

THE INFLUENCE OF NON-KINETIC ACTIONS ON MULTI-DOMAIN OPERATIONS COMMAND AND CONTROL

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Abstract: *In the current context, the way military actions are carried out determines rethinking the military leadership and approaching it through the lens of hybrid, non-kinetic approaches, of high precision technologies and of those that integrate all areas of military operations. Potential adversaries are increasingly using non-kinetic warfare strategies that include subversive and disinformation campaigns, espionage and cyber attacks. Thus, non-kinetic actions are relevant elements for military operations requiring the implementation of new operating and command-control concepts. In modern military confrontations it is imperative that leadership systems project power and use both precise and long-range kinetic actions as well as non-kinetic actions with chain effects and substantial benefits in mission accomplishments.*

Keywords: non-kinetic actions, multi-domain operations, military operations, operational environments, decision-making processes

1. Introduction

The evolution of society and the scientific developments in all fields have determined the transformation of military concepts regarding the conduct of conflicts, as well as the integration of new kinetic and non-kinetic tools.

If in the conventional/symmetric war the success of the operation was ensured for the combatant who used the best kinetic systems integrated in innovative tactics, during the modern warfare (informational, hybrid, non-contact) the advantage could be on the side of the one who manages to control and affect as much more the adversary (to cause disruptions and even losses) without using too many forces and combat means that cause material destruction and loss of human life.

Military non-kinetic actions/operations refer to military actions that do not involve the use of destructive kinetic force such as attacks with conventional firearms, artillery or air strikes, etc. These actions focus instead on other means and methods of influencing the situation within the operational environment that do not involve armed combat, but informational, counter-informational, electronic warfare, humanitarian, etc. actions. Thus, these actions can also influence the commander's decision regarding the analysis and development of courses of action within a military operation.

2. Methodology

Our research aimed to highlight the impact of non-kinetic actions on military actions and the possibility of making the

integration of kinetic and non-kinetic effects and actions in command-control processes more effective.

In order to achieve this scientific approach, we collected and analyzed data and information from the specialized literature and from various open sources, in order to obtain a comprehensive understanding of the operating environment and possible advantages/opportunities (but also vulnerabilities) regarding the use of non-kinetic actions in conducting military operations. Also, through case studies of previous conflicts and analyses of lessons learned from theaters of military operations, it was possible to identify some essential aspects for understanding how these non-kinetic actions can influence the final results of assigned missions. Last but not least, the experiments carried out provide significant information for evaluating the effects of non-kinetic actions on the adversary or on the civilian population, in the case of influencing strategies, as an adjunct to kinetic actions.

3. Non-Kinetic Actions in the Context of Current Military Conflicts

From the oldest times, the goal of every military operation has been to achieve victory by inflicting as many losses as possible on the opponent, and, thus, the political-military goals are achieved.

The foundations of the theory of modern confrontation were laid by the strategist Carl von Clausewitz (1780-1831), who defines war as “*a continuation of politics by other means*” [1].

This represents the connection between the trends of the contemporary military phenomenon and the vision of the Chinese philosopher and military leader, Sun Tzu (ca. 453-221 BC), in which the possibility of winning a war without fighting was highlighted. “*Those who are experts in the art of war subdue the enemy army without a fight*” [2].

As it is currently known, among the components of the military phenomenon, along with military actions, there are also

political-diplomatic, economic, cultural ones, or actions in the informational environment (imageological, psychological, cybernetic). The technological evolution is present both in the production of kinetic weapons and ammunition with high performance and high precision, but also in other elements such as non-kinetic actions, as well as “*leadership, organization, methods and procedures of action*” [3].

Non-kinetic actions are operations carried out using non-lethal tactics with tools not intended to cause destruction or loss of life. Non-kinetic actions can be best described by means of *informational warfare, psychological operations, cyber attacks, actions in the electromagnetic environment, but also operations involving the knowledge and protection of civilians* and civil infrastructures. These actions offer the possibility of disrupting and nullifying the adversary’s military capability and advantages.

Thus, currently, the military phenomenon is influenced by technological development, but also by the fields in which this is used. Superiority in combat can be gained through the use of modern strategies, methods and tactics that do not necessarily aim at putting opponents out of combat or destroying their means of combat, that is, through non-kinetic actions. For example, the operations in the informational/cyber space, although different from the other domains, land, air, maritime and space, are intertwined with the latter [4].

Non-kinetic actions can be considered novel aspects in military operations, although their incipient elements influenced in many situations the ways of being successful in the operational environment, accomplishing the assigned missions and also leading forces.

Among the modern means used for the successful completion of missions, informational, virtual and electronic networks are highlighted, a fact that led to the creation of a new type of war, the non-kinetic war. Military actions in these operating environments were introduced

through specific tactics/procedures and specialized forces. Thus, ISR structures appear - Intelligence, Reconnaissance, Surveillance or the IPB process - Intelligence Preparation of the Battlespace, as well as other approaches from the perspective of the civilian population (Civil Preparation of the Battlespace and Human Terrain System/Teams). A crucial aspect of their implementation involves information operations, psychological operations, and civil-military cooperation actions. The information environment encompasses the cognitive, virtual, and physical space where all activities and procedures related to the acquisition, handling, and utilization of information take place. This environment is comprised of *“individuals, organizations and systems that collect, process, disseminate or act on information”* [5].

Information operations involve the use in the combat space (land, air, naval - Multi-Domain), of information technology and communications in order to obtain an advantage over the adversary. From a military perspective, these types of operations are used to affect the command and control system of opposing forces, but also to protect the systems of one's own forces. Also, the civilian population can be influenced through specific methods, television, internet, social networks, etc. One of the purposes of the informational confrontation can be *“avoiding conventional conflicts, the production of casualties and damage, by using new categories of means located on the border between the conventional state of war and that of peace. The information war targets the decision-making structures, not so much to destroy or paralyze them, but especially to influence their decision-making processes”* [6].

Cyber operations involve specific, non-kinetic attacks, in computer networks and in the cyber environment on information data and their collection, processing, dissemination processes, from all fields of combat, with the aim of affecting the quality of decisions and the effectiveness of military

operations. Actions within it can be both offensive and defensive, from methods that prohibit the enemy from exploiting information to appropriate measures to guarantee the availability, reliability and interoperability of information resources [7]. Psychological operations are based on using information against the human mind. In this form, information is used to modify human perceptions, attitudes and behaviors in a way that will support or affect the achievement of the proposed objectives at the level of human groupings of own, friendly, neutral and adversary forces. In this sense, the psychological actions will not be limited only to the operations of influencing the will to fight of the opponent's forces, but will include much more subtle propaganda activities, which will change the beliefs and the attitude of the civilian population in a certain area. At the operational level, psychological actions are carried out permanently and are intended to support the commanders in the *decision-making processes* and in achieving the established goals.

Operations in the electromagnetic environment integrate the use of electronic research techniques, neutralization and destruction of information transmission media based on electromagnetic and acoustic waves, as well as electronic systems that produce or transport information, including cryptographic analysis techniques. These operations involve a set of military actions that use wave energy to determine, exploit, counter, reduce and prevent hostile actions in the electronic space, in order to ensure optimal electronic protection, based on a unique concept, which will allow safe deployment of the actions of own and/or allied forces.

Actions to know and protect the civilian population. Most actions and campaigns occur within or impact civilian communities, and as a result, military, security, and armed forces will regularly interact with the local population. It is essential for leaders at all levels to proactively consider the potential impact of

operations on civilians, local communities, and civilian infrastructure during the initial planning stages. Strategies in this regard may involve [8]:

- traditional conflicts, the primary objective is to prevent harm to civilians through measures such as evacuation and displacement, establishment of refugee camps, and minimizing damage to civil infrastructure;
- in unconventional conflicts, operations prioritize safeguarding civilian populations from attacks and abuses by opposing groups, countering the psychological impact of such actions, and providing support such as rebuilding infrastructure and delivering medical and educational services. These efforts aim to enhance the authority and legitimacy of government and international coalition/alliance forces, garnering support from the neutral civilian population.

The impacts, both positive and negative, of military operations on the civilian population are crucial considerations that simultaneously shape and limit operational planning. Therefore, comprehending the local culture and assessing the effects on operations and outcomes are indispensable. These non-kinetic operations can be as important as kinetic military actions and can play a significant role in achieving the objectives, both through offensive approaches (image campaigns, informational neutralization through actions specific to electronic warfare, evasion or corruption of information systems data of the adversary, introducing erroneous or fake information, denying the adversary's access to their own data, destroying the elements that are part of the information storage and distribution system, etc.), as well as defensive (informational concealment and disinformation, encryption, authentication and certification of information, information access control, detection and elimination of malicious software, informative and counter-informative protection, etc.).

4. Non-Kinetic Actions in Decision-Making Processes of Multi-Domain Military Operations

The decision-making process is understood as a logical thinking activity, carried out in a certain organizational and legal framework and led by management structures, with the involvement of departments/specialists from several fields, in the sense of preparation, elaboration, implementation and control/follow-up of a decision [9].

The development of high-performance IT systems led to the evolution of the battle space and the deployment of military actions not only in the three classic environments, land, air, sea, but also in two other environments - cosmic and informational. For the successful conduct of operations, accurate and timely information is strictly necessary in the *decision-making process*, from all sources. Thus, force structures in modern armies have made organizational and equipment changes to integrate ISR sensors and platforms with electronic warfare tools and cyberspace-specific systems. The result of this is increased disruptive effects on military objectives by leveraging non-kinetic capabilities at the intersection of ISR, cyber, and the electromagnetic spectrum. The ISR concept represents “*a set of information and operations capabilities that synchronize and integrate the planning and operations of all capabilities of collecting information with the processing, exploitation and dissemination of the resulting information, in direct support of the planning, preparation and execution of operations*” [10], so non-kinetic actions within the command and control process.

The power provided by information technology and the specific means of cyber space is part of the strategy to achieve military objectives. The concept of an attack in cyber space, on information and on infrastructure elements is easy to understand because cyber attacks do not aim at the physical elimination of some critical elements of the opponent, but can

amplify the state of confusion and uncertainty (lack of information, interruption of the information flow: gathering - processing - dissemination) in command-control networks/management systems (decision networks, military systems of various types, emergency management systems, airspace and naval management systems, energy management, etc.), as well as among the civilian population.

In the troop leading procedures - TLP, in the military decision making process - MDMP, for the preparation of the course of action, as well as in the order of operations to subordinates, information from various fields is used and multiple departments are involved: personnel, operations (including psychological operations), civil-military coordination, communications and IT (operations in the electromagnetic and cyber spectrum), legal, financial, public relations, religious assistance, employment rules, operation security, etc., and many of these actions and activities fall into the category of non-kinetic.

For example, within operations, the research structures carry out extensive and complex, non-kinetic actions gathering information, analyzing the risk, understanding the situation, in order to develop the probable courses of action and to choose the optimal one, to develop the plan of own forces for gathering information, to establish the information plan and to put it into practice. The intelligence gathering plan for future actions is established according to intelligence needs and goes through an entire information cycle, formed by the stages of the battlespace information process. Thus, Intelligence Preparation of the Battlespace - IPB takes place at the level of all echelons that are involved in the military operation. IPB is considered by military specialists to be *“a detailed assessment of the situation and supports the decision-making process done by commanders and their staff, being defined as a dynamic and continuous process of analyzing threats and the surrounding environment in the*

geographical area in which the operation is to be carried out” [11].

In the planning and *decision-making* process, modern technologies integrated in all fields of combat play an important role in creating intelligence products (gathering and processing). The digitization of the battlespace and especially of the command and control systems highlights *“the rapid transmission of information and the maintenance of an appropriate degree of information, the detailed knowledge of the situation, the establishment of the necessary actions (kinetic and non-kinetic), the orientation and coordination of subordinate forces, managing and protecting their own information and misleading in support of the operation”* [12].

As previously stated, the neutral civilian population serves as the focal point of irregular conflicts, around which all actors, forces, capabilities, actions, and their effects revolve. This holds true in conflicts of this nature. *“the decisive ground is the human ground”* [13].

This highlights the fact that the civilian population has an interchangeable character, oscillating between the actors in the operational environment, depending on the interests they promote and depending on the events that happen during the interactions between them.

Furthermore, based on recent conflicts such as those in Iraq, Afghanistan, and Ukraine, it has become evident that the traditional process of informative preparation of the battlefield (IPB) is no longer adequate. A more comprehensive understanding of the operational environment is now essential, encompassing factors related to local communities, a deep knowledge of their customs and social structures, and an understanding of their thought processes, behaviors, and reactions to internal and external influences. One must see beyond appearances, and this understanding must be integrated into the planning and decision-making process. Careful consideration of the aspects related to the

civilian population is essential to achieving long-term success.

To gain a more thorough understanding of the situational context in military conflicts, it is essential to consider the human terrain and cultural characteristics within the operational area. Furthermore, the analysis must be done as part of a pre-commitment assessment to determine how personnel must interact with the civilian population, and, at the same time, continue during the mission.

This is why it is essential to utilize a new integrative tool, that of the *decision-making process* from the perspective of the civilian population, which would include at least some stages such as: defining the civil environment in which operations take place, analyzing the human terrain, making a model of the human terrain, determining the actions of the population civilians in the area of operations.

As a consequence, it is considered to be successful and a holistic approach is recommended in the *decision-making processes*, by which to integrate the kinetic capabilities and the actions of several non-kinetic tools that can significantly contribute to the accomplishment of the missions and countering the effects of the adversary's operations. The integration of command implies that the command structure ensures the concerted action of the kinetic and non-kinetic capacities of one or more entities, so that both the partial objectives and the final goal are achieved decisively and efficiently.

The *decision-making process* is the result of a critical thinking process generated in the context of the manifestation of factors specific to the confrontation space. The characteristic factors of the current and future operational environment are: volatility, uncertainty, complexity and ambiguity (VUCA) [14].

Volatility refers to the permanent tendency to change the states and conditions in the operational environment, to the nature, speed, volume and extent of the transformations, in an unpredictable way.

Volatility is produced by the variation of information, both in the exchange of information and within the situations encountered. This characteristic also describes the simultaneous development of several actions, in several environments/domains and the manifestation of effects on multiple levels. The increase in operational environment volatility is attributed to both the emergence of innovative approaches and the amplification of impacts across diverse fields, as well as to technological advancements, digitalization, and the broadening connectivity of resources. The *decision-making process* can adapt to an environment that is constantly changing by implementing new conceptions/concepts of operation, by changes in multi-domain approach used in the planning and execution of missions. Uncertainty mainly refers to the lack of specific information and is considered an essential and permanent component of the *decision-making process*. The lack of information leads to the "lack of predictability" [15] in the application of operational plans and this could threaten the ability of a military force to visualize the ways of fulfilling its objectives. The decision-making difficulty does not come only from the incorrectness and incompleteness of the information, but also from its fragility due to the ambiguity of the operational environment. The knowledge possessed by the decision-makers is not simply true or false, it is rather approximation. Thus, leaders will have to be willing to take risks (assumed/residual risk) in the context of the decision and be able to develop strategies to reduce the residual risk. In the hybrid operational environment, complexity encompasses the challenging to comprehend origins of the conflict, the various involved actors (including those directly and indirectly engaged, local and cross-border), the specific risks and threats (both in terms of quantity, types, and potential consequences), and the factors associated with mitigating the impacts of

these hazards. Also, the need to have and operate with specialized (multi-domain) land, air, naval, space, electronic warfare, psychological forces or the ability to act competently in the cyber environment, etc., contributes to the complexity of the operational environment. Action dynamics and multi-domain interdependencies equally contribute to the emergence of new operational contexts, new types of objectives and new conflicting situations, extremely difficult to manage. *Ambiguity* occurs when a situation can be interpreted in more than one way or when a decision maker does not understand the conception/boundaries within which to act. Ambiguity pervades the diverse array of subtleties and perspectives within a context, resulting in the decision-maker's challenge in definitively discerning the significance of events and determining the appropriate courses of action.

Consequently, in today's conflict conditions, decision-making agility is critical, as adjustments at all levels and in all areas must be made constantly, quickly and accurately.

5. Conclusions

Given the necessity and opportunity of using non-kinetic actions and tools alongside kinetic ones, both scientific knowledge and lessons learned from various military conflicts must be involved in the decision-making process.

This integrated strategy, combining kinetic and non-kinetic actions, represents a departure from conventional thinking, fostering the capability to project power and influence across operational domains through the simultaneous deployment of a wide array of methods and resources. The primary objective of these actions is to swiftly and decisively impact the efficacy of both military and non-military measures employed by adversaries.

In the context of current and future military confrontations, the imperative of the integrated approach of kinetic and non-kinetic actions refers to the creation of opportunities for generating multiple effects and chain effects with implications in several fields. It is about combining efforts to understand the phenomenon of war and to set up mechanisms for integrating non-kinetic capabilities into decision-making processes. For this, military specialists must clarify the goals and objectives of non-kinetic actions. Also, non-kinetic actions must be correlated with the objectives of kinetic actions and support their achievement. They must be coherent and integrated into a multi-domain approach to operations.

The intricacy of military conflicts encompasses both violent/kinetic and nonviolent elements, including informational-propaganda, diversionary tactics, and cyber-specific methods and resources. As a result, the impact of such conflicts extends across various domains, spanning land, air, maritime, informational, and even cosmic realms, as well as influencing aspects of social life such as politics, economics, diplomacy, cybernetics, society, culture, and religion. Addressing these multifaceted threats effectively necessitates comprehensive, integrated approaches that leverage a diverse array of military and non-military, kinetic and non-kinetic tools.

In the command and control processes of multi-domain operations, it is imperative to coordinate with other governmental agencies, such as intelligence services, cyber security authorities, critical infrastructure protection and/or other entities that can provide human, economic, informational resources, etc. This collaboration is crucial to the success of nonkinetic actions.

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