

NEW CHALLENGES REGARDING THE DEVELOPMENT AND CONFIGURATION OF THE ARMORED CAPABILITIES

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Abstract: A new international security paradigm in the evolution of the international environment and modern battlefield requirements implies the reconsideration of the combat large-scale operations concept. Consequently, the need to reconsider this concept generates a number of imperatives in configuring and developing tactical force structures and formations. Flexibility, versatility, operational mobility, as well as the ability to survive in the tactical field are general but mandatory requirements for those forces. Armored forces, the main striking force of the tactical units must be versatile and adaptive in order to create the premises for gaining and maintaining initiative and ultimately generate the conditions to prevail on the battlefield. New technologies, peer enemy capabilities development, but also the need to create a responsive, credible and effective force represent the references that shapes today future armored capabilities.

Keywords: armored capabilities; modern battlefield requirements; firepower and protection; maneuverability; lethality and survivability; force projection.

Introduction

Over the last twenty years, our society has been marked by a period of continuous changes in political, social, economic and environmental domains. Regarding those changes, we must emphasize the direct influence of the galloping technological development. All these environment transformations have inherently generated the evolution of the security environment. A new international security paradigm intrinsically generates adaptations and transformations of states security policies and strategies. Today's instability situation existing across the globe, increased by the tendencies of some state or non-state actors to find their source of power by using unconventional and hybrid methods, generate a security environment characterized by volatility, uncertainty, complexity and ambiguity.¹ Also, I would like to subscribe to the ideas of some Romanian authors regarding the inherent connection existing between *binomial national defence – collective defence* and the *trinomial threat – risk – vulnerability*. The ways in which threats, risks and vulnerabilities are approached generate the level of security.² At the same time, it should be emphasized that the military instrument of national power has to undergo adaptations in order to meet the new security requirements.

Therefore, the Alliance stressed the need to design and build military capabilities and force packages, with appropriate operational and strategic mobility, decisive lethality and last but not least, the ability to survive in the tactical field. These forces must also be able to execute multi-domain operations in all operating environments, including the cyber and electro-magnetic space. Thus, multinational and joint operations become mandatory benchmarks in the execution of allied operations. The *Framework for Future Alliance Operations – 2018* highlights some of the force characteristics designed to meet the Alliance's strategic objectives.³ So, those forces must be "credible, networked, aware, agile, and resilient".

¹ *VUCA concept* (Volatility, Uncertainty, Complexity, Ambiguity) was first used in 1987 in the United States by professors Warren Bennis and Burt Nanus in theories of leadership, in order to describe the general characteristics of situations in which leader usually acts; later, the concept was taken over in the field of security, today being often used for the general description of the current security environment.

² Viorel Barbu, Cristian-Octavian Stanciu, *Hybrid Risks, Vulnerabilities and Threats Against Romania*, The 16th International Scientific Conference Strategies XXI, "Technologies – Military Applications, Simulation And Resources", May 21-22, 2020 Bucharest, Romania, p. 17.

³ The NATO – 2010 Strategic Concept called "Active Engagement, Modern Defence" is designed based on the three pillars: *collective defence, crisis management* and *cooperative security cooperation*. Source: https://www.nato.int/cps/en/natohq/topics_56626.htm, accessed on 18.01.2021.

Recent hostile attitude and actions of the Russian Federation in the vicinity of our country emerge into complex implications on regional security relations. Therefore, in an unavoidable way, a sum of profound risks and threats to the states security have been generated in the region. Unfortunately, vulnerabilities are not lacking. Moreover, recent years tendencies in designing the national defense system, with the accent on the fulfillment of international missions, a feature found in several NATO member states, has created syncope in the process of preparing and achieving defense and deterrence capabilities. Consequently, it is necessary to reconsider combat large-scale operation concept and this fact might imply not only doctrinal changes, but also reconfigurations and modernizations of force structures.

Taking in consideration the facts presented above and corroborating them with the fact that Russia is the main potential enemy⁴ and destabilizing element in the Black Sea region, we have preliminary premises to develop our analysis. Due to the fact that Russia continues several programs in developing its military capabilities, NATO members actions imply a series of measures to achieve and build military capabilities and forces for deterrence and defense. Romania, as NATO and EU member, must accomplish the same objectives. Political decisions taken recently and confirmed by the legislative regulations and initiatives, regarding defense domain, prove the national determination to develop the fighting capacity of the Romanian Army. Achieving a credible defensive capability is the only viable option for achieving the country's security objectives, as stressed by NATO military experts. These are common imperatives for all the countries in the south-eastern NATO border.

Pushing things further on, the present analysis tries to highlight the importance and need to reconsider the development and use of armored structures. We also want to discuss a series of benchmarks regarding technological innovations in design of armored vehicles. Those breakthroughs practically become imperatives, given the confrontation environment's current digitalization. A series of considerations and pertinent proposals regarding the configuration of the tactical armored structures were issued in order to strengthen our approach and also provide consistency.

Regarding the research methods used in this analysis we should emphasize the importance in studying the national and allied reference documents, but also a number of secondary sources containing pertinent considerations regarding the subject. By realizing a comparison of NATO main army's armored vehicles with those of potential enemies, we managed, using deductive reasoning, to highlight the trends in the evolution of armored platforms and armored structures.

Consequently, the present research is closely connected and focuses on finding out the answer to the following questions:

- Which are the references that generate the necessity to reconsider armored capabilities concept?
- How do the new technologies influence the development of armored capabilities?
- Which are the directions that have to be followed in order to obtain a strong capability in accordance with today's battlefield requirements?
- How do armored tactical formations need to be designed in order to meet the requirements of multi-domain operations?

Before starting to describe the reason for reconsidering armored capabilities and before issuing several directions in which armored capabilities should be developed, I think it might be beneficial to clarify the concept of armored capability. To be more specific I will try to outline the connection between armored capabilities and types of land forces identified by NATO doctrines and manuals. According to NATO ATP-3.2.1, *Allied Land Tactics*, land forces

⁴ Romania's National Defense Strategy for 2020-2024 identifies Russia as a potential enemy in the proximity of our country, highlighting at the same time the importance of building credible defense capabilities.

“core” comprises heavy forces, medium forces and light forces. The same publication identifies specialist capabilities as airmobile, air assault and airborne forces, amphibious forces, mountain forces and reconnaissance forces. Additional force terminology mentions armored forces, mechanized forces and motorized forces. A detailed description of those forces is made by several publications.⁵

After a short analysis of those terms it can be concluded that armored capability is a designated tactical force equipped with tanks and/or armored fighting vehicles, most of the time in an optimal combination, in order to project an effect on the battlefield. The capability supposes several enablers including combat engineers, armored reconnaissance, self-propelling artillery and army aviation. All these enablers are allocated related with the force’s assigned mission, size and enemy’s capabilities. Armored capabilities refer to those tactical units embedded in heavy and/or medium terminology. Using a mix of heavy and medium forces an optimal effect could be obtained in terms of firepower, mobility, protection, flexibility and psychological effects.

References regarding the necessity for reconsidering armored capabilities

A few aspects related with the reason for and need of reconsidering the modality in which armored capabilities should be renewed could be helpful. Looking forward, a short analysis was made, including: historical references, space and time in military actions, requirements of the modern warfare, peer enemy capabilities and its hostile attitude, fundamentals of land operations and human perception. By considering and analyzing these critical factors, premises for the necessity and future development of armored capabilities could be foreseen.

Historical references

Starting with First World War, when battle tanks were designed and used for the first time in combat, modern warfare has started to rely, in an increasing way, on armored capabilities. Even if the initial purpose of the tanks during the “*trench warfare*” was to overcome trenches and support infantry attacks, commanders foresaw the opportunity to create a capability able to penetrate enemy’s lines and strike the enemy’s flanks and rear. Therefore, tanks were continuously developed and in Second World War both sides used them on the battlefields with maximum efficiency. Yet, the approach in using these lethal and versatile weapons was different. At the beginning of the war, even if the French Army outnumbered the Wehrmacht in tanks, by outflanking the static French defense, the Germans seized the opportunity to strike their vulnerability. Incapacity to adapt their tactics in using tanks in battle resulted in a disaster for the French Army which collapsed just in a few weeks. Combat experience forced most of the armies to adapt their doctrines and tactics in using tanks. Close to the end of 2nd World War the need for tanks close-protection in urban warfare was disclosed, and synchronized actions with infantry elements became mandatory. States from all over the world tried to enhance their tanks and armored capabilities after the war’s end. To keep up with the tank units, infantry received fighting vehicles with considerably firepower protection and mobility. Automotive artillery, using tanks platform, was also built, in order to support in an appropriate modality armored unit operations. Moreover, armored units constantly received air support from aviation and recently, air support from attack helicopters is an integrated task in joint operation.

As a consequence, during the Cold War, the need to enlarge the armored units was one of the major objectives of armies all over the world. Also, it is true that the enhancement of the platforms has continued and constant improvements regarding mobility, firepower, protection and communication have been made. The several conflicts between Israel and Arabian states have demonstrated the importance of air superiority and initiative and consequently the

⁵ ATP-3.2.1, *Allied Land Tactics*, Edition B, Version 1, August 2018, p. 3-5; F.T.-3, *Manualul de tactică generală a forțelor terestre*, Bucharest, 2020, p. III-19.

importance of air defense in preserving the armored capabilities' ability to survive.⁶ However, Arabian states outnumbered the Israeli Army in tanks and airplanes lack of initiative, losing air superiority and the dysfunctional and slower decisional cycle prevented the Arabian armies from being successful.

In my opinion, the history of armed conflicts, since battle tanks were designed, has demonstrated the inherent relation between armored capabilities and conducting operations in modern warfare. Even if doctrines, tactics, formations and platforms should be adapted, the armored units will have an important place in tomorrow's conflicts.

Time and space in military operations

Today's military operation put emphasis on seizing the time dimension rather than space. This is understandable, taking in considerations the new dimensions of the battlefield. Information is everything and the ability to outrun the enemy's deciding cycle is the real key for successful information. Denying the enemy's access to information is also essential in order to induce confusion.

On the other hand, space and geography will always remain factors that shape military operations at all levels of war. As I said before, our country's *National Defense Strategy for 2020-2024* identifies Russia and its attitude, as a source of risk and instability. Romania is not the only NATO country that shares the same worries. The Baltic state and Poland are in the same situation and this fact is demonstrated by NATO's several initiatives to reinforce the Eastern flank of the Alliance.

Furthermore, by measuring the distance between the Russia's Western border and Riga, the capital of Latvia we could realize that is near 200 km. Converting that distance in a hypothetical offensive operation using armored large formation with proper artillery and air support, augmented by an air defense systems, it is obvious that there is not enough space to counter an attack by surprise. Thus, building and developing strong and mobile armored capabilities by NATO countries along the Alliance's Eastern border is an imperative that must be accomplished in order to prevent a potential aggression.

To conclude, at this moment, NATO has a permanently established very high readiness force able to intervene within days in order to intercept a possible attack. I am referring to NATO's Very High Readiness Joint Task Force (VJTF).⁷ In support to NATO initiative to secure and enhance the Eastern flank of the Alliance, I can also mention The European Deterrence Initiative (EDI), announced in 2014 as the European Reassurance Initiative (ERI). This initiative allows the United States to increase its support to NATO allies in order to obtain a deterrence posture and a sufficient level of readiness and responsiveness. The 2020 plan for EDI expressed the US intention to maintain in Europe an armored brigade combat team (ABCT), including enablers and also a combat aviation brigade (CAB) for the support of NATO's Enhanced Forward Presence (eFP).⁸

Requirements of the modern warfare

Regarding those requirements imposed by the modern warfare in an era led by technology, the importance of obtaining the ability to survive by the armored formations should be outlined from the very beginning. This ability allows these capabilities to gain an advantageous position related with a potential enemy, in order to strike its vulnerabilities. In

⁶ I am referring to the Arab-Israeli war in 1967, also known as *The Six-Day War*. The war took 6 days, between 5 and 10 June 1967 and it was fought by the army of Israel and Egypt, Jordan and Syria armies. Another relevant example refers to *Iom Kipur War* in 1973 between Israel and a coalition formed by Egypt, Syria and Iraq.

⁷ https://www.nato.int/cps/en/natohq/news_180627.htm, accessed on 22.01.2018.

⁸ *FY 1 2020 European Deterrence Initiative (EDI) Fact Sheet*; <https://www.eucom.mil/document/39921/fy-2020-european-deterrence-initiative-fact-s>, accessed on 22.01.2018.

this sense, proper assets to collect information about terrain features and enemy activities are necessary to survive. The possibility to swiftly move in all-terrain conditions give armored formation the opportunity to avoid engagement when it is not necessary. The capacity to conceal thermal footprint and infrared spectrum becomes mandatory due to the antitank weapons' evolution and possibility to engage using these methods. External and internal armored shields and also mine protections systems are vital to protecting both crew and platform. Digitalized systems designed to detect, track, and intercept incoming threats of anti-tank munitions should be a reference when platforms are equipped. Communications and geo-positional systems are crucial to direct formations in the tactical field.

Operational integration is another reason related with the warfare's evolution and contributes to the need of reconsidering armored capabilities. The necessity to obtain and exploit a common operational picture (COP) in order to project multi-domain effects on the battlefield is bigger than any time before. So, both armored formations and platforms should be designed in order to accomplish this objective.

Today's need to project military forces to long distances is another factor that should be mentioned. To obtain operational and strategic mobility, a complexity of activities must be handled by NATO members. To support the movement by air, by sea or by railways, several infrastructures projects must be accomplished. On the other hand, regarding an enhanced capacity to move armored capabilities, armies should consider reducing the weight of the platforms without losing lethality or protection. It might be a direction in the development of future armored capabilities, but this will be discussed later in the paper.

Peer enemy capabilities

The continuous increase and development of armored capabilities by state actors with regional ambitions is a clue that NATO members should keep up with potential peer enemies. Without the intention to identify all potential NATO enemies, I think it is important to outline a few indicators in adapting armored capabilities to those actors. For example Russia's main battle tank T-14 "Armata" is a modern tank that includes considerable innovative characteristics, including an unmanned turret, *active protection system* and a wide range of modern ammunition.⁹ In support of the main battle tank, we find the BMPT "Terminator" which is an armored fighting vehicle designed by a Russian company to support tanks, especially in urban environment. This lethal binomial, a lethal combination, is designed, in my opinion, to ensure a proper capability ready to use when it is necessary.

The fundamentals of land operations

Milestones in land operation such as the maneuverist approach, mission command and operations core functions (Find, Fix, Strike and Exploit) intrinsically generate the reason to build and maintain armored capabilities. These kinds of capabilities are the main instrument for land forces which give them the opportunity to strike enemy forces in a decisive manner. By using armored formation, effects such as *pre-empting*, *dislocating*, and *disrupting* enemy activities¹⁰ could be achieved. The maneuverist approach to operations in conjunction with mission command is the best way to seize and maintain initiative in combat. Consequently, initiative enhances considerably the ability to attack enemy's vulnerabilities and exploit fleeting opportunities by using speed and firepower. Armored capabilities ability to penetrate enemy's layout, outflanking and striking deep in the enemy's rear facilitate the implementation of the core functions, if well-supported by mobile artillery and aviation.

⁹ <https://www.nationaldefensemagazine.org/articles/2017/9/29/tank-warfare-russia-builds-platform-to-rival-the-abrams>, accessed on 25.01.2018.

¹⁰ ATP-3.2.1, *Allied Land Tactics*, Edition B, Version 1, August 2018, p. 1-18.

Human perception and media influence

By possessing strong armored capabilities, a hypothetical peer enemy's perception - including people's perception, will and attitude - could be affected. Maybe today the saying *the larger the tank is, the greater the enemy's fear* is obsolete, but a modern lethal and competitive capability, even if it is smaller, could be a deterrence. The deterrence is provided by the ability to inflict serious damage, including human casualties. Therefore, a potential enemy will probably think twice if the opponent has a sufficient fighting power to damage its combat potential, even if there is not enough capability to prevail.

Directions in developing armored capabilities

The influence of new technologies

The new technologies are shaping our world, including global security environment and future force projections. Unfortunately, there are several issues as a direct result of unequal and too fast evolution of technologies:¹¹

- Hardship in NATO interoperability process requirements due to the different possibilities of members to implement new technologies;
- The life cycle and interval needed for updating the new acquisitions are shorter due to the fast-pace of technologies;
- Legal and ethical issues could appear in case of offensive cyber actions, the employment of autonomous systems and artificial intelligence, or human enhancement;
- Easy access to cheap high-technologies such as drones gives new opportunities to terrorist organizations;
- Dual-use components allow actors to obtain Weapons of Mass Destruction with a reduced risk to be held accountable for.

Taking into consideration the problems outlined above, I think the need to adapt to a highly technological environment is an imperative direction that modern armies must follow. Definitely, new technologies have a major impact and significantly influence the development of armored capabilities, too. In order to respond to many high-threat situations, armored capabilities must embed the latest technology's products regarding communications, global positioning, intelligence collection and dissemination, target acquisitions, passive and active protection, etc.

New communication capabilities based on communication satellites and 5 G networks will allow the transfer of an immense quantity of data at superior speed levels. By using 5 G technology, mobile platforms will be able to receive immediately information needed to counter the enemy's actions. The information acquired by sensor could be transferred through the HQ if a decision or adjustment is necessary or direct to the platform in order to be executed. The 5 G technology will increase the opportunity to have enhanced common operational pictures (*COP*) at lowest tactical level. Going further, this technology will enhance the ability to open fire much faster by using a cycle based on a *sensor to shooter* relation.

In the future, 5G technology will facilitate the opportunity to use future remote controlled armored units. China and Russia have already started to test this kind of capability. Even if armored platforms managed in remote control manner are far from being used on a large scale in combat, there are a few situations in which this kind of platforms could be useful. Using RC combat platforms as decoys or in the training process gives the commander the ability to preserve other units' fighting power.

Artificial intelligence is another technology that will be integrated in an increasing way in the next years. Corroborated with the need and reason to use autonomous systems, the

¹¹ ***, *Strategic Foresight Analysis*, Report, 2017, p. 45-50, www.act.nato.int, accessed on 14.01.2021.

platforms will be able to act independently to accomplish several tasks, as shooting identified targets or when an enemy asset is going to engage. Anyway, human intervention in the decision cycle will remain paramount in order to ensure the possibility of an ultimate decision.

To be more specific I will try to give a few details about new technologies, weapons, and systems that are integrated on today's latest and modern armored platforms. Russian T-14 "Armata" main battle tank incorporates many innovations with the purpose to increase survivability on the battlefield. The T-14 can use many types of ammunition including *armor-piercing fin-stabilized discarding sabot* (APFSDS), guided missiles and high explosive anti-tank shells (HEAT-FS), air-burst shells and others. The weapons systems and the available ammunition are comparable with those which belong to the main competitive tanks such as US Abrams M1A2 or German Leopard 2.¹² What is new with T-14 is the multiple systems that ensure a high capacity to survive. It is about the active protection system called *Afghanit*, which consist in a combination of performing radars and intelligent ammunition designed to defeat the tank against the enemy's projectiles by destroying or confusing them in order to lose the target.¹³

Stealth technology is another breakthrough which future armored platforms will incorporate, in order to reduce thermal and electronic image. Reactive extra armored and complex alloys will continuously evolve. Enhanced firepower control systems assisted by *far target locate function* will be a compulsory standard for the future armored capabilities. German Leopard 2 main battle tank includes a laser rangefinder and thermal sight, both for the gunner and tank's commander.

These are only a few examples regarding technologies influences in futures present and future armored platforms. Obviously, there are more and is not my purpose to outline all of them.

Mobility

The need to solve problems related to project armored capabilities for a long distance is a reality for NATO. Obtaining strategic and operational mobility is mandatory in order to respond effectively to a major attack, especially on the Alliance's Eastern flank.

Mobility is highly influenced by the geographical features, including infrastructure. For example, US Army have to face and handle many challenges regarding moving heavy forces across the ocean to support European allies, if is necessary. Their main 71 tons battle tank, M1A2 Abrams could generate real challenges for transportation, even by sea. But, in my opinion the problems are not over on the European soil. Moving armored units on rail is another challenging situation due to the difference between European standard regarding the gauge size. Unfortunately, Poland Baltic states and are using a different gauge size, reminiscent of Soviet Union. Reloading is time consuming and creates a vulnerable window for a static concentration of forces. A march road could be a solution in some specific conditions. Anyway, there are some restrictions given the development of infrastructure along European states. Bridges, tunnels and gorges impede movements as much as cities bypassing infrastructures. Therefore, unified efforts of the NATO and UE members should concur to an integrated infrastructure system. It should be mention that several initiatives were issued to accomplish these objectives.¹⁴

¹² <https://www.globalsecurity.org/military/world/russia/t-14.htm>, accessed on 29.01.2021.

¹³ <https://nationalinterest.org/blog/the-buzz/surprise-russias-lethal-t-14-armata-tank-production-15480>, accessed on 29.01.2021, <https://www.nationaldefensemagazine.org/articles/2017/9/29/tank-warfare-russia-builds-platform-to-ri-val-the-abrams>, accessed on 30.01.2018.

¹⁴ *Three Seas Initiative* initiates a project to build a strategic mobility corridor with the purpose to link the Baltic Sea with the Black Sea, between Gdansk (Poland) and Constanța (Romania). The corridor comprises a motorway and also a high-speed railway. The US Government declared that it will support that project, <https://emerging-europe.com/news/is-the-us-about-to-finance-a-motorway-linking-the-baltic-and-black-seas/>

River crossing operation is another problem that requires special attention. Most of the armored vehicles, tanks and AFVs are not amphibious. Nevertheless, floatability implies protection decreasing. Furthermore, operating in particular environments as mountainous areas, deserts, swamps, or arctic regions is challenging due to a lot of factors that impede movements.

Platform design

The design of the armored platform could mitigate the mobility issues outlined in previous lines. In this idea, actual trends put emphasis on reducing the size of main battle tank, both in weight and shape. But smaller, usually implies less firepower and less protection. This is a compromise which has to be balanced. Reducing size can generate both advantages and disadvantages. However, depending on time available to react, enemy threat and available infrastructure, NATO has to decide what forces should deploy. Speaking about advantages, it should be outlined that a smaller platform implies less fuel consumption, greater mobility in road marching and transportation, less maintenance demands and a smaller target signature. Smaller platforms generate smaller room for the crew and could cause reducing of it. Therefore, automatic systems as ammunition loading systems might be useful in order to compensate. There is room for drawbacks, too. By reducing size lethality and survivability abilities are definitely altered. Anyway, there are a lot of debates about the necessity to reconsider the design of armored platforms.

Maintenance

Maintenance may look like a not very complicated process, but when speaking about heavy or medium armored vehicles the facts are different. Especially heavy platforms increase maintenance demands during operations. Centralized maintenance programs are not recommended. Even if, in Poland, during the initial phase of the 2nd World War, German centralized maintenance system was functional due to the low damage level, the same system was in disarray on the Eastern Front against Soviet Union. The reason was related with the incapacity to transport sufficient spare parts to long distances in a high rate of losses caused by the enemy actions, terrain features and enormous distances to cover. The lack of maintenance specialized personnel was also a reason.

Therefore, planning and preparing maintenance process and assets is essential for the success of operation. Decentralization is the key in order to assure effective maintenance. Highly technical systems embedded on the platform require special expertise and especially designated personnel at the battalion level. Basic maintenance procedures should be made by the crew. This is why the training of personnel is the key. Mobile maintenance crews are required on the battlefield and they must be equipped with similar platforms in terms of mobility and protection. This requirement is mandatory for recovery assets too.

Formations configuration

The projection of armored capabilities intrinsically implies configuration of the formations. This configuration must be a result of both of the evolution of the armored platforms and systems embedded and the requirements of the tactical battlefield.

Today's combat brigade's organization in respect of "3 infantry battalions plus 1 tank battalion" principle, followed by many NATO armies, seems to be obsolete. The need to realize a solid armored force is based on the synergic actions of tanks and infantry using armored fighting vehicles. This requirements could be accomplished by building battalion battle-groups, mixing heavy forces with medium forces in different percentage, usually 1 to 3. Ad-hoc grouping might be useful in many situations, but other issues must be taking in consideration: command and control, cohesion and trust, logistic issues. US Army Armored Brigade Combat

Team comprises a number of three armored battalion each of them with two infantry and two tank companies.¹⁵

Considering the directions and tendencies previously analyzed, the following recommendations regarding tactical units' configuration might be useful:

- a larger formation, including 4 to 6 company for each armored battalion, at least two of them mounted on heavy tanks or infantry fighting platforms could be a solution for future armored battalion formation;
- the armored brigade could comprise 4 to 5 armored battalions and 1 light infantry battalion able to conduct airmobile, air assault or airborne operations; also a strong armored brigade needs an armored reconnaissance battalion, self-propelling artillery battalion, combat engineer battalion, air-defense capabilities, army aviation, appropriate logistics and other enablers;
- allocating ISR assets like tactical drones at the platoon level could enhance operational picture and boost commanders' ability to react during the combat.

Conclusions

By trying to answer the questions issued at the beginning of the study, a sum of conclusions has resulted. In the next few lines, by outlining these results, I want to put again emphasis on the importance and reasoning to adapt armored capabilities. Armored capabilities will remain as I said before, the main striking force of the land forces. These capabilities are a vital instrument that gives the commander the opportunity to obtain success in combat and furthermore to exploit it. Armored forces allow commanders to seize and maintain the initiative by striking enemy army's vulnerabilities, inducing shock and shattering its cohesion and morale.

Considering the evolution of the modern conflicts and changes occurring in the enemy's methods to engage and corroborating this with the fast-paced evolution of anti-tank weapons, armored capabilities will inexorably evolve. Therefore, when we speak about their future, the following might be of interest:

- Definitely, future armored capabilities need to maintain an optimal mix of heavy and medium-armored forces, but also light forces, tailored to the battlefield requirements; enablers and extra assets are necessary in order to project desired effect on the battlefield;
- In projecting armored forces, compromises have to be made between maneuverability, lethality and survivability in order to obtain an effective combat power able to defeat a potential enemy;
- There are both advantages and drawbacks in using heavy forces, especially heavy tanks; survivability and great lethality of the heavy armored platforms are the main advantages, but there is an inherent lack of operational mobility;
- In comparison with heavy forces, medium forces, especially armored fighting vehicles have an advantage in many situations, in urban environment or river crossing operations; moreover, rapid reaction, utility in crisis response such as personnel evacuation from conflict areas, its versatile character in specific terrain such as mountain or urban areas make them indispensable during actual conflicts; on the other hand, it is also true that an opponent heavy armored force - if it operates with high precision weaponry – can annihilate advantages;

Medium-armored forces represent a valuable asset when it is mandatory to augment light forces in order to gain an effective response in light force operations; when a swift deployment of a considerable force is necessary to preempt the enemy's activities, medium-armored forces is the best solution;

- Medium and heavy armored platforms will evolve together and the evolution will be in a direct relation with the need of using heavy and medium forces;

¹⁵ ***, ATP 3-91, *Division Operations*, Headquarters, Department of the Army, October 2014, p. 1-5.

- Technologies will shape in a decisive manner future armored platforms therefore autonomous ISR platforms in support of armored platoons, protective systems, and autonomous target acquisition systems will be necessary at lowest formation level;

- Formation configuration depends on the type assigned to a specific unit; however, the mission received and enemy threat and capabilities will constantly shape the way in which force is projected;

- Training procedures including grouping of different capabilities are required.

To conclude, I want to outline again the necessity to build strong and adaptive armored forces for Eastern NATO members. Romania has to completely adapt the way in which maneuver warfare is conducted. Initial signs in completing these mandatory requirements were made by allocating 2% of GDP to the defense sector, according with the assumed commitments.¹⁶ By beginning to change the old version of Armored Personnel Carriers (APC) with superior Infantry Fighting vehicles (IFV) Piranha V, Romanian Army will obtain a great armored capability. Heavy armored platforms and attack helicopters should be the next step to reinforce this capability at brigade level.

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¹⁶ The NATO Summit from Wales (2014) established 2% GDP as a contribution for each NATO member to allocate for defence purposes.

18. ***, *Framework for Future Alliance Operations*, 2018, www.act.nato.int accessed on 11.01.2021.
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