reality, which manifest through evident threats to the security of the national territory, we have endeavoured to find suitable answers across various domains of society. In this regard, the present research provides premises for adaptation to the new reality, in two of the domains addressed by security threats: the training of Romanian officers and public procurements conducted in theatres of operations outside the national territory. Thus, to summarize the results of this study, we have formulated conclusions in relation to these two areas of focus.

The present research provides premises for adaptation to the new reality, in two of the domains addressed by security threats: the training of Romanian officers and public procurements conducted in theatres of operations outside the national territory. Thus, to summarize the results of this study, we have formulated conclusions in relation to these two areas of focus.

The training of Romanian officers is required to be harmonized with the needs of the employing institution, as well as with the particularities and current state of human resources. In this regard, reducing passivity in learning, increasing the level of officer involvement, and establishing direct connections with subjects or content from professional reality represent fundamental criteria in didactical strategies. Operationalizing scenarios as a learning method in the military university educational environment involves active learning behaviour. Additionally, critical thinking is required, as is the applied use of concepts from multiple domains and the development of solutions anchored in current reality data. Leveraging the scalability of the scenario method in other domains related to public procurement will contribute to the development of analytical and critical thinking skills and ensure a common approach to solution building in the military professional environment.

From the perspective of the practical issues addressed by the scenario, namely public procurement activities conducted in theatres of operations outside the national territory, our conclusions are results of the cognitive-deductive analysis method and unstructured participatory observation. It is worth mentioning that we are referring to a theatre of operations characterized by conclusive hybrid threats, as well as the existence of a developing competitive environment and continuously evolving European values.

The determining factor for the success of low to medium complexity procurement initiatives in theatres of operations is represented, in a dual manner, by the education-practice tandem. Both the commander of the National Support Element and officers specialized in logistics and public procurement must be educated to effectively carry out the planning, organization, and execution processes of procurement. Furthermore, the practical application, throughout their military careers, of activities involving budgetary fund allocation and the completion of projects with significant implications in the field of public procurement contributes decisively to ensuring timely and efficient support for forces deployed in theatres of operations, regarding procurement-driven provisioning/services/works.

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Another relevant aspect of planning the public procurement process is the logistic informational preparation of the battlefield. Practice shows us that there is a tangential link between the logistic personnel composing the ENS and the intelligence personnel of the mission command and other cells/structures that include professionals in the field. Often, logistic information in the theatre of operations is incidental and contributes little to substantiating consistent, efficient, and effective procurement decisions. For the preparation of a high-quality *logistic preparation of battlefield/LPB*, it is necessary to include, within the organic structure of ENS, an officer specialized in logistic intelligence, who can accurately determine, with the support of the intelligence community of the EU4FREE *"Strong Together"* mission, the concrete economic environment in the theatre of operations (the level of development, the degree of experience of operators, turnover recorded in various branches of interest, corruption level, business

trust level, national investor structure, population and business owner trust in mission personnel, specific regulations regarding the provision/ performance of services/works, origin of raw materials, specific prohibitions, payment security, commercial issues etc.).

In conclusion, the professionalism of the leadership elements involved in the administrative coordination of forces in theatres of operations and their operational command is crucial. Providing genuine support to deployed soldiers who face both personal obstacles (such as isolation from their families) and professional challenges (operating in multinational environments for significant periods of time), often with limited opportunities for recreation and personal recovery, represents a tool that can lead to success and contribute to decision-making, morale, and camaraderie. Targeted and applied training conducted domestically, familiarity with budget allocation, and application of specific procurement procedures are essential requirements for ENS personnel. Resolving support issues through procurement may lead to mission failures for participating mission structures and a decrease in the credibility of the armed forces within the multinational alliance community.

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ROMANIAN
MILITARY
THINKING

CHALLENGES OF MILITARY ORGANISATIONAL MANAGEMENT IN THE CONTEXT OF THE CONFLICT IN UKRAINE

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This article examines the growing tensions between Russia and Ukraine and their impact on regional and global geopolitical dynamics, focusing on the importance of military organizational management in this complex situation. The confrontation between the two countries, fuelled by Moscow's geopolitical aspirations to consolidate its control over Ukraine, has escalated into a military conflict with far-reaching repercussions. Ukraine's rapprochement with the European Union and NATO has exacerbated tensions, generating indirect arms deliveries and threatening regional stability.

In this context, military organisational management becomes crucial to manage and mitigate the escalation of the conflict. The capacity for strategic planning and coordination of military actions is essential to maintain stability and prevent wider conflict. Also, the ability to manage human and material resources effectively and strategically can influence the outcome and duration of conflict. In addition, it is important to stress that tensions between Russia and Ukraine not only have bilateral consequences, but also affect relations between Russia and NATO.

Military management must therefore be adaptable and address the complex and interlinked challenges of this rapidly changing geopolitical context. The paper further argues that an appropriate approach to military organisational management can be essential for managing the conflict between Russia and Ukraine, as well as for maintaining regional and global stability in the face of the complex challenges of current geopolitical tensions.

Keywords: military organisation; European Peace Support Fund; military organisational management; conflict management in Ukraine; challenges in military management;

INTRODUCTION

Ukraine acquired its present territorial form in the mid-20th century, reuniting its population that had previously been divided between Poland, Russia and Austria. Ukrainian national unification took place mainly after the Second World War. Due to the lack of well-defined natural boundaries, Ukraine has always been characterised by a fluctuating border. The region's historical trajectory has been shaped by two key geographical factors: its proximity to the vast steppes of Central Asia and its proximity to two formidable neighbouring powers, Russia and Poland. Throughout history, Ukraine has been an ethnically diverse nation with a varied population, geographically located in close proximity to Russia. The presence of several ethnic groups in society has historically led to significant conflicts. However, the population movements that took place after the Second World War not only simplified the ethnic composition of the country, but also led to cultural impoverishment. The dissolution of the Soviet empire was a difficult and complicated process. A significant number of Russians found it difficult to accept the disintegration of the Soviet Union.

Throughout history, Ukraine has been an ethnically diverse nation with a varied population, geographically located in close proximity to Russia. The presence of several ethnic groups in society has historically led to significant conflicts.

Ukraine's independence had a significant economic influence on trade connections between Russia and the nations of Central and Western Europe. After Russia, Ukraine was indeed the most populous and territorially largest republic in the Soviet Union, with significant global economic importance. After the break-up of the Soviet Union, about 25 million people of Russian origin or Russian speakers lived in the countries that were part of the Soviet Union.

Russia's response to human rights violations against its citizens abroad has served as a significant indicator of its approach to neighbouring countries. The presence of 12 million Russian residents in Ukraine, representing about 22% of the total population, created an opportunity for Moscow to establish political alliances and maintain a significant level of involvement in Ukraine's internal affairs.

On 24 February 2022, Russia launched an invasion of Ukraine, triggering a full-scale conflict with massive consequences. This action led to the displacement of more than 7 million people from Ukraine, who sought refuge in several European countries. The impact of this conflict was felt in the world economy, especially in economic sectors such as oil and food, which suffered from rising inflation as a result of the instability caused by the war. Russian leader Vladimir Putin has justified the invasion of Ukraine by using cruise missile attacks launched from Russian territory. His main argument was that he intervened to protect separatist regions in eastern Ukraine, inhabited largely by a Russian-speaking population, from Ukrainian armed forces. In addition, he sees the invasion of Ukraine as a struggle to end the era of Western domination and establish a new multipolar world order (Dickinson).

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It can be strongly argued that amid escalating tensions between Russia and Ukraine, a critical demand is coming from Moscow, which is shaping the contours of a complex geopolitical landscape. Russia's insistence on reliable assurances from NATO not to integrate Ukraine or strategically vital countries into its security framework underlines the high-stakes nature of the conflict. Beyond Ukraine, Russia is calling for arms withdrawals from Eastern European nations within NATO's sphere of competence, including Romania and Bulgaria, according to a Russian foreign ministry statement issued in January 2022 (Reuters, 2022). These demands represent Russia's effort to consolidate its position as a strong global player, protecting its interests and expanding its influence. This determination is especially evident in regions that were once part of the Soviet Union. Eastern Europe, seen by Russia as a buffer zone, is of crucial strategic importance in its attempt to keep its distance from the expanding influence of NATO. Understanding the geopolitical complexities and strategic priorities of Russia in this context is crucial to deciphering the dynamics of the current conflict and its wider implications.

In this tense context, military organisational management plays a crucial role in establishing and maintaining the balance of power in the region. The ability to plan strategically and adapt quickly to changes in the geopolitical landscape is essential to respond effectively to the demands and challenges posed by Russia's aggressive behaviour.

One of the priorities of military organisational management is to strengthen the defensive capacity of states in the region, including Ukraine, Romania and Bulgaria, to deal with perceived threats from Russia. It involves modernising and strengthening the military infrastructure, enhancing defence capabilities and improving interoperability and collaboration between NATO member countries. I also believe it is essential to intensify cooperation and dialogue between NATO and its partners in the region, along with maintaining consistent and determined communication with Russia, in order to prevent an escalation of the conflict and promote a peaceful resolution of differences. I strongly believe that clear lines of action should be established at the military management level, focused on managing Russian cyber and information risks and challenges aimed at destabilising and undermining the security of NATO member states and their partners.

One of the priorities of military organisational management is to strengthen the defensive capacity of states in the region, including Ukraine, Romania and Bulgaria, to deal with perceived threats from Russia.

In this article, I have sought to highlight the importance of an integrated approach to military organisational management, emphasising the need to implement measures aimed at ensuring stability and security in the region, and to strategically promote peaceful conflict resolution in line with NATO Alliance values and objectives.

This research engages in exploring the hypothesis that *Russia's invasion of Ukraine not only constitutes a major catalyst for the geopolitical status quo, but has the potential to initiate complex and unpredictable changes in the dynamics of international relations.* Through its approach to its military actions, Russia appears to vehemently assert its aspirations to be recognised as a global or European power, but the consequences of these manoeuvres may be likely to thwart this initial intention. It is therefore crucial to examine whether the current invasion has the potential to accelerate the decline of Russian influence in its relations with China and other emerging states. Equally, it will examine how the invasion reinforces Europe's role as a central focus of global geopolitics, including the reassertion of the US presence in this context and the revitalisation of the North Atlantic Alliance. The hypothesis underpinning this analysis assumes that the events in Ukraine may lead to a significant reconfiguration of international relations, thereby influencing the balance of power and geopolitical outlook in a manner that raises concern.

RESEARCH METHODOLOGY

The research underlying the writing of this article focused on investigating the new geopolitical tensions and their impact on military dynamics in the South-East European region. In the initial stage, documents and scholarly papers available to the public or presented at international conferences were analysed. These sources provided information on the tensions between Russia and Ukraine and their impact on regional and global geopolitics. The documents studied included international treaties, government reports and other relevant sources.

The research also included analysis of public interviews conducted by geopolitical and military experts as well as government officials, academics and security analysts. These interviews were essential to bring into focus broad perspectives on the dynamics of conflict and how military and organisational management can influence its resolution.

In addition, statistical data and quantitative analyses drawn from other academic and research sources were additional sources of information, providing significant insights into the evolution of conflict and its impact on regional and global stability.

By integrating a variety of research methods, the paper is intended to provide a deeper and more comprehensive understanding of the tensions between Russia and Ukraine. It also places particular emphasis on the crucial role of military organisational management in managing conflict and maintaining stability in the region and globally. This multi-faceted approach to research allows for the identification of effective strategies and policies for managing and resolving similar conflicts in the future.

The disparate and unjustified treatment of Ukrainian refugees compared to migrants from other regions, such as Africa or the Middle East, can only be understood through an emotional lens: Ukrainians live in urban areas that resemble our own, adhere to the same predominant religion as we do, have ideological frameworks similar to ours, and even physically resemble us.

THE WAR IN UKRAINE – A WAKE-UP CALL FOR THE WHOLE WORLD

The conflict in Ukraine has made European citizens think about the subjective aspect of their own identity, questioning in particular which individuals can be considered European. The disparate and unjustified treatment of Ukrainian refugees compared to migrants from other regions, such as Africa or the Middle East, can only be understood through an emotional lens: *Ukrainians live in urban areas that resemble our own, adhere to the same predominant religion as we do, have ideological frameworks similar to ours, and even physically resemble us.*

In keeping with its primarily economic nature, the European Union responded promptly to the Russian incursion into Ukrainian territory by imposing economic sanctions. The European Union has implemented economic sanctions as a bellicose response to a war that nevertheless perpetuates the traditional features of the 19th and the 20th century conflicts, namely the use of armed force to fight over territorial boundaries. In addition to its economic implications, the Russian incursion into Ukraine has also provoked a response in the political and constitutional sphere of the European Union.

In the Versailles Declaration of 10-11 March 2022, the EU Heads of State and Government adopted a new position, outlining their commitment to substantially increase defence spending, with a significant part directed towards investment. The main priority is to address identified strategic deficiencies and to promote the collaborative development of defence capabilities within the European Union. In a significant shift, countries such as Sweden and Finland, together with Germany, have abandoned their previous policy of refraining from exporting military weapons to areas affected by armed conflict and have contributed significantly in the past two years of conflict with major deliveries of military equipment to Ukraine. It could be an opportune moment for the establishment of a *"European Defence Union"*, operating independently of NATO and with its own military capabilities.

In response to the Russian invasion of Ukraine, Western countries are offering substantial assistance to Ukraine, in terms of both economic aid and military support. Without this assistance, Kiev would be unable to sustain its operations or keep its economy stable. According to the *Fact Sheet on US Security Assistance to Ukraine* published on 6 December 2023, the United States of America committed over $44.8 billion in security assistance to Ukraine since President Biden took office, of which $44.2 billion were provided in the context of Russia's brutal and unprovoked invasion beginning 24 February 2022.

Between 24 January 2022 and 15 January 2024, the European Union institutions, such as the Commission and the EU Council, provided Ukraine with approximately €85 billion in bilateral financial,

The European Union has implemented economic sanctions as a bellicose response to a war that nevertheless perpetuates the traditional features of the 19th and the 20th century conflicts, namely the use of armed force to fight over territorial boundaries.

humanitarian and military aid in relation to the Russian invasion that began in February 2022. The second highest pledge amount came from the United States of America, with around €69 billion, according to the report on *Total Bilateral Aid Commitments to Ukraine 2022-2024* (Statista, 2024).

In addition, Russia has faced significant economic sanctions that have prompted a major shift: several Russian banks have been removed from the SWIFT network, and major banks such as Sberbank and VTB have been placed on comprehensive sanctions lists. *"Half of the Bank of Russia's gold and foreign currency reserves have been frozen due to sanctions. This represents about half of those reserves we had. We have a total amount of reserves of about $640 billion. We are currently unable to use about $300 billion of these reserves"*, Russian Finance Minister Anton Siluanov said in an interview with Rossiya 1 (Ib.).

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Sanctions were also imposed in the energy sector, but it was later discovered that this had led to a significant increase in oil and gas prices. In addition, it caused more damage to European nations than to Russia. Moreover, the opposition between Russian producers and European countries was intensified by a considerable reduction in gas supplies to the EU, which exacerbated the negative effects on European nations (Dreuzy, Gilli, 2022, p. 35).

The military aspect of this battle is not the main focus of this study, but it is necessary to briefly address it, as it helps to understand how the perspectives of external actors have changed and how they interpret the impact on the restructuring of the global system. Western military engagement and aid to Ukraine, as well as China's stance towards Russia, have undergone discernible or nuanced changes in response to Russia's military debacle and its misjudgement of the anticipated military and political collapse of Ukraine. Today, more than two years after the Russian attack, the war has moved into a phase of long-lasting attrition. This phase is characterised by significant human losses and growing concern because of the serious impact on the world economy and the agri-food system. However, both factions have aspirations to increase their military position, reject the idea of engaging in negotiations and persist in the pursuit of triumph, despite the ambiguity surrounding its definition. As Ukrainian Foreign Minister Dmytro Kuleba has articulated, success is a fluid and dynamic notion

(Adler, Barnett). It is clear that military organisational management has a key role to play in managing this phase of the conflict. The ability to plan strategically, coordinate military operations effectively and use resources rationally is vital to maintaining stability and reducing human and economic losses. It is also important for military organisational management to adapt to changing conflict dynamics and respond to evolving challenges and threats. Flexibility and adaptability are key in managing a long-lasting conflict and ensuring an effective approach to promoting a peaceful and sustainable resolution of the conflict between Russia and Ukraine.

Russia's failure in the conflict in Kiev, which took place between February and April 2022, quickly demonstrated the inaccuracy of many projections of war and the balance of power. Russian airborne forces successfully captured the Hostomel airstrip near the capital, but faced several challenges. However, they failed to advance beyond the outskirts of the city. Meanwhile, the Zelensky-led administration continued to remain in the capital, sending a strong political message of defiance. Russian columns north of the city suffered significant losses to Ukrainian forces while being stuck in massive traffic congestion, eventually forcing them to withdraw to their bases in Belarus. The first episode of the war demonstrated Ukraine's improved and adaptable tactical skills, as well as the importance of weaponry and intelligence data, including satellite imagery and extensive electronic surveillance provided by the United States of America, the United Kingdom and other European nations. In addition, the use of new technologies, such as drones, played a crucial role. However, this phase also demonstrated that, in addition to international assistance and the efforts of the Ukrainian government apparatus, the resistance was a popular and large-scale mobilisation against the invasion. This stimulated the Ukrainian opposition and secured international assistance.

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President Biden signed the *Lend-Lease Defend Democracy in Ukraine Act* into law on 9 May 2022, an important day commemorating the surrender of Nazi Germany. This act gives the President the authority to provide a total of $40 billion in economic and military assistance until the end of 2023. The funds provided Javelin anti-tank and Stinger anti-aircraft missiles, GPS-guided ammunition for howitzers, and drones and helicopters. In response, the EU used the *European Peace*

Support Fund, an additional financial instrument set up in March 2021, which has a budget of €5.6 billion allocated for the period 2021-2027.

This event is unprecedented: the European Union, recognised as a *"civilian power"*, has taken the collective decision to offer military aid to a third country for the first time in history. This assistance is provided through bilateral means, part of it financed from this special fund. Several nations have opted to offer non-military assistance, in line with their long-standing practice of neutrality. Others have limited themselves to the use of small arms. The Netherlands, France and Germany are supplying heavy artillery equipped with GPS guidance, while several Central European nations, such as Poland and Slovakia, have gone a step further by supplying Soviet-made tanks and sophisticated air defence systems. In addition, several non-governmental entities are providing assistance. This includes Starlink, a corporation owned by libertarian entrepreneur Elon Musk. Starlink has deployed several satellite internet relay stations, which have played a significant role in facilitating civilian and military communications in Ukraine. It is noteworthy that the Russian military has failed to disrupt these connections (Sanger, Schmitt, Cooper, Barnes&Vogel, 2022).

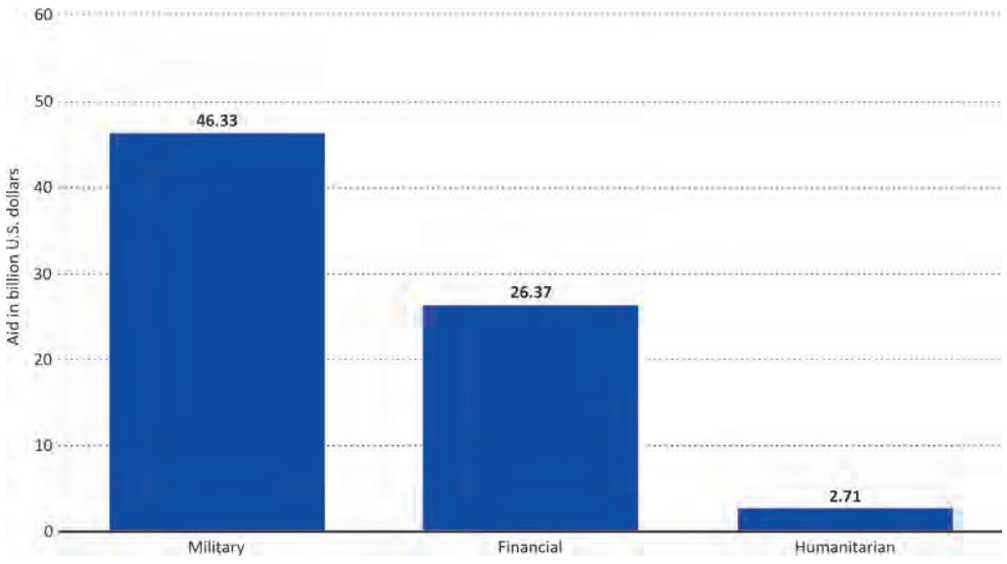

Figure 1: US aid to Ukraine since the Russian invasion, by type (in billions of US dollars; Statista, 2023)

Of course, in this context, some characteristics of military management become obvious. First of all, there are elements specific to *strategic planning*: both the US, with the signing of the *Lend-Lease Act* by US President Joe Biden on Monday, 9 May 2022, the same day that Russia celebrated *"Victory Day"*, the 77th anniversary of the Soviet Union's victory over Nazi Germany, and the European Union, using the *European Peace Support Fund*, have made long-term strategic plans to support Ukraine. They involve assessing needs and available resources, identifying objectives and developing a strategy for action to meet those objectives.

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Another aspect worth mentioning is the level of *cooperation and coordination*. Both the United States and the EU have had to cooperate and coordinate their efforts to provide effective and coherent assistance to Ukraine. It entails communication and collaboration between the various institutions and organisations involved in providing military and financial assistance.

Other features of military management in this context include the effective *use of available resources* to ensure that assistance to Ukraine is maximised. It means the appropriate allocation of funds and equipment, as well as continuous assessment and adaptation to the needs and situation on the ground.

The situation in Ukraine is dynamic and rapidly changing, and military management must be *adaptable and flexible* to cope with this reality. It implies the ability to respond quickly to changes and to adjust strategies and actions according to developments on the ground.

A final feature of military management specific to this type of conflict is *risk management*. Providing military assistance to a third country involves certain risks, such as escalation of the conflict or the use of inappropriately supplied equipment. Military management must therefore be able to manage these risks effectively and take measures to minimise the negative impact.

The military assistance (its value is shown in *figure 2*) provided to Ukraine has generated significant debate from the international community, foreign policy and security experts, political leaders and global public opinion.

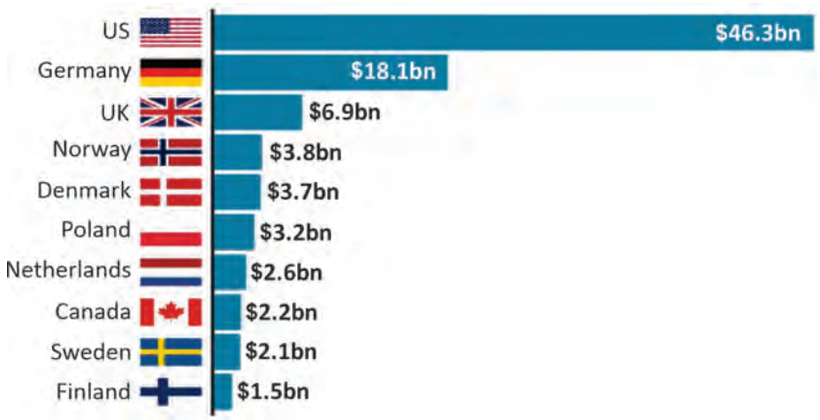

Figure 2: Main military aid donor countries to Ukraine until 31.10 2023 (in billions of US dollars; Kiel Institute for the World Economy, 2023*)*

In June 2017, the Ukrainian Parliament passed a law formalising NATO membership as a key objective of the country's foreign and security policy. Later, in 2019, Ukraine's Constitution was amended to meet the preconditions set by NATO.

Under the provisions of the United Nations Charter, these deliveries are considered legal and justified because Ukraine is exercising its right to self-defence, while the Russian invasion is seen as an act of aggression, as confirmed by the General Assembly in a broad resolution adopted immediately after the invasion. This creates a clear ethical distinction. However, in terms of moral ethics and political differences, the desire to prevent a military escalation in the presence of nuclear powers clarifies these debates and hesitation in providing fighter jets or long-range missile systems (Haass, 2022, pp. 25-38).

THE CONFLICT IN UKRAINE AND GLOBAL GEOPOLITICAL CHANGES

Ukraine's NATO accession process is characterised by the fact that Ukraine did indeed begin the process of joining NATO in 2008, but its path towards this goal has been marked by fluctuations. In June 2017, the Ukrainian Parliament passed a law formalising NATO membership as a key objective of the country's foreign and security policy. Later, in 2019, Ukraine's Constitution was amended to meet the preconditions set by NATO. In September 2020, President Volodimir Zelensky sanctioned Ukraine's National Security Strategy, which included plans to strengthen a close alliance with NATO to pursue membership.

The Russian incursion into Ukraine and the accompanying international reactions open up the prospect of a significant shift

in global geopolitics. The invasion serves as a painful validation for EU nations, namely the Baltic states, Poland and the Czech Republic, which have been more sceptical of Russia. This contrasts with other member states, such as France or Germany, which have been more distrustful. Progressive political movements, such as Germany's Greens and Sweden's Social Democrats, have some of the strongest positions in support of NATO and against Russia. An exemplary illustration of these transformations is the rapid application for NATO membership by Finland and Sweden, marking a departure from their long-standing policy of neutrality.

In terms of security and defence policy, the European Union's response to the invasion of Ukraine has been predominantly reactive. However, even before the attack took place, there was notable and rapid progress in the process of Europeanisation and the consolidation of a common vision on security and defence policy.

As part of this development, the topics of threats and security have become central points of interest and debate within the EU. The invasion of Ukraine has amplified these discussions and has led to a reconsideration of the European Union's security priorities and strategies. It has intensified efforts to strengthen collective defence capabilities and to increase the level of coordination and cooperation within the EU's security and defence policy. In concrete terms, these developments have included strengthening collaboration between EU member states in areas such as military development, intelligence and intelligence sharing, and the development and implementation of common security strategies.

In addition, the European Union aims to take more decisive action in four key areas – air, maritime, space and cyber – to ensure access to the global economy. This initiative reflects the EU's desire to strengthen its capabilities in these strategic sectors so that it can play a more active and influential role on the international stage. At the same time, it is in line with the EU's efforts to broaden its involvement in security and defence issues, demonstrating a growing commitment to ensuring security in Europe and the world.

As in previous cases, this initiative, triggered by the implementation of the *"Strategic Compass"* in March 2022, reflects a compromise found between different perspectives and interests within the EU,

ROMANIAN MILITARY THINKING

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in particular as regards the relationship with NATO and North Atlantic connections. The invasion of Ukraine has served as a spur to these efforts, underlining the importance of strengthening defence and security capabilities for the European Union in the face of threats from within and outside the region.

Reactivating the North Atlantic axis and strengthening the transatlantic partnership in the face of threats from Russia is a crucial aspect of recent developments in international relations. In the wake of Russia's invasion of Ukraine, the United States of America and other NATO member states have shown unprecedented unity and solidarity in managing the crisis and supporting Ukraine.

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At the diplomatic level, high-level meetings were held between EU and US leaders to coordinate common positions and actions in condemnation of Russian aggression and in support of Ukraine. This coordination has strengthened transatlantic cohesion and reinforced the West's position vis-à-vis Russia. Thus, at the NATO Summit in Vilnius (2023), NATO leaders, including those from the European Union and the United States of America, agreed on measures to strengthen defence capabilities in Eastern Europe and around the Baltic Sea in the context of the growing threat from Russia. Plans to deploy additional troops and military equipment to NATO member states in the region to strengthen deterrence and collective defence were discussed and adopted. The United States of America and the European Union have also issued joint statements and adopted resolutions in international organisations such as the United Nations and the OSCE condemning Russia's aggression in Ukraine and calling for respect for the territorial integrity of Ukraine. These declarations and resolutions reflected Western unity of action and solidarity in the face of the Russian challenge.

The imposition of economic sanctions against Russia was another important step in the international response to the invasion. Economic sanctions are a powerful foreign policy tool used in the context of international relations, and their imposition against Russia by the United States of America and the European Union following the invasion of Ukraine was a crucial point in the international community's reaction to Russian aggression. These measures were designed to exert

economic pressure on Moscow in order to bring about the withdrawal of Russian troops from Ukraine and restore the territorial integrity of that country.

One of the main sanctions imposed on Russia was the restriction of access to international financial markets. Both the US and the EU have banned Russian financial institutions from issuing or selling bonds on international financial markets and limited their access to certain financial services. These measures have had a significant impact on Russia's ability to finance its activities and have put considerable economic pressure on Moscow.

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In addition, asset freezes and restrictions on financial transactions were other forms of economic sanctions imposed on Russia. These measures have targeted Russian individuals and companies held responsible for the aggression against Ukraine, preventing them from using their assets and conducting financial transactions internationally. These actions were aimed at isolating and weakening circles of power within Russia that support the Kremlin's aggressive policy.

Embargoes on exports of technology and dual-use goods were another form of economic sanctions imposed on Russia. The US and the EU have restricted exports of technology and goods that could be used for military purposes or for the development of military capabilities in Russia. These measures have had an impact on Russia's defence and technology sector, making it more difficult for Russia to access technologies and goods with military potential.

Within NATO, the USA and other member states have stepped up *military cooperation* to strengthen defence and deterrence capabilities in the Eastern European region and around the Baltic Sea. The deployment of additional troops and military equipment as well as joint military exercises have served to demonstrate the alliance's collective commitment to the Russian threat.

Military assistance to Ukraine was another crucial aspect of the transatlantic effort to support Kiev in the face of Russian aggression. The USA and other NATO member states have provided military equipment, military training and education, and logistical support to Ukrainian armed forces, demonstrating their strong commitment to supporting Ukraine's territorial integrity. In addition to military support,

the mentioned countries have provided medical and humanitarian assistance to Ukraine to help treat the wounded and manage the humanitarian consequences of the conflict. This assistance has included the provision of medical equipment and medical supplies, as well as the deployment of medical teams to conflict-affected areas.

On *energy supply*, the USA and the EU have worked together to reduce Europe's dependence on Russian gas and oil. The diversification of supply sources and the development of energy transport infrastructure, including the promotion of liquefied natural gas (LNG) and other alternative energy sources, have aimed to reduce Europe's vulnerability to Russia's aggressive energy policies. Thus, reducing Europe's dependence on Russian gas and oil is a crucial strategic objective for the United States of America and the European Union, given the obvious vulnerability associated with this dependence. To achieve this goal, a number of bold and strategic actions have been taken, aimed at diversifying sources of supply and developing regional energy infrastructure.

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Firstly, the promotion of liquefied natural gas (LNG) has proven to be one of the most effective tools in diversifying gas supplies in Europe. The United States of America has become a major supplier of LNG to European markets, benefiting from its own growing natural gas production and extensive liquefaction and export capacities. This change in the energy landscape has provided Europe with a viable alternative to Russian gas, reducing over-dependence on a single source of supply.

At the same time, the development of energy transport infrastructure has been a major priority for the European Union. LNG import terminals have been built or upgraded in several countries such as Poland, Lithuania and Croatia. These terminals allow flexible import of LNG from different sources, thus reducing dependence on Russian gas. Investments in projects such as the Southern Gas Corridor and the Trans-Adriatic Pipeline have also aimed to diversify the routes and sources of natural gas and oil supplies, thus ensuring greater energy security for Europe. These projects have enabled closer connections between energy producing and consuming regions, reducing dependence on transit through Russian territory and reducing the risk of energy being used as a political tool by Russia.

In addition, promoting and supporting renewable energy has been another crucial aspect of the efforts to reduce dependence on fossil fuels. Both the United States of America and the European Union have invested significantly in alternative energy sources, such as solar and wind power, to diversify the energy mix and reduce dependence on finite and polluting resources. This transition to a greener and more sustainable economy helps to reduce not only dependence on Russian oil and gas but also environmental impacts, promoting sustainable economic development.

In conclusion, the concerted efforts undertaken by the United States of America and the European Union in dealing with the crisis in Ukraine and the associated geopolitical challenges have been characterised by a united and coordinated approach. By imposing economic sanctions against Russia, diversifying energy supplies and strengthening the transatlantic partnership, the West has demonstrated its firm commitment to promoting respect for the fundamental norms and principles of the international order. These actions reflect the solidarity and cooperation between the USA, EU and other NATO member states in the face of the security and geopolitical challenges of the 21st century, underlining the importance of a united approach in addressing major geopolitical crises.

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CONCLUSIONS

The response of the United States of America and the North Atlantic Treaty Organisation has been characterised mainly by diplomatic and economic measures. They have offered political support to the Ukrainian government of Volodemir Zelensky, but have refrained from deploying their military forces. Refraining from deploying direct military forces shows a desire to avoid escalating the conflict into open war and to find diplomatic and political solutions to resolve the crisis.

In addition, the economic sanctions imposed by the United States of America and NATO since 2014 have demonstrated that the international community is willing to use powerful economic instruments to put pressure on Russia and deter its aggressive actions. The severe impact of economic sanctions on the Russian economy indicates Russia's vulnerability to external pressure and highlights the importance of the oil and gas sector to its economy.

On 2 March 2022, the UN General Assembly adopted – by an overwhelming majority of 141 votes to 5 – a resolution rejecting the Russian Federation's brutal invasion of Ukraine and calling on Russia to withdraw its forces immediately and respect international law. International coordination and solidarity were evident in the adoption of the resolution by the UN General Assembly, with an overwhelming majority of votes against Russia's invasion of Ukraine, indicating a strong global commitment to respect international law and protect the sovereignty of states.

The crisis in Ukraine provides a significant insight into how contemporary armed forces are involved in modern conflicts and brings to the fore essential lessons about the civilian implications of war. Should major political change in Russia occur, this conflict may highlight that the non-military aspects of war are becoming increasingly dangerous.

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In other respects, it is clear that, despite the uncertainties about the immediate resolution of the conflict through compromise or truce, this war will act as a major catalyst for the intensification of confrontation between Russia and NATO, the EU and the USA. The impact of this conflict will be profound, reinforcing Russia's geopolitical importance to the United States of America, as well as China's position. We can therefore anticipate significant changes in the global geopolitical landscape and the dynamics of international relations as a result of this crisis. A complex dynamic is thus emerging that will continue to influence the global balance of power and international relations for the foreseeable future. The US-European struggle with Russia will be much closer to confrontation than it would have been before the Russian invasion of Ukraine. This conflict is expected to lead Russia to forge a stronger and more open alliance with China. In addition, it could motivate Russia to strategically use political and economic means to exploit any tensions and opportunities in Asia, Africa and Latin America. In addition, Russia could actively seek new military bases and opportunities to expand its military dominance.

The prospect of Russia responding more forcefully to US and NATO actions in the Ukraine conflict, going beyond purely symbolic reactions, could involve deploying not only military personnel but also sophisticated military equipment to regions such as Latin America,

the Caribbean or the Central African Republics to divert the attention of international organisations from the open conflict in south-eastern Europe.

In order to counter Russia's aggressive actions, it is imperative to take a number of strategic steps in military management to effectively manage and minimise possible threats. I believe that these key strategies, which could be implemented in this regard, include the following:

- conducting a detailed and constant assessment of potential threats, including Russia's military capabilities and strategies. This analysis should also include an understanding of Russia's potential actions in other regions, such as Latin America, the Caribbean or Africa;
- NATO member states and its allies should strengthen military cooperation and dialogue and intensify their efforts to address common threats. They could involve joint military exercises, intelligence exchanges and coordinated action plans;
- Military management should strengthen its efforts to increase the resilience of defence systems against cyber and information threats. In addition, diversifying and strengthening military capabilities, including through investment in advanced military technology and equipment, can strengthen deterrence;
- NATO should provide military and logistical support to its regional partners, including Ukraine and other countries affected by Russia's aggressive actions. It could include providing military assistance, training and support to strengthen their defence capabilities.
- Continue diplomatic and strategic communication efforts to highlight the consequences of Russia's aggressive actions and to promote unity and solidarity among allies and partners. It could involve stepping up international diplomatic efforts and providing clear and accurate information to the general public to counter Russian propaganda.

By taking such steps in military organisational management, NATO allies and their partners could strengthen their position in the face of Russia's aggressive actions and help maintain regional and global stability and security.

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ROMANIAN MILITARY THINKING

80 YEARS SINCE THE REPATRIATION OF BRITISH AND AMERICAN PRISONERS FROM ROMANIA

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10.55535/RMT.2024.2.12

As Romania joined the Allied Powers (23 August 1944), the fate of American and British prisoners became uncertain, as they were in danger of either being captured by German troops or falling into the hands of the Red Army. As the archive documents show, at that time, there were 1,262 prisoners (1,123 American and 39 British) in Romania, interned in camp no. 13 Bucharest (Pedagogical School on "Sfânta Ecaterina" Street and "Regina Elisabeta" Military Hospital) and camp no. 14 Timișu de Jos[1].

In the rescue operation, with the support of the Romanian authorities, Lieutenant Colonel James Gunn was transported by a plane, piloted by Captain Constantin Bâzu Cantacuzino, in Bari, Italy, where the 15th Air Force Command was located. All American and British prisoners in Romania were transported to Italy during Operation Reunion, organised by the 15th Air Force, on 31 August, 1 September, and 3 September 1944.

Keywords: operation Tidal Wave; allied prisoners; Royal Proclamation; 23 August 1944; operation Reunion;

INTRODUCTION

On 23 August 1944, Romania left the Axis Powers and decided to start armistice negotiations with the Allied Powers. The next day, it was unleashed the German bombardment of the Romanian capital: a Bucharest already in blood and in mourning, as a result of the American-British bombings from April-August of the same year, a capital in the process of being invaded by the Red Army troops. A country with a fragile government, led by a general and patronised by the heads of four parties with divergent ideologies, a country with a starving population after four years of war, intimidated and terrorised by the horrors of the airstrikes to which it had been subjected, and frightened by the danger of Russian occupation. A Romania abandoned and hit from all directions.

Great Britain had been our enemy since 8 December 1941. We had been at war with the United States of America since 5 June 1942, in response to the declaration of war received from Romania six months before. The royal proclamation of 23 August 1944 stipulated that *"from now on, the fight and any act of hostility against the Soviet armed forces as well as the state of war with Great Britain and the United States of America cease"*[2], but the truce was still far from being agreed. Our former ally became our enemy.

The royal proclamation of 23 August 1944 stipulated that "from now on, the fight and any act of hostility against the Soviet armed forces as well as the state of war with Great Britain and the United States of America cease".

The American air attack on 1 August 1943, known as Tidal Wave, on the oilfields of the Prahova valley, and especially the bombings of the Anglo-American aviation between 4 April and 19 August 1944, which mainly targeted Bucharest and Ploiești, as well as other cities where industrial sites and infrastructure elements were located, resulted in huge human and material damage. Despite the reaction of Romanian and German aviation and anti-aircraft artillery, human losses amounted to 15,253 people, of which 7,592 dead (including 562 children) and 7,661 wounded (603 children) (Duțu, 2016, p. 290).

[1] From Historia (2020), no. 216, Armă, Al., https://historia.ro/sectiune/general/operatiunea-reunion-repatrierea-prizonierilor-568271.html, retrieved on 22 January 2024.

[2] The Royal family of Romania, https://www.romaniaregala.ro/jurnal/sala-tronului-dupa-proclamatia-regelui-din-23-august-1944/, retrieved on 22 January 2024.

In Bucharest alone, there were over 2,000 wounded and about 3,000 dead, buried then in the Calvin Cemetery, called *"4 April Cemetery"*. It is sad that today they are almost forgotten...

The Anglo-American aviation casualties were estimated at over 2,200 people (dead and prisoners). On 23 August 1944, there were 1,262 prisoners in Romania (1,123 American and 39 British), interned in camp no. 13 Bucharest (Pedagogical School on *"Sfânta Ecaterina"* Street and *"Regina Elisabeta"* Military Hospital) and camp no. 14 *Timișu de Jos*. The first 110 prisoners were Americans captured following the raid on 1 August 1943, who were sorted according to their health status and interned either in the Central Seminary building in Bucharest (41) or in the Inner Zone Hospital in Sinaia (69) for treatment (Armă, 2020). Later, the prisoners from Bucharest were transferred to Timișu de Jos, a beautiful mountainous tourist area, thus Lieutenant (r.) Corneliu Valjan, from the 2nd Intelligence Section of the Great General Staff, participating in the interrogation of the American prisoners, testifying that the members of the *Tidal Wave* crews enjoyed a regime of favour, which they called the *"Gilded Cage"*, appreciated as *"the best prison camp in the world"* (Valjan, 2020, pp. 119-120) (photo 1, 2).

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Photo 1: The "Gilded Cage", Timişu de Jos
(Armă, 2023, in "Historia", https://historia.ro/sectiune/general/prizonierii-americani-in-colivia-de-aur-de-la-2317030.html)

Photo 2: The American prisoners in the "Gilded Cage" (Ib.)

ROMANIAN MILITARY THINKING

The treatment of the American and British prisoners was in compliance with the Geneva Convention and other internationally adopted documents. The proof is their numerous testimonies from the time of detention or after release.

GUNN AND REUNION OPERATIONS – TESTIMONY OF AMERICAN AND BRITISH PRISONERS

The treatment of the American and British prisoners was in compliance with the Geneva Convention and other internationally adopted documents. The proof is their numerous testimonies from the time of detention or after release. There are reports about the attitude of the population and the authorities when they were captured. The fact that they were Americans, not Russians, mattered a lot in the Romanians' behaviour towards them.

Former war pilot William. J. Fili, taken prisoner on 25 April 1944, author of the memoires *"Passage to Valhalla"*, dedicated to the sole surviving crew of the B-24-Liberator bomber, dubbed *"Destiny Deb" (photo 4)*, confesses how he was found by the Romanian peasants gathered at the place of his parachute landing and how he was treated by them: *"Those farmers stayed a short distance from me until I yelled to them: ‹Alo! Alo!› and pointing to my chest yelled: ‹Me, American›... One man, timidly, came to me and asked: ‹Ruskie?› (Russian?), I answered ‹No!› and again pointing to*

Photo 3: An exceptional memoir about the bombings of Ploiești in 1944

my chest, ‹American!›. Finally, he understood and called to the others, ‹American!›, and the others, men, woman and children, gathered around me. The first man shook my hand, and not knowing what else to do, I offered him a cigarette, which he took".

Photo 4: DESTINY DEB crew (bottom: Bob Pop, John Foster, Edward Bell, Glenn Boyle, Lenus Bahti, Dana Varvil, pilot-commander; down: Randy Haney, Paul Swearingen, Paul Swearingen, William Fili – the author of the book, Charles Kourvelas) (from the above-mentioned book)

Then, he was driven to the village, where he met three other teammates and they received tea and bread: *"I will never forget this day* – writes Fili –, *this place and the people who were so kind to me"*. (Fili, 1991, p. 131). The wounded prisoners were treated with humanity in hospitals, being cared for like Romanian patients. Lieutenant Colonel James Gunn, the pilot of a seriously injured B-17 Flying Fortress bomber, with numerous burns on his face from the explosion of the plane's petrol tanks (Valjan, p. 147), was miraculously rescued by Romanian doctors, so he was able to fulfil his honorary mission from the days following 23 August 1944.

William Fili recalls that the pedagogical high school he was staying at was located on a neat and very clean street, the citizens being allowed to walk on the opposite side of it. The barbed wire fence was not an obstacle to a short exchange of words with them. After 47 years since his repatriation, the American aviator cannot

master his emotion: *"Indeed, I learned a lesson remembered to this day, that all people are basically alike, they love alike. Laugh alike, cry alike, are all capable of compassion and all share an unshakable hatred of war. Even the average Romanian citizens, who managed a few words with us through that barbed wire fence, were as sincerely sorry to see us confined as we were to have visited our heinous destruction on their homeland"*. (Ib., p. 206).

ROMANIAN MILITARY THINKING

Photo 5: William Fili and James Gunn (Ib.)

"All people are basically alike, they love alike. Laugh alike, cry alike, are all capable of compassion and all share an unshakable hatred of war. Even the average Romanian citizens, who managed a few words with us through that barbed wire fence, were as sincerely sorry to see us confined as we were to have visited our heinous destruction on their homeland".

The letters that the American and British prisoners sent at home contained numerous appreciations on the humane way in which they were treated in Romania. Thus, Major Donald R. Falls said: *"The humanity of the military institution and the administration in the camp have demonstrated a true respect for the opponent. On many occasions, Americans have been treated the same or even better than their recruits"*. (Duțu, p. 291).

The royal proclamation of 23 August 1944 also resulted in the opening of the camps of American and British prisoners, so they mingled with the population that fraternised with them, sheltered them and shielded them from the Germans, because the German bombardments had unleashed on the capital. Their fate had become uncertain, and one of them had to take the initiative to repatriate. This was Lieutenant Colonel James Gunn, the highest-ranking prisoner,

shot down over Ploiești on 17 August 1944. James A. Gunn, born on 28 May 1912 in California, was enlisted as a war pilot on 1 March 1939, at the 454th Bombardment Group in Squadron 304, and had performed, by the time he was shot down, 32 missions (https://www.iar80flyagain.org/operatiunea-gunn/). He was entrusted with this great responsibility, which not everyone could assume. A plane was needed to take him to the 15th Air Force Command in Bari and ask for help to rescue more than a thousand Allied prisoners in Romania. William Fili describes him as a quiet and reserved man, endowed with a deep and analytical mind, a man who had the instinct to know what and how to do it, not hesitating to act even when he put his own life in danger.

On the morning of 25 August, when street battles with German troops were in progress, Lieutenant Colonel James Gunn, encouraged by Dana Varvil and the other American prisoners, managed to contact a senior Romanian officer in charge of the new War Ministry, who helped him reach General Mihail Racoviță, who had been in charge of the War Department for two days.

On the morning of 25 August, when street battles with German troops were in progress, Lieutenant Colonel James Gunn, encouraged by Dana Varvil[3] and the other American prisoners, managed to contact a senior Romanian officer in charge of the new War Ministry, who helped him reach General Mihail Racoviță, who had been in charge of the War Department for two days. The American presented to the Romanian dignitary the new situation in which prisoners of war were concerned that they could be taken over by German troops and asked to supplement the supplies of food and medicine. General Racoviță ordered to strengthen the security of the buildings where the American and British prisoners were accommodated and to evacuate them south of Bucharest, to prevent any German attempt to capture them. It was the moment when a gentleman entered his office to whom Lieutenant Colonel Gunn was introduced as the representative of allied prisoners. He was the Undersecretary of State at the Undersecretariat of Industry, Commerce and Mines, Valeriu Georgescu[4], the one who would offer him help in the coming days.

[3] Dana V. Varvil (1915-2007) was the pilot-commander of the B-24 Liberator *"Destiny Deb"* bomber crew of the 720th Bombing Group, shot down over Ploiești on 24 April 1944, crew that survived by falling prisoner for four months in Romania (A.N.).

[4] Valeriu (Rică) Georgescu (1904-1993, graduate of the University of Birmingham, oil engineer, director of the Romanian-American Petroleum Society of Ploiești, former Intelligence Service agent, the reason why he was arrested by the Antonescu regime and detained between 15 August 1941- 23 August 1944 (A.N.).

Gunn asked Valeriu Georgescu to find him a plane to fly to Foggia, where they could arrange an air strike to end the terrorist bombings of the Germans and implement a plan to relocate all the Allied prisoners of war who were being held captives in Romania.

The next day, 26 August, Valeriu Georgescu accompanied James Gunn to the head of the State Secretariat for Aviation, General Ermil Gheorghiu, where he was told that an air crew was set up to transport him to Italy and was then taken to the Popești-Leordeni airfield, being assured that the flight plan was kept secret for security reasons. The pilot was aware of the dangers and had experience on the air route to Foggia. Gunn was transported to Popești-Leordeni and, at 13.00, the bimotor plane Savoia-Marcheti, piloted by the experienced Lieutenant Commander Constantin Perju, took off. It seems that the American was disturbed by the presence on the plane, on either side of it, of two soldiers with guns in sight and by the fact that no one knew English. To his dismay, after about 20 minutes of flight, the plane made a slow turn of 180 degrees and returned to Popești-Leordeni. Gunn was later informed by an interpreter that an engine had broken down, making it impossible to continue the mission to fly over the Adriatic Sea. Disconcerted by the fact that he had not noticed any malfunctioning of the engines and had not detected any radio conversation, the American pilot was thinking about what he could do next, when someone beat him on the shoulder, addressing him in fluent English: "Colonel, if you will crawl into the belly of a Messerschmitt 109, I will fly you to Italy...". (Fili, p. 262). His name: Captain Constantin Bâzu Cantacuzino!

Descendant of a princely family from Romania, Constantin Bâzu Cantacuzino, born on 11 November 1905, as the son of Mihai Cantacuzino, mayor of Bucharest in 1904-1907, and of Maria Rosetti-Tescani, was already a famous Romanian aviator. Baccalaureate graduate at the state high school in Geneva, student of the universities of Strasbourg and Paris, having a tourism pilot certification since 1933, and then a hunting and public transport one, he stood out as a pilot with exceptional talent, with thorough training and boundless courage, author of large air raids, participant in aviation rallies where the public was enthusiastic about his acrobatic developments at a small height.

Photo 6: Lieutenant Colonel James Gunn (left) and Colonel Constantin Bâzu Cantacuzino (right) celebrate on completion of the operation (Ib.)

Throughout the campaign in the East, Captain Constantin Cantacuzino, promoted in August 1943, was among the pilots with the most air victories. Starting on 6 June 1944, he participated in the 9th aviation hunting group in the first battles he engaged with the American aviation, taking over the command of the group, after the heroic death of Captain Alexandru Șerbănescu.

At the start of the war, in June 1941, Constantin Bâzu Cantacuzino was a pilot-in-chief at LARES. Enrolled voluntarily on the front, he executed combat missions on *"Hurricane"* aircraft within the 53rd Aircraft Hunting Squadron. In May 1943, he was part of the 3rd Group of the German UDET fighter fleet, flying the Messerschmitt 109 G. Throughout the campaign in the East, Captain Constantin Cantacuzino, promoted in August 1943, was among the pilots with the most air victories. Starting on 6 June 1944, he participated in the 9th aviation hunting group in the first battles he engaged with the American aviation, taking over the command of the group, after the heroic death of Captain Alexandru Șerbănescu.

James Gunn would later find out about the deeds of Constantin Bâzu Cantacuzino. For now, as William Fili reports, *"Gunn slowly returned and saw an extremely handsome man, a little younger than him, a man who had an attractive appearance willing to take the risk. A kind of adventurous and daring pilot, credited with many air victories, commander of an elite Romanian combat squadron. He seemed to be a well-educated man and one who seemed to be a member of the aristocracy of Romania"*. The American did not think much and said: *"Let us go now!"*. (Ib., p. 263). Captain Cantacuzino proposed to plan

the flight together, but to take off the next morning. He warned his new comrade that he would have to stay crammed into his Messerschmitt's fuselage, enduring cold and lack of oxygen, conditions that Gunn accepted. So they did and rested in the beds in a building of the Popești airfield.

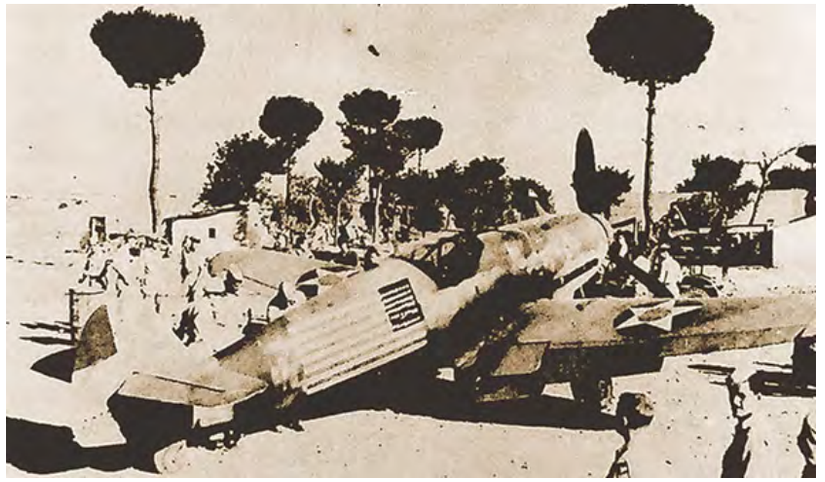

Photo 7: The Messerschmitt 109 G, which brought Lieutenant Colonel James Gunn to Italy (Ib.).

On the morning of 27 August, Cantacuzino and Gunn were still studying the maps, when Valeriu Georgescu entered the training room. He asked the former prisoner to accompany him to a meeting with Iuliu Maniu, the minister secretary of state in the government of General Sănătescu. This is what war veteran William Fili writes in his book: *"After he arrived at the government headquarters in the center of Bucharest and was presented to Mr. Maniu, Gunn listened to the most passionate request he would ever hear in his life. Mr. Maniu did everything, almost kneeling down, and begged Colonel Gunn that, when he arrived in Italy, make the recommendation on behalf of the Romanian government that his country be occupied by American or British forces. Mr. Maniu continued: ‹You are an American representative and, since you were here before the Russians, I'm making this plea to save our small country and its people from another form of dictatorship›. Gunn shook his hand, saying: ‹Mr. Maniu, I will take your message and I will do my best to get it to the competent authorities›"*.

"After he arrived at the government headquarters in the center of Bucharest and was presented to Mr. Maniu, Gunn listened to the most passionate request he would ever hear in his life. Mr. Maniu did everything, almost kneeling down, and begged Colonel Gunn that, when he arrived in Italy, make the recommendation on behalf of the Romanian government that his country be occupied by American or British forces".

(Ib.). Gunn was driven back to the airfield to continue the necessary preparations. He found comrade Cantacuzino assisting in painting the sides of his Messerschmitt fuselage in the colours of the American flag with quick-drying paint. They had the meal, together with the aviator Lieutenant Commander Dan Vizanti, former Commander of the 6th Hunting Group and former chief of cabinet of the Head of the State Undersecretariat of Air. The latter signed an article in the aeronautical publication *"Pionniers"* of the French Aeronautical Association *"Les Vieillles Tiges"*, according to which he was an eyewitness to an acrobatic flight demonstration that Bâzu would have done to demonstrate to the American comrade who he was dealing with. Here is what Vizanti wrote: *"...Whatever the resources of my imagination, it is impossible to describe what happened for 25 minutes. All those present at that air show were amazed by the extraordinary developments of that plane. We watched the flight with the breath cut off, but delighted, witnessing something unique. Such a show I had never seen, although almost all of us were aviators hard to impress in this field.*

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After the 25 minutes of true ‹suspense›, Bâzu, relaxed, decided to land. But how, in what way? At the extreme limit of the aerodrome, at a low height, he began to perform a slow rotation, and then, when he was on his back, to reduce the engine and, in this position, to come on the landing slope. From that moment on, we all held our breath, and the plane continued its descent to the rapidly approaching earth. But at a maximum of two meters from the ground, Bâzu elegantly turned the plane into normal position and, with an artistic gesture, finished the recovery, placing it normally on the ground. The explosion of cheers and excitement, thunder of acclamation and shouts of joy accompanied the plane in its run to the hangar. Indeed, all those who had seen him before on his acrobatic flights appreciated that this time Bâzu had surpassed himself, giving his best in terms of such flight. Undeniable, he was the ace of our aces!" (Tudor, 2000, pp. 188-189).

At 17.20, the Me-109 G took off from the Popești-Leordeni airfield with Bâzu at the handle and Gunn crammed into the fuselage. He was escorted to the Danube by the planes of his comrades Ioan Simionescu and Toni Dușescu. At the indications of his *"navigator"*, the pilot took

the 340-degree heading and landed, at 19.20, on the San Giovanni airfield, 40 km NE from Foggia, where it was the deployment base of bombardment groups 454 and 455 B-24.

After being extracted from the fuselage, Lieutenant Colonel James Gunn telephoned General Nathan Twining, commander of the 15th Air Force at Bari, to inform him of his return and the urgency of rescue measures for the American prisoners in Romania. Since the commander was absent, he called his deputy, General Charles Born, the chief of operations, who decided to immediately organise a conference of strategic interest that very night.

A curious American pilot climbed into the cockpit of Bâzu's Messerschmitt, flew it a few tens of meters, lost control of the direction and went into a *"ground-loop"*, damaging its right *bequille*[5] and *jambe*[6]. Gunn and Bâzu were brought by car to Bari, were each questioned by the special services and invited to take part in the conference. It was decided to carry out the following activities urgently:

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1. Romanian pilot Constantin Cantacuzino to fly a P-51 Mustang aircraft and land at the Popești-Leordeni airfield to pave the way for the advance landing of a 15th Air Force rescue team.

2. Two B-17 Flying Fortress bombers to land at the Popești-Leordeni airfield with the rescue team.

3. The airborne evacuation was to be carried out when the rescue team reported the existence of favourable conditions for the mission.

In fact, this was the plan for the American prisoners rescue operation, later called *Operation Reunion*. It was preceded by an equally important operation, which bore the name of its protagonist – *Operation Gunn*. That same night, Lieutenant Colonel Gunn conveyed Iuliu Maniu's message to General Twining, adding that he himself noted the fear of the Bucharest people that they might fall under Russian occupation. The commander of the 15th Air Force replied that he would forward Mr. Maniu's request to his superiors at the Supreme Allied Headquarters and to General Eisenhower, as it was a political decision.

[5] Device on which the tail of the plane rests, https://dexonline.ro/text/tren%20de%20aterizare (A.N.), in French.

[6] Each of the two legs of the landing gear to which the airplane's wheels are attached, https://dexonline.ro/text/tren%20de%20aterizare (A.N.), in French.

The detailed plan of the operation was drawn up during the day of 28 August and was materialised the next day when, at 8:00 a.m., four P-51 fighter planes took off from Bari, one of them piloted by Bâzu Cantacuzino, who landed at Popești-Leordeni. He checked the security conditions of the airfield, sent the light signal to the three American teammates that everything was in order and they, in turn, communicated by radio, in Bari, that the bombers with equipment could take off.

The two B-17s, each escorted by 16 fighter planes, took off and landed at 15.00 at Popești-Leordeni, one of them having on board Colonel George Kraiger, from the Intelligence Service of the American armed forces. The members of the rescue team were met by the Undersecretary of State from the Ministry of Economy, Valeriu Georgescu, who led Colonel Kraiger to the Mayor of the Bucharest, Victor Dombrovski, to make available the buses needed to transport the prisoners to the Popești-Leordeni airfield (Valjan, pp. 177-178).

The radio equipment was installed and, on 30 August, communication with the 15th Air Force headquarters in Bari was successfully established. In the afternoon, at 5:15 p.m., Captain Constantin Bâzu Cantacuzino took off for Bari, to deliver a letter with the necessary information for the Operation Reunion, which was to begin the next day (https://www.iar80flyagain.org/operatiunea-gunn). Operation Reunion began on 31 August, when 36 B-17s took off in three waves of 12 at one-hour intervals, with the first wave landing at 10:00 a.m. and returning at 10:45 a.m., when the next wave was approaching the aerodrome from Popești-Leordeni, to land at 11.00. The third wave landed at 12:00. The fortresses were escorted by 217 fighter planes (91 P-38 Lighting and 146 P-52 Mustang). During the mission, they were attacked by German fighter aircraft, two Junkers-52s being destroyed and one Messerschmitt 109 damaged. On this first day, 747 ex-prisoners (722 Americans and 25 British) were evacuated, who were personally met by General Twining at the Bari airfield.

On 1 and 3 September, 19 B-17s, escorted by fighter jets, completed the evacuation of all former Allied prisoners of war from Romania. A total of 1,162 people were evacuated, including 1,127 American,

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31 British, two Dutch naval officers, a French petty officer, and a Romanian with a doubtful US passport. Overall, 59 B-17s, 94 P-38s, 281 P-51s, and 1 C-47 were used in Gunn and Reunion Operations. One P-38 was lost, two Junkers 52s were declared destroyed and one Me-109 damaged.

Wiliam Fili, evacuated on the last day, testifies that, upon boarding the bus that took them to the Popești-Leordeni airport, *"everyone stopped, looked around and said goodbye to the people of Bucharest in their own way and expressed ‹Thank you!›, because they helped us survive"*. (Fili, p. 286). This is how Gunn and Reunion Operations ended, in the initiation of which the Romanian aviator Captain Constantin Bâzu Cantacuzino, a true knight of the air, played a significant role.

The American and British prisoners left their testimonies regarding the humanitarian treatment they received during their stay in Romania. They had a chance and they escaped alive, a chance that the almost 3,000 Romanians, victims of the Allied bombings, were deprived of. Most of their earthly remains are buried in the *"4 April Cemetery"* in the Giulești neighborhood of Bucharest, long forgotten by their compatriots.

INSTEAD OF CONCLUSIONS

After more than 50 years, some of the former American prisoners visited Romania. Benedict Yedlin, machine gunner in the spherical turret under the fuselage of the B-24 Liberator bomber from the 449th AvB Group, returned to Romania in 1993, eager to revisit the places he had flown over 12 times: *"Ploiești was quite a difficult, formidable target – he testified – very well defended with anti-aircraft artillery and fighter planes. I didn't think there were people down there, I didn't see anyone. I knew there was a city there, buildings and streets, but I didn't think about the consequences of the bombing if I didn't hit the target"*. (https://www.rador.ro/2021/02/17/1942-1944-anglo-americanii-au-venit-si-ne-au-bombardat-xi/).

The former fighter pilot, Colonel Barry Davis, miraculously escaped alive from the Messerschmitt attacks of the famous Romanian aviator Ion Dobran, came to Romania in 2000 to thank his former adversary for only flying his cabin and being able to land, episode for which he was awarded the *"Purple Heart"*.

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Photo 8: The disaster of "Columbia" refinery, in the west of Ploiești
(https://publicnewsfm.ro/2022/07/31/bombardarea-ploiestiului-cea-mai-mare-infrangere-a-aviatiei-americane/, Damian, 2022).

The former war pilot, Wiliam J. Fili, visited the city of Ploiești in 2005 and presented the Prahova Museum of History and Archaeology with a painting of the portrait of Princess Ecaterina Caragea, as a sign of gratitude for her humanitarian and philanthropic activity towards the American prisoners, treated and cared for in Ploiești hospitals. In memory of the 378 USAF pilots and crew members who fell on the Romanian territory in 1943-1944, two monuments have been built: one in the Cișmigiu Park and another in the Kiseleff Park. This is another perpetual proof of Romanian humanitarianism...

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A HISTORICAL PERSPECTIVE ON ROMANIA'S MILITARY INFRASTRUCTURE: THE EVOLUTION OF CONSTRUCTION REGULATIONS AND PROSPECTS FOR UPDATING

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The article presents the evolution of the military infrastructure in Romania from the 19th century to the present, focusing on the transformations in military construction regulations and the organization of design and construction activities.

With the establishment of the standing armed forces, the technical norms for the construction of buildings and the principles for the barracks layout were defined and architects developed standard projects to speed up construction and minimize costs. The regulations have been adapted over time, following the evolution of the armed forces and military technologies. In the context of the significant increase in the Ministry of National Defence real estate investments in recent years, in order to align with the best international practices, updating the technical infrastructure norms with specifications regarding all types of spaces in the barracks has become timely and necessary.

This study is based on the analysis of military regulations and specialized literature to investigate the evolution of the military infrastructure in Romania, thereby contributing to a better understanding of the current context. In conclusion, the article proposes an action plan for updating the technical norms, as well as a list of objectives regarding the content of these norms.

Keywords: military infrastructure; barracks; history of military construction; military regulations; military facilities;

INTRODUCTION

The 19th century, marking an era of profound social, cultural, and economic transformations, witnessed the emergence of modern military architecture. Various European countries adopted similar plans, materials and technologies, resulting in a form of military architecture globalization. Starting in 1850, military structures with very similar architecture emerged across Europe. (Gatti & Cacciaguerra, 2014).

The development of military infrastructure in Romania gained momentum with the establishment and expansion of the standing armed forces, leading to the construction of buildings designed to accommodate troops, military hospitals, and subsequently, depots and factories for manufacturing war materials. To establish and carry out the necessary infrastructure works, technical departments were set up within the Ministry of War. Shortly after, by experimenting with different solutions and conducting research trips abroad, the norms for the buildings design and the principles for the barracks layout were established. Based on them, military architects began to standardize designs to accelerate the construction process and minimize costs. The construction of military infrastructure continued without interruptions and the living conditions were improved through the development of new architectural plans. The first standardized barracks were based on a plan with a central courtyard. However, the need to increase the capacity and the problems arising from the juxtaposition of incompatible functions led to the abandonment of that model in favour of arranging large central spaces surrounded by pavilions dedicated to a single function. The standardization of dimensions, configuration, and constructive solution allowed, in a relatively short time, the rapid completion of a large number of buildings, leading to the formation of a complex and diversified system of military works at the national level.

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The principles established for the configuration of barracks and for the military construction management have remained valid. However, they have been adapted over time to align with the evolution of the armed forces structure, the military technologies and the changes in construction regulations. Examining the changes in the regulatory framework for barracks infrastructure in Romania, from the initial stages to the adoption of the *interoperability* concept, following the accession to NATO and the EU, I consider it necessary for the infrastructure norms to be reviewed and supplemented in order to improve both functional and economic standards in military construction.

After 1840, the increase in the number of military units led to a new development phase. During that period, it was decided to build large barracks in garrison towns, inspired by models from abroad. The projects and studies for the necessary military constructions were carried out by foreign engineers and architects employed in the Engineers' Section (Secțiunea Inginerilor) within the Ministry of the Interior.

THE BEGINNINGS: 1829 – 1877

Following the provisions of the Treaty of Adrianople in 1829, the Romanian national army was established, having a fixed organization and location, prompting the need for appropriate infrastructure development (Corneanu, 2018). Barrack construction began in 1831, immediately after the implementation of the *Organic Regulation (Regulament Organic*). As this process was lengthy, the *Organic Regulation* allowed for the use of temporary buildings and established the principle of billeting troops with residents. During that period, the conception of military constructions was influenced by experts from the Tsarist army, an influence that would continue until the withdrawal of the Russian troops from Romanian territories. Representative for that era is the Oota Barracks in Craiova, developed in 1832 by the Russian General Kiseleff (Herjeu, 1902, p. 197).

After 1840, the increase in the number of military units led to a new development phase. During that period, it was decided to build large barracks in garrison towns, inspired by models from abroad. The projects and studies for the necessary military constructions were carried out by foreign engineers and architects employed in the *Engineers' Section (Secțiunea Inginerilor) within the Ministry of the Interior*. The first barracks were experimental, combining in a single building all the functions necessary for housing, feeding, training and administering the troops. Shortly thereafter, it was proven that type of barracks, referred to at the time as centralized, *"was not suitable for the country's climate, military organization, or the living habits and customs of our soldiers"* (Ib., p. 200). Representative examples from that period include the former Malmaison barracks on Calea Plevnei, the only barracks in the Romanian Armed Forces configured as a closed quadrangle, or the main building of the barracks on Dealul Copoului in Iași.

After the Unification of the Romanian Principalities, in the process of the army reorganization, the foundational elements of the Romanian engineering branch were established. In 1859, the *Army Engineering Service (Serviciul de Geniu al Armatei)* was born, embedded in the *General Staff Corps (Corpul de Stat Major General)*, in charge of *"transitory and permanent fortification works; all works related to the construction and maintenance of military or public buildings in general, such as: barracks, guard posts, stables, hospitals, prisons and others; construction and installation of movable and permanent bridges; management of public works that are executed with the help of the army"* (Ib., p. 204; High Ordinance no. 83 of 12 November 1859, art. 7, letters C, D and F), and in 1860 the *Technical Council of the Engineering Corps (Consiliul Tehnic al Geniului)* was established, tasked with *"reviewing any project or estimate"* (Ib., p. 205; Order of the Day, 25 May 1860, issued to the Army).

In 1863, the ***Barrack Regulation (Regulamentul Casarmelor)*** was introduced, the first regulation of this kind, inspired by the French one, which contained provisions regarding the maintenance, furnishing and guarding of barracks. Regarding the organization and conformation of the barracks, article 7 of the regulation outlined the types of buildings, while chapter IV established the principles for organizing and sizing spaces. In addition, according to the regulation, construction projects were carried out by engineering officers and the execution of works could be carried out either by military forces or through contracting. The principles of that regulation have been preserved to this day, being constantly improved and adapted according to legislative changes. Thus, in 1870, the new ***Regulation on Barrack Service (Regulament asupra serviciului casarmării)*** was approved, a reduced version of then-current French regulation, which further detailed the composition and sizing of spaces in barracks, as well as their furnishing.

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During that period, the development of permanent infrastructure continued, with the construction of barracks, hospitals and military depots. Regarding the design of military buildings, following the studies undertaken in England to improve barrack conditions, the barrack type with multi-purpose buildings was abandoned and a new system was adopted, in which each building was dedicated to a single function. Based on those principles, following the study of the European barracks, Major Z. Gheorghiu developed a troop pavilion project that was implemented for the first time in 1875 at the Engineer Battalion Barracks in Bucharest. The design was later adapted for the Artillery Barracks in Roman and other barracks, leading to a standardization of the building. That process was not carried out in a rigid manner but allowed the continuous improvement of the construction solutions.

Based on the analysis of the different systems applied in the country and abroad, the principles for the construction of new barracks were revised to include the subdivision of the barracks' mass into smaller buildings; grouping buildings by services and separating the living quarters from other functions; consolidating administrative and training services within one building; establishing a separate infirmary pavilion; creating a dedicated pavilion for storing the troop's war equipment etc.

CONSOLIDATION: 1878 – 1918

After the War of Independence, the volume and complexity of the works increased rapidly, prompting, in 1881, the establishment of the *Engineering Central Service (Serviciul Central al Geniului)*, subordinate to the minister, tasked with the study of major military building projects and standard designs, as well as the review of projects proposed by regional services. The service was led by Major Z. Gheorghiu and promoted the use of the decentralized principle and standardized projects. In 1886, the *Engineering Central Service* was a disbanded and the *Engineering Directorate (Direcția Geniului*) was established within the Ministry of War, which would henceforth carry out the projects and studies for barracks and military constructions. The technical staff from the Central Service was transferred to the Directorate, where it would form the *Engineering Technical Service (Serviciul Tehnic al Geniului)*, led by Captain A. Pavlo.

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In 1894, a new ***Engineering Technical Service Regulation (Regulament privind Serviciul Casarmamentului)*** was implemented (High Decree no. 1820, 29 April 1894, in *Monitorul Oastei*/Army Gazette no. 39, 28 June 1894), which updated the existing regulations according to the orders issued in the meantime with specifications related to the construction and administration of the fortifications, establishing, at the same time, a separate fund for the purchase of furniture. As a result of the numerous legislative changes that occurred in the meantime, it was revised two years later (High Decree no. 682, 7 February 1896, published in *Monitorul Oastei* no. 22, 4 March 1896), to include: the provisions of the Minister published as instructions, the types and nomenclature of the army furniture, the duties of the fortifications engineering services, the regulation of testing laboratories, the introduction of a chapter on officers' housing and the additional duties of commanders regarding barracks. In 1908, a new ***Regulation on the Barrack Service (Regulament asupra serviciului cazarmării)*** was approved (High Decree no. 745, 1 May 1908, in *Monitorul Oastei* no. 69 and no. 30, 3 June 1908), which made modifications particularly in the field of barracks administration, redistributing responsibility to regional structures. Afterwards, the investments in construction declined, with focus shifting towards improving combat techniques and increasing combat troop numbers.

During the First World War, most of the barracks remained in enemy-occupied territory. The existing barracks within the territory of Romania, reduced to the area of Moldova, insufficient for the Romanian and allied (tsarist) troops, were complemented by temporary camps. Under those conditions, the *Temporary Barrack Directorate (Direcția Baracamente)* was established within the Engineering Directorate, thus separating the temporary constructions from the rest of the military constructions.

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ROMANIAN MILITARY THINKING

EXPANSION: 1918 – 1947

After the end of the war, when the troops of the Romanian armed forces were deployed throughout the country, the military construction activity focused on the necessary works for the rehabilitation of the old barracks and for their expansion by building new pavilions. Under those conditions, the activity of design, construction and military domains was separated from the activity of the *Engineering*, through the establishment, on 18 June 1920, of the *12th Domain and Barrack Directorate (Direcția a XII-a Domenii și Cazarmament*), renamed, in 1929, the *Military Domain and Barrack Directorate (Direcția domeniilor militare și cazarmamentului*) and, in 1939, the *Military Construction and Domain Directorate (Direcția construcțiilor și domeniilor militare*).

The activity of restoring the barracks began with a comprehensive inventory process. All the barracks, buildings and lands used by the armed forces were published in the *Military Construction and Domain Yearbook* (*Anuarul construcțiilor și domeniilor militare*), published in 1921, and in a second edition from 1925, entitled the *Military Construction and Domain Indicator (Indicatorul construcțiilor și domeniilor militare)*.

In order to guide the modernization and expansion of the infrastructure, in 1921, the ***Regulation of military constructions and domains (Regulamentul construcțiilor și domeniilor militare)*** was approved, a regulation that remained in force for the next 30 years. According to art. 19 of the Regulation, the Military Construction and Domain Directorate managed the album of standardized constructions and the file with the related plans of those constructions, as well as the album of the armed forces standard furniture.

During that period, an extensive military infrastructure development programme was executed to meet the needs of the armed forces, which were undergoing a phase of modern reconstruction. Thus, in a span of only 20 years, all the old barracks were modernized and a substantial number of new barracks were built. There were created warehouses for ammunition and combat equipment, factories and arsenals for the production of war materials, airfields for military aviation and military aviation schools, barracks for tank units, for air station regiments, for anti-aircraft artillery regiments and for the regiments that had to fight

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in the fortifications in the west of the country, as well as for the units deployed in Bessarabia, Bucovina and the Quadrilateral. Numerous military clubs were also established. In their vast majority, the projects were ensured by the Directorate's specialists. Only for some representative buildings, the projects were carried out by architects from the civilian sector, such as the case of the Military Academy, designed by the architect Duiliu Marcu.

During the Second World War, the construction of pavilions and barracks continued, investments in permanent constructions doubling in the three and a half years of the war compared to what had been built in the 20 years of the interwar period (Bărbulescu et al., 1996). During that period, the activity of building the military infrastructure was influenced by the need to prioritize the provision of barracks for the commands and troops of the German Military Mission (until August 1944) and later for the Soviet troops stationed on the territory of our country. Because of the inability to establish post-war military deployment locations, the period was characterized by the use of temporary constructions, cheaper and faster to build. In addition, the Construction and Military Domain Directorate built camps of pit houses. Permanent constructions were erected only on stable sites regardless of the circumstances, involving the completion of some already started works and the creation of training centres.

THE TRANSFORMATION: 1947-1989

After the end of the War, some of the barracks and installations were either destroyed in the war or damaged in the withdrawal of the fascist armed forces from Romania. In addition, the *Peace Treaty between Romania and the Allied and Associated Powers*, signed in 1947 (Monitorul Oficial/Official Gazette no. 199, 30 August 1947), allowed the USSR to keep a large number of units of all branches on the territory of our country, Thus, the Soviet armed forces occupied some of the best barracks, airfields, warehouses, buildings for military personnel. As a result, the Romanian military units were relocated to areas devoid of barracks, necessitating the construction of new facilities and the repair and modernization of the existing infrastructure in the initial years after the war.

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In 1958, following the decision of the Soviet leader, Nikita Sergheevici Khrushchev, to withdraw the Soviet forces from Romania, a large number of barracks were vacated and transferred to the civil administration. In the 1960s, the main concern was the modernization of the existing infrastructure. Focusing on the optimization of material consumption, emphasis was placed on the vertical development of pavilions and the reduction of barracks into smaller perimeters. The systematization of those barracks was based on the principles of functional zoning, partitioning distinct zones for: the guard zone, the socio-cultural buildings zone, the facilities zone, the depot zone, and the technical and parking zone. The modest constructions were replaced with P+2 pavilions made of masonry and reinforced concrete that included modern facilities and provided higher interior comfort (Tîrzioru, Pădureanu, 1995, p. 262).

The occupation of Czechoslovakia by the Warsaw Pact troops in 1968 led to enhancing the armed forces combat capabilities. As a result, additional investments were made to supplement existing accommodation spaces and to build new barracks for command units and newly established units. The constructions made during that period were very diverse, standing out both for the level of thermal insulation and waterproofing provided, as well as for the increased attention paid to the external appearance of the facades.

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Under the conditions of the centralized and planned economy, the activities of the Military Construction and Domain Directorate were carried out according to the national regulations applicable to all similar institutions in the national economy, namely the obligation to obtain the approval of the Council of Ministers for projects greater than 50 million lei and the submission of proposals for the annual and f ive-year work plan. The military constructions were continuously aligned with the laws in force in the national economy through orders approving regulations and instructions regarding the military infrastructure. Thus, in 1952, the Military Domain Regulations were replaced with regulations dealing separately with: administration and operation of barracks, fire prevention etc. Also beginning that year, standardized design was regulated as a standard in military architecture. For each project, a preliminary design consisting of the site plan and the standardized project was prepared and subjected for approval in the Ministry of the Armed Forces and, subsequently, sent for endorsement to the *State Planning Council (Consiliul de Stat al Planificării*). When the standardized project could not be used, the plans of a new project and a facade were attached. Based on the design order, the technical project and estimate were made. Moreover, with the adoption of the Armed Forces Reorganization Law in 1947, which also established the responsibilities of the Military Construction and Domain Directorate, among the responsibilities of 1st Bureau of the 1st Service – Studies and Projects, we find as an activity the study and record keeping of the standardized buildings and furniture (Bărbulescu et al., p. 45). In 1972, following the legislation that restructured the design activity throughout the country, the *Military Construction Design Centre (Centrul de Proiectări Construcții Militare*[1]*)* was established. Within its organizational structure, Workshop 4 was responsible for the standardized designs, an activity that would be taken over by the other 3 workshops. Also in 1972, following the adoption of *Law no. 14 regarding the organization of the national defence of the Socialist Republic of Romania (Legea nr. 14 privind organizarea apărării naționale a Republicii Socialiste România)*, the infrastructure regulations, named Cz, were revised and supplemented. Thus, *Cz. 21 Technical norms for accommodation (Cz. 21 Norme tehnice de cazare)*, approved by General Order of the Minister of National Defence no. O.G. 4/1975, remained valid until 2008. In the '80s, as part of the national policy regarding construction[2] investments, a new catalogue was approved, with 37 standardized projects specific to the military field, which replaced the 130 existing projects, in order to reduce investment costs by approximately 20%.

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[1] In 1950 the Design Department within the Military Construction and Domain Directorate was transformed into the Design Section and, in 1951, the Design Directorate was established as the central body of the Ministry of the Armed Forces. In 1955, the Design Directorate became the *Military Institute of Studies and Design (Institutul Militar de Studii și Proiectare)*, which would operate until 1958, when it was replaced with the *Design Section of the Construction and Troop Accommodation Directorate (Secția de Proiectare din cadrul Direcției Construcții și Cazarea Trupelor*). When the Directorate was reorganized in 1971, the Design Section became an independent body, subordinate to the Minister, called the *Military Design Sector (Sectorul Militar de Proiectare)*. (A.N.).

[2] *Decree no. 418/1980 on the standardization of constructions, technologies, as well as materials and elements for construction and installations (Decretul nr. 418/1980 privind tipizarea construcțiilor, tehnologiilor, precum și a materialelor și elementelor pentru construcții și instalații)* is the latest legal provision in a series of regulations and recommendations regarding standardization and prefabrication, replacing architecture with *"standardised design"*. (A.N.).

A major change during that period concerned the execution of construction works. If, until 1946, most of the construction works were carried out by contracting private companies, starting in 1947, for small-scale works as well as capital and current repairs that could not be carried out by the beneficiary units, construction detachments were established at the territorial bodies for constructions and domains. Those works were the most common in the barracks occupied by the Romanian armed forces. For the investments needed for the barracks of the Soviet armed forces, the construction works were carried out by contracting state-owned enterprises in the field of construction, plumbing, electrical etc. Starting in 1950, when a large number of investments in barracks and housing were initiated, 16 construction battalions were established, dispersed throughout the country. In 1952, the Military Construction Enterprises were established, organized by battalions, on the territorial principle, which took over the tasks and leadership of the construction battalions in the particular area. Frequent reorganizations led to the emergence of the Military Construction Sectors.

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REFORM: 1990-2015

The political, economic and military transformations that took place after 1989 were also felt in the military field. Based on the provisions of annual Framework Plans regarding the armed forces reorganization changes occurred in military doctrine, in the command structures and in the forces organization.

Regarding the military construction activity, starting in 1990, measures were taken to stop the engagement of military structures in the national economy and to reduce the personnel through the disbandment of some units, as well as their transformation or resizing. Thus, the Construction Sectors were disbanded, the Territorial Administration Centres were established, and the functions within the Design Centre were reduced. If, until 1990, around 16,000 people worked in the armed forces in the field of military construction, their number was reduced to only 150 people, military and civilian, in the period 2010-2015 (Bartoș, 2021). Currently, the Domain and Infrastructure Directorate, whose name dates back to 1999,

and the current organization, with some changes, to 2008, has under its command six Domain and Infrastructure Centres, with headquarters in Bucharest, Craiova, Sibiu, Focșani, Iași and Constanța, a Centre for studies and design of military constructions and a Centre for intervention in emergency situations.

Especially after 1973, the armed forces did not receive the necessary funds for the maintenance and repair of barracks, so that in the early 1990s most barracks were in a state of disrepair, and after 1990, the funds for capital investment and repairs in the armed forces diminished. Military construction activity continued with the completion of the major objectives started before 1989, but the number of new investments was reduced. Because of the lack in funds, some barracks were made entirely from prefabricated wooden temporary pavilions. The interventions on the existing infrastructure, most of the works carried out during that period, were aimed at consolidating the buildings and modernizing them by improving accommodation conditions and introducing data networks. (Bărbulescu et al., 1996).

Until the year 2000, a series of legislative acts were developed that coordinated the armed forces reform process. Based on the objectives established by the *National Security Strategy of Romania* (2001) and the *Military Strategy of Romania* (2000), the infrastructure was resized, modernized and facilities were created for the conduct of multinational military actions.

During that period, new works were also carried out to provide command, accommodation and training facilities for the newly established units in the counties of Satu Mare, Bihor, Arad, Harghita and Covasna, as well as the infrastructure of the anti-aircraft surveillance system in the locations of Cluj, Craiova, Constanța, Timișoara and Suceava (Direcția domenii și infrastructuri, 2010, p. 12). Concurrently, the disbanding of some units and the abandonment of compulsory military service (2007) had major implications on the existing infrastructure, so that in the period 1995-2006, a number of 149 barracks from all over the country were transferred to civilian use (Petrișor, 2011, p. 93).

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In 1998, Decree no. 418/1980 regarding the typification of constructions, technologies, as well as materials and elements for constructions and installations, which mandated the exclusive use of standardized projects, was abolished. At the national level, the use of standardized projects was no longer mandatory, and in the armed forces it was used less and less, also because the focus was shifted on the rehabilitation of the existing fund.

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Following Romania's accession to NATO (2004) and the EU (2007), in 2008 the regulations specific to the military construction activity were revised. *Cz-21/75 Technical Norms for Accommodation* was replaced with *Order M45/2008 for the approval of the Technical Norms for Domain and Infrastructure* and *Cz-81/74 Instructions regarding the administration, use and maintenance of the accommodation fund of the Ministry of National Defence* and *Cz-1/94 Regulation of accommodation activity* were replaced with *Order M91/2008 and with the Regulation of Real Estate in the Ministry of National Defence*. The prescriptions for infrastructure management, reflecting the orientation towards the Alliance defence strategy and the increasing importance of deployable forces, include new concepts related to the mobility and adaptability of facilities. However, the infrastructure standards contain less information regarding the dimensioning and functional organization of buildings, limited to specifications regarding the organization of office spaces. Consequently, the responsibility for interoperative compliance and facilities requirements was transferred to the beneficiary structure.

For the implementation of agreements between Romania and the USA, the works intended for the US troops stationed at the Mihail Kogăniceanu base were completed and the Babadag, Smârdan and Câmpia Turzii training ranges were rehabilitated. In 2013, the main construction works at the Missile Defence Facility in Deveselu were inaugurated.

During that period, the first works were carried out for the development of infrastructure in partnership, based on international agreements and alliances. For the implementation of agreements between Romania and the USA, the works intended for the US troops stationed at the Mihail Kogăniceanu base were completed and the Babadag, Smârdan and Câmpia Turzii training ranges were rehabilitated. In 2013, the main construction works at the Missile Defence Facility in Deveselu were inaugurated. Also, by 2005, the first NATO Security Investment Program (NSIP)- funded objective was completed and new investments were initiated for the military units deployed in Fetești and Otopeni (Direcția domenii și infrastructuri, 2010).

INTEROPERABILITY: 2016-2023

In order to strengthen Romania's status within international alliances, our country initiated an extensive investment programme in the modernization and expansion of the military infrastructure. The investments, based on the regulations of the Ministry of National Defence and NATO standards, underline our country's commitment to interoperability and effective integration into allied structures. The orientation towards interoperability is reflected in the infrastructure's capacity to support joint operations, ensuring seamless cooperation and increased operational efficiency.

Among the Ministry of National Defence objectives are the provision of adequate administrative and training spaces for the newly established commands, such as: the Joint Forces Command, the Special Operations Forces Command, the Cyber Defence Command, the Multinational Division SE Bucharest and the Multinational Brigade SE Craiova; and the infrastructure development for procurement programmes such as: Patriot/HSAM, Piranha, HIMARS/Larom and Spike systems. These investments represent an important step in strengthening Romania's defensive capacity and aligning it with advanced military technologies. Additionally, the Ministry of National Defence focuses on the modernization and expansion of the infrastructure of the air bases at Borcea, Mihail Kogălniceanu, Câmpia Turzii and Otopeni. This involves not only the improvement of existing facilities, but also the construction of new structures. Another aspect is the collaboration based on partnerships for the development of common locations such as Cincu, Mihail Kogălniceanu, Deveselu and Câmpia Turzii. These investments not only strengthen Romania's ties with its allies, but also facilitate the exchange of expertise and resources, vital for maintaining a high standard of training and operational readiness. (Icleanu, 2023).

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Since 2016, investments have seen a significant increase, and in order to meet the new objectives, the staff of the Military Construction Studies and Projects Centre has been increased. In 2022, the sixth Centre for Domain and Infrastructure (CDI 6) was established in Constanța. To ensure an adequate infrastructure, compatible with that of the strategic partner and NATO partners, CDI 6 aims to fulfil the role of host nation in the implementation of national/regional initiatives to ensure a tailored forward presence of NATO allied forces in the

southern part of the eastern flank, in the Black Sea area (Nedelcu, 2022). Also in that year, the head of the Domain and Infrastructure Directorate issued directives that updated the regulations related to infrastructure and real estate, namely *Disposition no. DDI-12 of 13 June 2022, approving the Technical Norms for Domain and Infrastructure*, and *Disposition no. DDI-13 of 17 June 2022, approving the Real Estate Regulation in the Ministry of National Defence*.

The increase in Romania's defence budget to 2.53% of GDP for the year 2023 represented a key factor for financing the modernization of the military infrastructure, underlining the national commitment to security and the fulfilment of international obligations. Considering the resource constraints of the past, which now lead to an urgent need for the development and modernization of the barracks infrastructure, the budget increase allows the implementation of a comprehensive programme of modernizing and developing the military infrastructure. In this context, I appreciate that it becomes pertinent to develop an effective strategy for the rapid construction of a large number of buildings, alongside a review of infrastructure norms, to ensure interoperability with the standards of international alliances.

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CONCLUSIONS

The analysis of the evolution of barracks infrastructure in Romania highlights several important trends in the development of military infrastructure, such as:

Standardization of constructions through regulations: The technical norms for infrastructure emphasize an orientation towards standardization and efficiency. It entails not only simplifying the construction process but also ensuring uniformity in quality and design, thereby ensuring coherence in military infrastructures at the national level.

Standardized design: The use of standardized projects and their recommendation for certain situations by regulation bring significant benefits in terms of time and cost efficiency. By applying predefined designs, the planning and execution process is considerably simplified, allowing a faster and more economical completion of works. This method also ensures consistent quality of constructions due to the application of uniform standards across all projects.

Speed and adaptability: The development of technology in the field of construction has led to the adoption of new typologies of prefabricated and mobile constructions. It provides increased flexibility and efficiency in the deployment of military infrastructure. Moreover, projects can be designed to allow adaptations and modifications to meet the specifics of different locations or changes in operational requirements.

Interoperability: The evolution of infrastructure regulations, aligned with the national defence strategy, focuses on interoperability and coordination with the standards of partners and allies. The adaptation of infrastructure norms and procedures to the requirements and protocols established at the international level becomes a key element in improving the response and collaboration capacity of the Romanian armed forces.

These aspects underline Romania's efforts to modernize and adapt the military infrastructure to contemporary requirements, emphasizing the importance of standardization in the context of interoperability between military structures.

In the context of increasing investments in infrastructure in order to improve efficiency, I consider it is opportune to review and supplement the technical norms regarding infrastructure, which are currently limited to aspects related to the sizing and furnishing of offices. In this regard, these regulations could be extended with specific details to all types of spaces within the barracks, thus ensuring a more comprehensive and effective approach. It is important that these updates to the regulations should be made in a consultative manner, involving experts from different fields and taking into account recent technological and operational developments. Additionally, alignment with the standards used by our partners and allies by coordinating with their regulations is also necessary. It not only ensures that the infrastructure and managing procedures are compatible and can be easily integrated in case of joint operations or exercises, but also that best practices and innovations in the field are shared. Such cooperation can lead to increased efficiency and overall effectiveness within military alliances.

Upon a careful analysis of the evolution of norms for military infrastructure, it becomes evident that some principles, although

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still applicable in practice, are not reflected in the current norms. Reintroducing these elements – including the principles of functional zoning and detailed *room-by-room* specifications – would contribute significantly to increasing the quality of military infrastructure.

Elements that can be regulated and included in the technical norms are:

❖ **The functional zoning of barracks**: Regulation should establish guidelines for the spatial organization of barracks, optimizing operational efficiency, safety and well-being of personnel, taking into account accessibility, security requirements and the integration of various functions.

❖ **Typologies of military constructions**: Classification of different types of military buildings in a well-defined system helps to better organize resources and plan constructions efficiently. Tracking investments for the same building type can be an effective strategy for estimating reference prices. In addition, the standardized classification of military buildings ensures a consistent level of quality and safety. It also helps ensure compliance with national and international regulations, as well as construction and safety standards.

Classification of different types of military buildings in a well-defined system helps to better organize resources and plan constructions efficiently. Tracking investments for the same building type can be an effective strategy for estimating reference prices.

❖ **Specifications for pavilions on the *room-by-room* principle**: This approach provides a balance between flexibility and standardization in the design of interior spaces. The spaces are designed to allow for easy modifications and extensions, thus dynamically adapting to changing and evolving needs. At the same time, maintaining a certain standardization in design ensures coherence and efficiency in the use of spaces, facilitating the reconfiguration of the infrastructure with minimal effort and resources. This combination of adaptability and design uniformity effectively responds to changing needs without sacrificing operational efficiency.

❖ **Constructive typologies for buildings**: Regulation must clearly differentiate between temporary, mobile, adaptable and semi-permanent constructions, providing examples for each category and detailing recommendations for their use and prescriptions for construction management throughout the lifecycle.

These elements will provide a solid framework for the development of the military infrastructure, ensuring the fulfilment of current needs and adaptability to future challenges. However, for an effective update of the technical norms for infrastructure, a detailed analysis of the relevant documents is crucial. It should include:

- **Abrogated infrastructure regulations** in order to establish the elements that should be revised, supplemented and reintroduced in the current regulatory framework;
- Identification of all **normative acts that include regulations regarding the spatial and functional conformity of barracks to ensure the integration of this regulation in the national legislation framework and specific normative acts**. In addition to the documents developed by the structures of the Domain and Infrastructure Directorate, such specifications can also be found in the orders of the Minister of National Defence, as well as the regulations regarding: the storage of technical materials or the military equipment park, the provision of physical protection or the provision of voice-data networks;
- Identification of **NATO and US Department of Defence standards and best practice examples**.

This comprehensive approach will ensure that the Romanian armed forces infrastructure regulations are complete, topical, and in line with international standards.

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