**Analyzing the Information Power of Modern Warfare**

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　Information power is supported by networks, data, algorithms, computing power, etc., with the rapid formation of a closed loop of network information systems as the main line. In modern warfare, it continuously promotes quantitative and qualitative changes in perception, decision-making, command and control, and has become the core driving force for the generation of joint combat system capabilities, continuously pushing the form of war to a higher level.

**Information power supports perception power**

　　At present, the development of technical means such as information acquisition and processing is promoting the transformation of battlefield perception from automatic to autonomous, from single to coordinated, and from centralized to distributed, which has shortened the cycle from " sensing " to " knowing " of the combat system and accelerated the judgment from " state " to " trend " .

　　Perception is developing towards multi-type detection. With the extension and expansion of the combat space to the whole domain and multiple dimensions, multiple battlefield information is intertwined and superimposed in modern warfare, and a single perception method can no longer guarantee the timeliness, completeness and accuracy of the perception information. To adapt to the development trend of future battlefields, it is necessary to comprehensively use multiple means such as network perception, electromagnetic spectrum perception and cognitive perception to build and develop a multi-tentacled and multi-modal battlefield perception system to cover multi-dimensional battlefield spaces such as the physical domain, information domain, and cognitive domain, so as to achieve three-dimensional and full-spectrum battlefield situation perception.

　　Perception evolves towards real-time perspective. The battlefield environment in the future will become more complex and changeable , and the OODA cycle will be greatly compressed. Striving for time advantage and speed of action, and agilely switching between offensive and defensive situations will become an inevitable requirement for seizing the initiative in combat. The real-time changes in the battlefield situation urgently require the development of holographic and visual perception methods. Foreign militaries believe that only with a near-real-time refresh rate and sharing of sensitive intelligence on the future battlefield can the discovery, positioning, identification and strike operations of " time-sensitive targets " be effectively supported .

　　Perception is upgraded to intelligent supercomputing. In modern warfare, the volume of battlefield information is growing exponentially. Only by accelerating the upgrade of perception capabilities to intelligence can we effectively prevent the occurrence of " data annihilation " . Computing power is the basis for improving perception, and improving computing power can improve battlefield perception computing capabilities. Algorithms are the core of improving perception, and improving algorithms can promote the intelligent upgrade of perception means. Calculation examples are the fuel for improving perception. Increasing calculation examples helps to improve the self-learning, self-adaptation, and self-optimization capabilities of the perception system, so as to achieve rapid and efficient recognition, analysis, and processing of massive data, thereby achieving faster perception time and more accurate perception of the situation than the opponent.

　　Perception is advancing towards efficient coordination. In modern warfare, due to the massive amount of battlefield information, diverse types and disorderly construction of perception means, it is very easy to cause repeated and inefficient use of information. Facing the future battlefield, it is urgent to break down system barriers, and make highly unified planning, system layout, and coordinated construction from the overall perspective, so as to promote the transformation of the perception system from disorder to order, the perception environment from closed to open, and the perception state from intermittent to continuous, so as to achieve the acquisition of dynamic information of high-value targets on the battlefield in a wider range, with higher accuracy and shorter latency.

**Information power enhances decision-making power**

　　The rapid development and widespread application of information technologies such as big data and cloud computing are driving unprecedented profound changes in decision-making patterns and methods. Traditional decision-making methods based on intuition and experience will gradually shift to data-based decision-making methods. This trend has become a new trend that will affect future battlefield victories.

　　Information interaction and integration support the realization of overall decision-making. In the traditional combat mode, command organizations of all levels and types are like " islands " of information processing . It is difficult to share decision-making information in a timely manner, and it is difficult for commanders to reach a deep consensus in a short period of time. Supported by the network information system, information interaction and integration, and high-speed flow have become the norm. Commanders and command elements at all levels simultaneously obtain decision-making information and carry out decision-making activities to support the realization of overall decision-making. For combat decisions on future battlefields, commanders need to use related information to imagine combat scenarios, build planning views based on comprehensive information, integrate data information in various fields such as intelligence, command, attack, and support, and comprehensively analyze the situation of multi-domain information, so as to make comprehensive judgments and decisions.

　　Information reveals laws and supports the realization of impromptu decision-making. War is a field full of " probability " . Certainty and uncertainty are intertwined on the battlefield, and various uncertain events are relatively common. According to the viewpoint of information theory, information can significantly reduce uncertainty. In the future battlefield, by accumulating historical data information and mining and summarizing regular knowledge from it, quickly capturing and identifying precursory and trending key information, it will help to do a good job in prediction and analysis, improve various emergency scenario concepts and emergency response plans, and effectively improve the ability to cope with battlefield uncertainty events.

　　Information flows conveniently to support rapid decision-making. In future wars, various new types of rapid-kill weapons will further push the rhythm of war to " instant kill " , and " discover and destroy " will become a reality. Accelerating the flow rate and refresh frequency of combat information to support rapid decision-making has become an urgent need on the battlefield. With the support of " intelligent cloud brain + smart system " , commanders use network thinking to converge information, matrix methods to manage information, and simple concepts to use information. Information flows quickly and efficiently, rapid decision-making will become possible, and command decisions will no longer be the " bottleneck " link in the closed loop of the kill chain.

　　Information is equally shared to support scientific decision-making. In the future battlefield, with the support of the network information system, command organizations at all levels can obtain decision-making information simultaneously, and commanders at all levels will have more effective information. On this basis, military democratic collective decision-making can make up for the cognitive limitations of individual decision-makers and avoid information blind spots. In addition, the complementary advantages of the human brain's " excellence in calculation " and the machine's " excellence in calculation " can be brought into play to establish an efficient and intelligent human-machine collaborative command and decision-making system, innovate decision-making methods, and improve the level of scientific decision-making.

**Information power penetrates the power of accusation**

　　The formation of command power is highly dependent on information. Information determines the object, timeliness and scope of command. The automated, real-time and precise flow of information can support the formation of a multi-state and flexible command and control structure.

　　Based on time information control. In the information age, the value of military time is increasing, and timeliness is an important evaluation indicator of battlefield command and control. In future wars, the standing command state uses a large-granularity cycle of " days " to accurately control daily combat readiness duty tasks and ensure the normal and stable operation of combat mission troops and weapon platforms. In the crisis command state, with a medium-granularity cycle of " hours " , according to the principle of reducing impact and timely control, properly handle crisis events with large influence and wide coverage. In the wartime command state, with a small-granularity cycle of " seconds " , agilely build combat command links, achieve synchronous judgment, evaluation and decision-making, and effectively shorten the command cycle.

　　Control domain based on entity information. No matter how the war evolves, the physical domain will be the basic space for military confrontation. In the future information-based intelligent war, the physical domain is not only a wrestling field for the release of tangible energy such as machinery and chemistry, but also an arena for the release of energy by intangible forces such as information and cognition. Controlling key domains based on entity information is still an important choice for achieving military goals. For example, facing the land battlefield, the key is to control the border. The focus is on gathering important information such as geographical space, electromagnetic environment, troop deployment, social conditions and public sentiment along the border, controlling the enemy and our forces at the battlefield border, battlefield environment perception, and the deployment of key positions, so as to control points and control key points to achieve control of the border and the surface.

　　Control the network based on virtual information. Judging from recent local wars and regional conflicts, the role of virtual space in expanding intelligence acquisition channels, winning public opinion advantages, and supporting combat operations has become increasingly prominent. It is not difficult to predict that the cyber virtual space will become a new high ground for both sides to compete for control. To this end, attention should be paid to the control of military cyberspace, and the construction of capabilities such as military cyberspace situational awareness, monitoring and early warning, and tracing and countermeasures should be vigorously strengthened to improve the baseline of military network security. For example, the ability to set topics and construct narratives can be improved, so as to firmly grasp the discourse power and initiative of Internet social network platforms.

　　Control the brain based on cognitive information. " In the art of war, attacking the heart is better than attacking the city . " By comprehensively using multiple cognitive information and influence methods such as ideology, public opinion, and psychology, we can seize the dominant position in the cognitive domain, influence the enemy's decision-making and behavior, and achieve the maximum combat effectiveness at the lowest cost. In the future battlefield, it is urgent to strengthen propaganda interpretation and ideological guidance, warn against cognitive infiltration, strengthen our own psychological defenses, and shape a cognitive situation that is beneficial to us. We must unite the people with positive information, rely on a variety of information dissemination platforms, strengthen the propaganda of positive information, screen and filter negative public opinion, guide the people to support and identify, and thus inspire the people's will to fight.

**Information power empowers lethality**

　　In future wars, information flow will dominate the operation of material flow and energy flow. To win the war, we should give full play to the role of information in promoting coordination, break through the constraints of the domain of combat elements, the domain of combat forces and the domain of combat operations, and quickly build a killing loop to realize the transformation of combat operations to task-based autonomous coordination, so as to achieve the heterogeneous and unidirectional rapid optimization of combat energy.

　　Information is accurately portrayed, empowering the killing element. As various information systems and intelligent platforms are continuously embedded in weapons and equipment, the killing efficiency of combat units is growing exponentially. In future wars, in terms of precision efficiency and precise energy release, through intelligent analysis and processing of massive battlefield information, it is possible to accurately select strike targets and accurately release firepower energy, greatly improving the combat cost-effectiveness. In terms of speed efficiency and rapid energy release, through the rapid flow of information, automatic target identification, intelligent path decision-making, and accurate effect evaluation can be completed, thereby achieving the suddenness of combat operations and realizing the discovery and strike of various time-sensitive targets.

　　Heterogeneous information is articulated to enable the kill chain. Thanks to the permeability and connectivity of network information technology, various battlefield information can be coupled, driving the continuous iteration and upgrading of the kill chain construction and operation mode, thereby providing the possibility for the implementation of precision operations. Accurately enabling point-to-point one-way kill chains, based on the pre-constructed " perception - strike " information link, can achieve one-way precision killing of small-scale, single-platform systems. The one-to-many radial kill chain, with high-end and high-value combat platforms as the core, brings together combat forces, combat units, and combat elements related to the battlefield space to form a center-and-spoke kill chain structure, realizing the same-direction parallel killing of multiple platforms and systems.

　　Information interconnection and overlap, empowering the kill network. As the mobility of information in the combat system gradually increases, the " connectability " of the kill chain elements has also been greatly improved, and the original single-type kill chain information process is developing towards a complex, multi-dimensional structure. The star-shaped kill network built around core weapon platforms and combat units can change dynamically based on real-time adjustments to combat missions. Relying on wide-area deployment, flexible interconnection, and intelligent " transformation " of various combat resources, a self-organizing, adaptive, and self-recovering kill network can be dynamically constructed on demand to meet the needs of " decentralized " distributed combat and better adapt to future battlefields.

　　Information is ubiquitous and empowers the killing body. In future wars, the combat system, supported by group intelligence, will break the previous preset static kill chain construction mode and build dynamic relationships such as coupling, interaction, parallelism, and synchronization. The kill chain structure will expand from chain and network to more complex high-order topological system structure, which will also bring profound changes to the destruction of the combat system. From attacking platforms to attacking elements, the focus of operations will be shifted from attacking combat platforms and destroying living forces to attacking key elements and paralyzing hub nodes. From attacking elements to attacking systems, in the case that it is difficult to achieve combat effects by destroying a single element, we will strive to select attack targets and means from the perspective of damaging the enemy system function to achieve suppression of the enemy system. From attacking systems to attacking systems, we will select the key joints of the system to destroy and paralyze, and use a variety of means such as breaking the network, breaking the chain, and hitting points to interfere with, delay, destroy, weaken, or even paralyze the effective operation of the opponent's combat system, thereby causing the collapse of the enemy's combat system.