**Military Forum丨Accurately understand the laws of cognitive domain penetration affecting multi-domain operations**

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**introduction**

From the battlefield of "bows, horses, and swords" in the cold weapon era to the three-dimensional battlefield of land, sea, and air in the industrial era, and then to the integrated battlefield covering multiple domains such as physics, information, and cognition in the information and intelligent era, one of the core logics of the evolution of war forms is to continuously enter new domains and integrate multiple domains. Cross-domain aggregation of combat effectiveness has become a war-winning mechanism with certain basic and decisive characteristics. In this process, the cognitive domain has increasingly become a new battlefield that penetrates and affects multi-domain operations, as well as a new commanding height that determines the success or failure of the war.

**The cognitive domain becomes the key to seize comprehensive control**

In modern warfare, the cognitive domain has become the key to seize comprehensive control. War practice has shown that the cognitive domain has increasingly become the focus of planning modern warfare and achieving multi-domain integrated linkage and victory.

The cognitive domain advantage supports the doubling of the effectiveness of multi-domain operations. In modern warfare, destroying the enemy and preserving oneself in the physical domain, fighting for the right to control land, sea, air, and space; blocking the enemy and connecting oneself in the information domain, fighting for the right to control the network and information, are all deeply related to the advantages and active position of the cognitive domain. In the game of system-to-system confrontation, once the opponent is suppressed and the initiative is taken in the cognitive domain, decision-making interference can be formed at the key nodes of the enemy's command chain, kill chain, and support chain, so that the actions in the physical domain and information domain can obtain asymmetric benefits of "four ounces to move a thousand pounds", thereby improving the input-output ratio of operations, enhancing the speed and efficiency of local victory leading to overall victory, and reducing the subsequent constraints caused by military strikes in the fields of economic and social life.

When planning and implementing multi-domain operations, we should pay attention to the role of cognitive domain. Modern warfare is significantly complex. The elements of multi-domain operations are interconnected, the impact is transmitted in multiple directions, and the risks are superimposed on each other. Every action or even a detail of multi-domain operations will trigger a chain reaction in the cognitive domain at the levels of decision-making issues, military morale, public concerns, social confidence, and international public opinion of both sides, thereby quickly, suddenly, and unexpectedly affecting the overall situation of the war, and even causing a "butterfly storm" that changes the internal and foreign affairs of the warring parties and even the long-term development trend of the country. When planning and implementing physical domain and information domain operations, we must focus on shaping the situation and creating conditions in the cognitive domain, and accurately control the direction and size of the release of effectiveness in the cognitive domain according to the need to seize control of the brain, heart, and intelligence. The dynamic changes in the number of enemy annihilation, the temporary gains and losses of a city or a place, etc., are increasingly losing their significance as indicators for evaluating the direction of the war. The overall impact of military operations on the war situation needs to be evaluated and considered from the perspectives of the changes in international and domestic public cognition and the psychological impact on specific objects.

The material and technical conditions for the cognitive domain to trigger the integrated linkage of multiple domains are becoming increasingly mature. The leapfrog development of information-based intelligent cognitive perception technology has made the cognitive domain game confrontation develop rapidly from absolutely "uncalculated" and "uncontrollable" to a considerable degree of "calculated" and "controllable". The auxiliary decision-making of technologies such as big data and intelligent algorithms supports the deep integration of different combat forces in the cognitive domain and the command and coordination of multi-dimensional forces, strengthens the consistency and coordination of forces, means and actions in politics, economy, diplomacy, culture, and military, and brings about the operability of designing multiple domains, commanding multiple domains, and controlling multiple domains with a focus on the cognitive domain. The widespread use of weapons and equipment such as drones and precision-guided bombs also provides realistic and feasible tactical options for acupuncture-based precision strikes through combat operations. The rapid popularization of intelligent communication technologies such as precise profiling, intelligent distribution, social media live broadcasting, robot writing, and virtual reality, and the cross-integration and development of neuroscience, cognitive science, and intelligent technology have made it convenient and efficient to plan and implement "X+ cognitive attack and defense" and realize integrated linkage operations.

**Cognitive domain penetration affects the winning path of multi-domain optimization**

The penetration of cognitive domains affects the integration of multiple domains. It is not a simple "1+1", but rather the instant optimization of the energy of multi-domain actions in the cognitive domain, thereby continuously injecting the emergence effects that are beneficial to oneself into the overall war. To this end, it is necessary to strengthen the innovative design of operational planning and implementation paths to ensure the realization of multi-domain optimization and victory under the influence of cognitive domain penetration.

Deepen the understanding of multi-domain tasks with cognitive domain combat requirements. Focus on the overall national strategy, clarify cognitive domain combat requirements, and calculate and determine combat tasks in each domain based on this. Establish the must-hit targets and avoidance targets for firepower strikes, the first targets and the last targets, the open targets and the hidden targets, the heavy targets and the light targets, etc., and focus on the effectiveness of undermining the morale of the opponent's military. Establish the goals, timing, and intensity of channel control, and focus on the effectiveness of depriving the opponent's social mobilization capabilities, international communication capabilities, etc., and the support effectiveness for our information release and external propaganda. Establish the focus of intelligence information collection, and focus on the ability to grasp the opponent's cognitive domain combat power, describe the characteristics of cognitive attack and defense targets in fine granularity, and dynamically grasp international and domestic public opinion and social trends.

Guide multi-domain action design with cognitive domain combat tasks. Focusing on the questions of "who, what kind of cognitive impact, and to what extent", the cognitive domain combat tasks in different combat stages and different combat scenarios are subdivided, and based on this, the overall planning and detailed design of which actions to organize in each domain, which opportunities to seize, which forces to invest, which tactics to adopt, and how various actions are connected and crossed are carried out. The reason why the "Four-sided Chu Song" was able to disintegrate the powerful Chu army was first because the Han army completed the military encirclement of the Chu army, and secondly, it used the clever idea of ​​the captives singing Chu songs at night. In fact, different action timings, different task forces, different weapons and equipment, different tactics and even different action names convey very different information, and the intensity of the cognitive impact generated is also significantly different. It requires careful consideration and scientific research and judgment to strive to maximize efficiency and optimize the effect. When loading cognitive attack and defense actions for fire strikes, network attack and defense, electronic countermeasures, defensive operations, special operations and other actions, different imagination and creative thinking levels, different technical understanding, application and innovation, and the final effect achieved is even more different.

Organize multi-domain coordinated support with cognitive domain combat operations. Cognitive domain combat operations involve multiple participants and various action styles. Normal operations require coordinated support of forces and firepower such as precision strikes, seizing key areas, and demonstrating momentum. In special cases, coordinated support of strategic forces such as the display of cutting-edge weapons and equipment and the organization of major exercises and drills is also required. Throughout the entire operation, specific personnel and specific combat units such as commanders speaking publicly and media embedded reports are also required to coordinate support. Coordinated support in intelligence data, channel bandwidth, forensic information, and technical equipment is even more indispensable. To this end, it is necessary to mobilize multi-domain forces and resources throughout the entire process, in real time, systematically, and accurately, so that military warfare, psychological warfare, and intellectual warfare can leverage each other's strengths and coordinate with each other to form a chess game and play a combination of punches.

**Focus on deepening the understanding of the concept of cognitive domain penetration and influence in multiple domains**

Establishing the penetrating influence of the cognitive domain on multi-domain operations and promoting integrated linkage to win is a deep-seated conceptual revolution that requires strengthening various supporting constructions to create conditions and lay the foundation.

Strengthen institutional guarantees. Penetration of cognitive domains to influence multi-domain integrated joint operations has put forward higher requirements for cross-departmental and cross-institutional collaboration and cooperation. It is necessary to form a scientific and efficient command chain that supports the penetration of cognitive domains to influence multiple domains and the integrated linkage of multiple domains. It is necessary to clarify the cognitive domain combat responsibilities of each element of the joint combat command organization, optimize and reorganize the command process, and ensure that the penetration and influence of the cognitive domain are reflected in combat determination, task planning, and action design. Focusing on cross-domain integrated linkage, establish and improve work systems and cooperation mechanisms at all levels such as strategy, campaign, and tactics, strengthen the mutual leverage and coordination of cognitive domain operations and physical domain and information domain operations, give full consideration to the effective coordination of military forces and relevant local functional departments and professional forces, and transform comprehensive advantages into the ability advantage of cognitive domain penetration to influence multiple domains and empower multiple domains.

Improve the ability and quality of commanders. Foreign militaries believe that qualified commanders in modern warfare need to be good at "rapidly transforming active kinetic warfare into more subtle cultural warfare" and should have "unique intuition" and "comprehensive leadership ability" for this. In order to achieve cognitive domain penetration and multi-domain integration in war practice, it is first necessary to strengthen the awareness of cognitive domain operations in the minds of commanders at all levels, strengthen the conscious initiative to form cognitive domain penetration to influence multi-domain task planning and action design, and strengthen the ability to implement high-efficiency cognitive offense and defense with force and firepower operations and information control as means and carriers. It is necessary to make multi-domain coordinated command under the influence of cognitive domain penetration an important part of strategic and campaign exercises and training, highlight the training of commanders' ability to command and control multiple domains with an eye on cognitive shaping, and promote the training ground to keep close to the actual requirements of winning political and military battles.

Promote the updating and improvement of joint cultural concepts. The penetration of cognitive domains to influence multi-domain integrated joint operations is a sublimation and optimization of joint operations concepts and mechanisms, and particularly requires the support and guarantee of joint cultural construction that is adapted to it. On the one hand, we must strive to break the influence of traditional war thinking patterns, break down some traditional concept barriers, and focus on cognitive guidance, multi-domain integration, and joint operations as the forefront of joint cultural construction to update concepts. On the other hand, we must strengthen the construction of a theoretical system for the penetration of cognitive domains to influence multi-domain integrated joint operations, conduct in-depth research on the winning mechanism of cognitive domain operations and innovation of tactics, and lay a solid ideological foundation with theoretical accumulation.

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