Preliminary Study on New Quality Combat Effectiveness of Intelligent and Unmanned Anti-Terrorism Equipment

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ABSTRACT

New-quality combat effectiveness is a systematic combat capability based on information systems. It is the basic form of combat effectiveness under information conditions that integrates comprehensive perception, real-time command, precision strike, full-dimensional protection, and focused support. Combat capabilities resulting from the comprehensive role of humanized equipment. With the emergence of the "blowout" of new technologies, various types of intelligent unmanned equipment have been put into actual combat in large quantities, giving birth to the generation of new quality combat capabilities. It is necessary to deeply recognize the constituent elements of high-quality combat effectiveness, give full play to the combat capabilities of the new-quality combat effectiveness, strengthen combat support, and provide important support for the implementation of counter-terrorism combat missions under complex conditions in multiple scenarios.

Keywords: Intelligent and unmanned, Anti-terrorism operations, Combat effectiveness, Equipment support.

1. INTRODUCTION

The so-called intelligent equipment in anti-terrorism operations can be understood as unmanned weapons that warfighters only need to assign tasks without pre-programming and setting, and can use artificial intelligence technology to automatically find, identify and perform tasks autonomously with the support of intelligent algorithms [1]. The research on combat styles driven by the application of new technologies in weapons and equipment continues to deepen, and the resulting new combat concepts continue to emerge, and the introduction of new concepts is bound to promote the derivation and development of new combat capabilities.

2. INTELLIGENT AND UNMANNED ANTI-TERRORISM EQUIPMENT NEW QUALITY COMBAT CAPABILITY REQUIREMENTS COMPOSITION

The main form of intelligent and unmanned combat effectiveness is an overall combat capability that integrates multiple complex and efficient systems. Situation awareness is the prerequisite, global control is the key, autonomous decision-making is support, precision strikes are the key, and multi-dimensional protection is basis.

One is situational awareness. Use the distributed fusion node dynamic interaction technology to build an intelligent battlefield perception system, realize the multi-source aggregation and multi-domain integration of the massive battlefield data, and improve the efficiency of the comprehensive battlefield situation application.

The second is global control capabilities. Comprehensive use of artificial intelligence technology and big data technology to build a seamless, stable and reliable command and control network that penetrates land, air, and information domains, realizes real-time sharing of information and data, and effectively supports mission forces to control combat operations.

The third is the ability to make independent decisions. Intelligent unmanned equipment that performs reconnaissance, maneuvering, strike, protection and other combat tasks can independently judge the situation, select and execute the best action plan based on the real-time changes of mission

objectives, enemy conditions, battlefield environment, and its own state. The fourth is precision strike capability. An unmanned combat platform based on sensing and tracking systems, fire control systems, and flight control systems can completely autonomously complete mission planning, autonomous movement, target search, identification and tracking, and perform precise strikes on targets to truly achieve " Discover and destroy".

The fifth is multi-dimensional protection capabilities. It can overcome the adverse effects of the natural environment and electromagnetic environment in combat missions, automatically and effectively identify the enemy, me, and friend targets, reduce or even eliminate the wrong choice when attacking the target, and prevent being hit by the enemy or being injured by the friend.

3. INTELLIGENT AND UNMANNED ANTI-TERRORISM COMBAT EQUIPMENT MAIN COMBAT STYLE SCENARIOS

Adhere to demand-driven, build an intelligent unmanned equipment system with leading technology, advanced functions, complete systems, and autonomous controllability. Through the use of equipment, it can enrich combat methods, expand combat functions, and achieve combat objectives.

The first is to implement all-region operations without restricted zones. Anti-terrorism operations involve not only the severe challenges of the combat environment, but also the actual threats from weapons attacks from violent terrorist groups [2]. The intelligent unmanned combat system is small in size and convenient for concealed operations. It can not only "stride high" into dangerous environments to perform tasks, but also "calmly and rationally" can covertly penetrate defenses in high-intensity confrontations, realizing true global operations.

The second is to implement all-weather and all-time operations. The intelligent unmanned combat system has extremely strong adaptability to the complex battlefield environment and the innate characteristics of "work without complaint". It can not only "carefully deal with" harsh weather and night dark conditions, but also perform repeated high-intensity work for a long time.

The third is to implement nodeless micro-system operations. The combination of intelligent unmanned combat system and manned combat system can form a micro-system at the end of the operation, and discretely configure the functions of reconnaissance, strike, decision-making, evaluation, and support, which not only greatly improves the performance of equipment, but also changes Some people's combat system can easily lead to the disadvantages of node destruction and

paralysis, so that the system's combat thinking can be implemented at the bottom of the operation, and the elite combat supported by the large system can be truly realized.

The fourth is to implement error-free and precise guidance assaults. Through automated, intelligent, standardized, and lean operation steps and methods, it can not only give full play to technical advantages, improve sensitivity and accuracy, but also play a dynamic real-time, highly accurate guidance role, and greatly improve the guidance's overall benefit of fire strikes and force assaults.

The fifth is to implement continuous and intensive protection. The anti-terrorism operations have a large area, many deployment points, long lines, and wide areas [3]. Vehicles are inconvenient to pass, and communication means are limited. Comprehensive support is very difficult. The intelligent unmanned combat system, due to its strong programmatic execution and certain load capacity, can assist the unit to carry battlefield materials and ammunition, reduce the task load of combatants, and greatly improve the overall combat capability and battlefield survivability of the unit.

4. INTELLIGENT AND UNMANNED ANTI-TERRORISM OPERATIONS COMPREHENSIVE SUPPORT EFFECTIVENESS

The comprehensive support for anti-terrorism operations is composed of political work support, logistics support, equipment support, training support, legal support, and talent support. Its effectiveness directly determines the success or failure of the battle.

Political work support, making full use of technologies such as social networks, personnel portraits, public opinion monitoring, sentiment analysis, behavior prediction, to build an intelligent political work system that covers battlefield control, public opinion legal struggle, social situation monitoring, personnel ideological dynamics, to provide powerful military operations guarantee.

Logistics support, through the use of technologies such as the Internet of Things, drones, smart cars, remote surgery, 3D printing, to upgrade and build an intelligent logistics support system covering intelligent warehousing, intelligent delivery, intelligent maintenance, intelligent medical care, to realize the automatic loading of materials on the battlefield quick and accurate supplies, rapid diagnosis and maintenance of equipment failures, and timely rescue of battlefield personnel, improve the overall logistics support efficiency and benefits.

Equipment support, off the road of generalization of basic platforms, modularization of task loads, networking of control links, and integration of maintenance and support, so that one type of platform can take on diversified tasks, and different models can achieve coordinated and interconnected air operations without relying on factories. The basic maintenance guarantee can be completed, and the unmanned equipment can be truly turned into combat weapons and equipment [4].

Training support, through the comprehensive use of cloud computing, virtual reality, simulation confrontation, adjudication evaluation and other technologies, to create an integrated training platform of "guidance, control, arbitration, evaluation, and management", an intelligent virtual blue army, and an immersive training environment to support Strategy training, equipment skill training, joint confrontation drills.

Laws and regulations support, establish and improve the regulation and standard system of intelligent unmanned combat training, flight management, and promote the formulation and revision of relevant regulations. On the one hand, in the regulations and systems such as combat doctrines, combat readiness work regulations, training regulations, and outlines, add special outlines for intelligent unmanned operations, training and assessment outlines, combat coordination and support regulations, etc. On the other hand, it is necessary to promulgate the flight management regulations for flying aircraft as soon as possible, improve the joint defense and control mechanism of military, police and civilians, and provide legal basis for daily management and control.

Talent support, further expand the scope of selection and training, adjust the structure of special operations teams, add intelligent and unmanned professional talent positions, strengthen the discipline and professional construction of colleges and scientific research institutions, demonstrate the establishment of professional training bases, and improve the talent retention mechanism, and gradually build a professional talent team with appropriate scale, reasonable structure and proficient business.

5. CONCLUSION

The maximum effectiveness of the new combat effectiveness of intelligent unmanned counter-terrorism combat equipment should comprehensively consider the geographical environment of the target area, terrorist forces and firearms to achieve combat intention with the optimal power ratio and ultra-efficient response ability.However, intelligent unmanned is not perfect, it has some inevitable defects and loopholes.Especially in the complex environment and harsh conditions, the combat system is likely to encounter problems such as identification error and system loss of control, or even"defection and counterattack"after electromagnetic network attacks.We should maintain high vigilance in the study and exploration of intelligent unmanned equipment to prevent terrorism, pay attention to avoid risks and make emergency preparations.

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