



China: “New Concepts” in Unmanned Combat

OE Watch Commentary: Evolving concepts in unmanned combat and new technologies have prompted two Chinese military strategists to explore different potential strategies that might be used in unmanned combat operations. In the first adjoining article excerpts, published in *Jiefangjun Bao*, they describe ways China might achieve superiority through unmanned operations on the future battlefield.

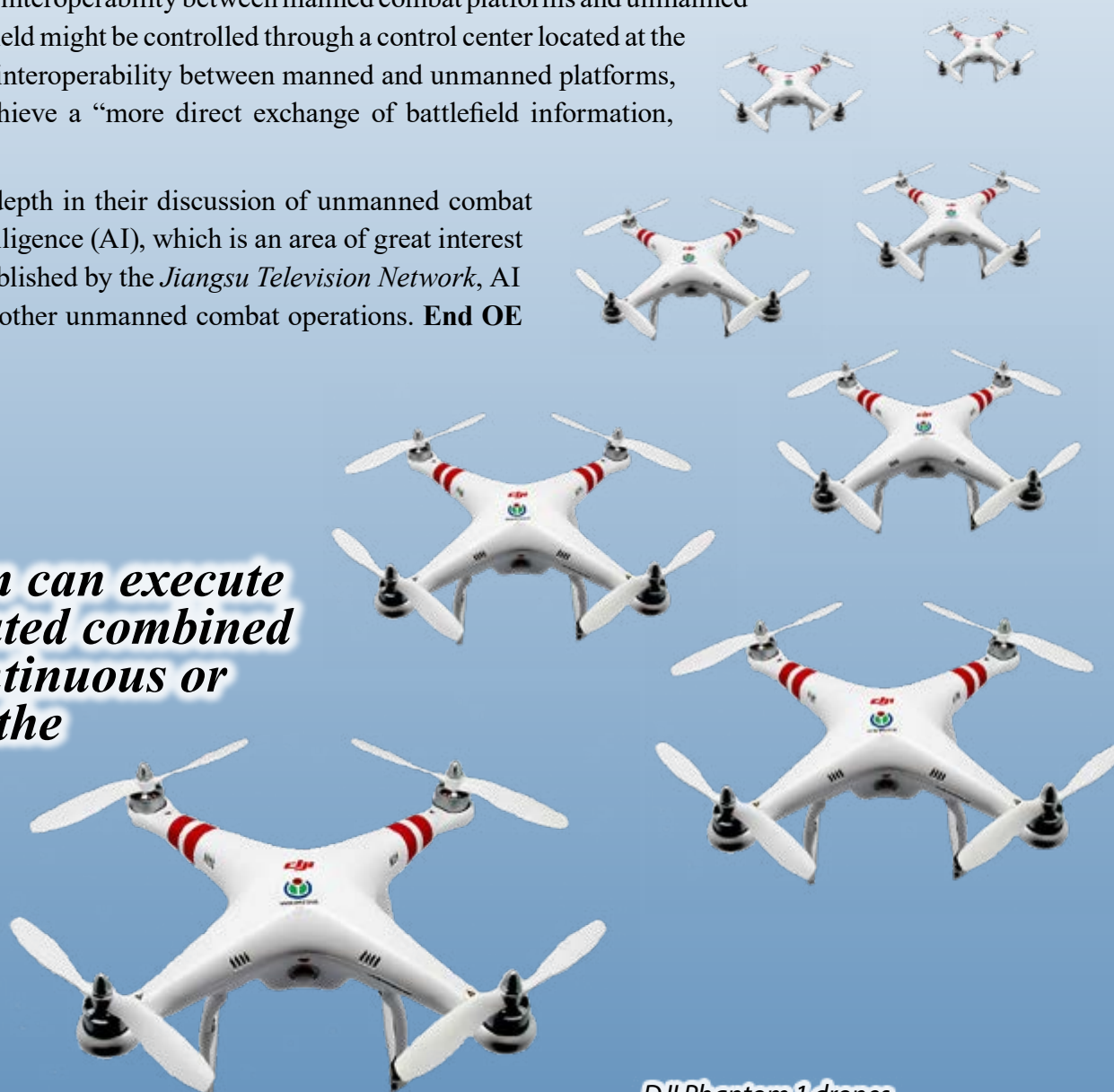
Up front the authors offer a brief snapshot of swarming operations by pointing out that such operations are supported by network information systems. The advantages of swarming operations are in intelligence, decision-making, coordination, and sheer numbers. According to the authors, each unit (drone) is assigned a specific role. For example, some drones will be fitted for various modes of search or surveillance. Others might be assigned an attack function. The units work together through networked operations to carry out their respective missions. The authors explain that through these unique applications, swarms can carry out “omnidirectional defense penetration, distributed killing, and group defense.” They write that in “omnidirectional defense penetration, massive numbers of drones can carry out simultaneous penetration.” It can be both multidirectional and three-dimensional. In “distributed killing,” each platform has its own unique function and role: reconnaissance and detection, electronic interference, network attack, or strike. These drones will then work together to collectively pursue a single high-value target or a group of targets in a specific area. In pursuing these targets, according to the authors, a swarm will be able to carry out multi-domain, multi-dimensional attacks from multiple directions. Finally, the authors explain that in carrying out group defense, a swarm can build a smart, self-adaptive defensive system to create a protective “bubble” around a main assault force or important targets. Through each drone’s respective functions and their interaction with the other units, they can then, for example, rapidly intercept targets. They can also help provide defense and counter enemy drone swarms.

In the next section of the article, the authors lay out a strategy that is somewhat analogous to the game of Chess. The operations, which they refer to as “mother ship-launched operations,” are large-scale, flexible operations in which large sea- or air-based, manned or unmanned combat platforms transport the drones to a specific location. After launching the drones, the mother ships can provide comprehensive background support, such as launch, retrieval, and command and control. These operations can take place on land, in the air, or at sea. According to the authors, mother ship-launched operations are advantageous because they can operate at long-range while also engaging in closeup combat. Mother ship-launched operations are like “using a ‘rook’ to carry a ‘pawn’ to mobilize for combat, with the ‘rook’s’ easy maneuverability improving the ‘pawn’s’ mobilization speed and operational flexibility.” Mother ship-launched operations are also described as more versatile. They can more efficiently perform emergency response and intervention, their operations can deliver “sustained suppression and attacks,” and they can coordinate operations in multiple locations.

The authors also discuss the benefits of increasing interoperability between manned combat platforms and unmanned platforms. In more traditional operations the battlefield might be controlled through a control center located at the rear. However, they explain that by increasing the interoperability between manned and unmanned platforms, control is spread throughout the battlefield to achieve a “more direct exchange of battlefield information, operational support, and action coordination.”

It is worth noting that while the authors go in-depth in their discussion of unmanned combat operations, they do not once mention artificial intelligence (AI), which is an area of great interest in China. Looking at the second article excerpt, published by the *Jiangsu Television Network*, AI is said to be essential to achieving swarming and other unmanned combat operations. **End OE Watch Commentary (Hurst)**

“Against a target, a swarm can execute a multidirectional, saturated combined attack that may be continuous or simultaneous, achieving the effect of the “small but numerous” defeating the “big but few.”



DJI Phantom 1 drones.

Source: Clément Bucco-Lechat / CC BY-SA (<https://creativecommons.org/licenses/by-sa/3.0/>); https://commons.wikimedia.org/wiki/File:WMCH_Drone.jpg



Continued: China: “New Concepts” in Unmanned Combat

Source: Zhao Xiangang and Zhang Tieqiang, “新概念牵引无人作战新方向 (New Concept Leads to New Directions in Unmanned Combat),” *Jiefangjun Bao*, 1 September 2020, http://www.81.cn/tz/2020-09/01/content_9894213.htm

New Concept Leads to New Directions in Unmanned Combat

The cluster effect of swarm operations enables a wholeness in combat operations that cannot be achieved by a single platform. Swarm operations have the following advantages. The first [advantage] is an advantage in intelligence... The second [advantage] is an advantage in decision making... The third [advantage] is an advantage in coordination... The fourth [advantage] is an advantage in numbers. ... Against a target, a swarm can execute a multidirectional, saturated combined attack that may be continuous or simultaneous, achieving the effect of the “small but numerous” defeating the “big but few.”

A swarm is the aggregate of a large number of intelligent unmanned platforms with different functions, with a unique application method that is not possessed by any single weapon system. First, a swarm can carry out omnidirectional defense penetration.... Next, a swarm can carry out distributed killing... Third, a swarm can carry out group defense... A swarm not only can “intercept many [targets] with few [drones],” it can also “intercept many [targets] with many [drones],” with a wide range of interception and a high success rate. This constitutes an important application method in the future for coordinating the execution of air defense and anti-missile operations, defending important targets at the endpoint, and countering enemy drone swarm attacks.

Mother ship-launched operations involve the use of large, sea- or air-based, manned or unmanned combat platforms as transport carriers to provide support for the mobilization, projection, and retrieval of, command and control over, and comprehensive support for, various types of unmanned systems on land, at sea, and in the air. Such operations enable the long-range mobilization, multi-domain deployment, and coordinated use of unmanned systems, particularly small- or micro-sized unmanned systems, thereby giving full play to such systems’ overall combat effectiveness.

The following advantages exist with unmanned platforms relying on a mother ship to carry out mobile operations and support services, as opposed to relying on the rear to provide command and control and support services. The first [advantage] is an advantage in mobilization... The second [advantage] is the advantage of clusters.... The third [advantage] is an advantage in [the diversity of] missions...

Mother ship-launched operations represent the organic combination of the advantages of a mother ship and of unmanned platforms, leading to more versatile application methods. First, mother ship-launched operations can perform emergency response and intervention... Second, mother ship-launched operations can deliver sustained suppression and attacks... Third, mother ship-launched operations can execute coordinated operations at multiple locations... With dispersed unmanned platforms taking actions simultaneously at multiple locations, it [the use of mother ships] also results in dispersal of the enemy’s forces and a decrease in the enemy’s defensive capabilities.

By increasing the interoperability of manned combat platforms and unmanned combat platforms, manned/unmanned coordinated operations achieve an even more direct exchange of battlefield information, operational support, and action coordination, accomplishing unified organization and integrate combat between manned and unmanned platforms, and fully, exploiting the complementary advantages of manned and unmanned combat forces.

Source: “中国又创新记录！119架无人机“群飞”领先美国 (China Has Set Another New Record! A Group Flight of 119 Drones Has Taken the Lead from the United States),” *Jiangsu Network Television*, 12 June 2017, <http://news.jstv.com/a/20170612/1497249085391.shtml>

China Has Set Another New Record! A Group Flight of 119 Drones Has Taken the Lead from the United States

... In just two short years, China and the United States have reset the scale of UAV swarm flights four times. The competition in this field has become increasingly fierce...

“Swarm Intelligence” has always been regarded by all countries as the core of unmanned system artificial intelligence, and is the breakthrough point for future intelligent unmanned systems. Fu Qianshao said that for the UAV swarm technology to really become practical, the problem is not only the formation flight, but also it needs to be able to independently judge and decide according to different situations like intelligent creatures. For example, the basis of drone swarm control is collaborative situational awareness. Drones are equipped with different sensors and need to work together to achieve information sharing, thus reaching a greater sensing range and a higher precision.