

THE UNMANNED FUTURE BLITZKRIEG. MULTI-DOMAIN INTEGRATION OF UNCREWED SYSTEMS IN CONTEMPORARY BATTLESPACE OPERATIONS

Aurelian RAȚIU, Ionuț-Alin CÎRDEI

“Nicolae Bălcescu” Land Forces Academy, Sibiu, Romania
ratiu.aurelian@armyacademy.ro, cirdei.alin@armyacademy.ro

Abstract: *This article examines a contemporary reinterpretation of Blitzkrieg as a multi-domain operational concept built around the integration of uncrewed systems in the air, on land, and at sea. Today, the focus has shifted toward multi-domain operations, which are designed to address the complexity of the current operational environment. This approach acknowledges the growing interdependence between different domains land, air, maritime, information (including cyber), and space, and emphasizes their integration into a coherent operational framework. While the German Blitzkrieg of 1940 relied on the coordinated use of mechanized forces, air power, and artillery, the future of rapid maneuver warfare is likely to take a different form. In my view, the future blitzkrieg, with a major impact on the future of military conflicts, is represented by multi-domain operations conducted through the integrated use of unmanned/uncrewed systems operating across air, land, and maritime environments.*

Keywords: multi-domain operations, uncrewed systems, cross-domain integration, the Blitzkrieg strategy

1. Introduction

The Blitzkrieg (the doctrinal concept) focuses on the coordinated use of mechanized forces, air strikes, tanks, and artillery to attack quickly, decisively, and break through the enemy's defensive lines.

But, the real innovation lay in the integration of mobility, radio-enabled coordination, concentrated firepower, and decentralized execution to collapse an adversary's ability to respond coherently.

Later, the doctrinal concept of "air-land battle" (and its air-naval and air-land-naval extensions) emerged. It described the systemic and synergistic integration of ground and air forces operating in coordination across the full depth of the theater of operations. The goal was to engage and strike the enemy's first and second echelons, reserves, and other vital assets simultaneously, ensuring the destruction of the main enemy force before

it could achieve its objectives. Another key objective was to ensure the destruction of the enemy's main force before it could achieve its intended goals. At the same time, own/friendly troops along the main axis of advance, shielded by complex electronic warfare (EW) operations, would engage the enemy's forward echelons directly. Additional actions targeted the second echelons, maneuver formations, and reserves, while airpower and precision-guided weapon systems struck critical centers of gravity to prevent the enemy from reinforcing or expanding its efforts [1]. For example, "Operation Desert Storm" (The Persian Gulf War: 1990-1991) was conducted according to the principles of the air-land battle doctrine, complemented by extensive informational, psychological, and air operations adapted to the specific strategic circumstances of the time.

Modern conflicts, by contrast, are defined by

complexity, ambiguity, and the widespread use of emerging technologies. Advances in technology have fundamentally reshaped the character of warfare, granting a decisive edge to those who successfully integrate innovation. Military operations are no longer confined to the traditional domains of land, sea, and air, they now extend deeply into the information (cyber) domain and even outer space.

Adversaries exploit the unique capabilities of each domain to disrupt, degrade, or deny their opponent's strengths. This evolving nature of warfare has driven the emergence of the multi-domain operations (MDO) approach, which seeks to integrate efforts seamlessly across all operational environments.

2. Methodology

The article was developed from the hypothesis that success in future military conflicts will depend not only on the use of advanced weapons and cutting-edge technologies, but also on their smart integration into a coherent and unified doctrinal/ operational conception of unmanned/uncrewed aerial, ground and maritime military systems; a blitzkrieg of swarms of autonomous platforms. The objectives pursued refer to identifying the main implications of uncrewed military systems on the characteristics of future military conflicts and highlighting the doctrinal elements regarding the integration of these autonomous military systems to achieve operational advantage in future military confrontations.

The present article proposes the concept of a New Blitzkrieg: a multi-domain maneuver model in which integrated uncrewed air, ground, and maritime systems generate operational shock through distributed sensing, algorithmic disruption, precision strike, and autonomous or semi-autonomous sustainment. The goal here is analytical and doctrinal. The article does not offer operational instructions; rather, it aims to clarify the structure, logic, and

vulnerabilities of such a concept.

The research was based on a critical analysis of relevant sources on contemporary military operations (with particular attention to multi-domain operations), as well as specialized works addressing the characteristics and employment of uncrewed autonomous systems within the cyber-enabled operational environment. This stage made it possible to identify emerging trends and conceptual gaps, providing the theoretical foundation for shaping the new concept. To better understand how operational paradigms have evolved, a comparative analysis was carried out between classical rapid maneuver concepts (Blitzkrieg) and current operational models, which rely more on the speed of information and the use of both non-autonomous and autonomous military systems. Through conceptual modeling and abstraction, the research aimed to define the key components of the proposed operational vision, clarify the relationships between them, and identify the operational mechanisms. In order to assess the applicability of the concept, exploratory scenarios were developed, drawing on current trends and anticipated technological developments (inductive reasoning and scenario-based analysis).

3. The conceptual approach isolated by components

Most armed forces, including those in the West, continue to invest heavily in conventional combat systems. At the same time, uncrewed military systems are still largely viewed as supporting assets/tools that can carry out reconnaissance, conduct selective strikes, or handle logistical and other auxiliary tasks [2]. A contemporary parallel to the Blitzkrieg is not simply the replacement of tanks with drones, but the emergence of a new operational grammar in which uncrewed systems compress the cycle between sensing, decision, disruption, and strike. Many military leaders still feel more comfortable and in control when uncrewed systems remain confined to these limited

roles, even though they have the potential to serve as primary combat assets and bring significant operational advantages. Instead, they are increasingly discussed as primary contributors to operations tempo, electronic warfare, targeting, and distributed lethality.

3.1. Air Domain

Under these conditions *“unmanned technologies provide a technological solution to decision-maker constraints”* [3]. Many uncrewed systems are able to evaluate threats at far higher speeds than humans and engage targets. The AH-64D Apache attack helicopters Longbow fire control radar already *“automatically searches, detects, locates, classifies, and prioritizes multiple moving and stationary targets on land, air, and water in all weather and battlespace conditions”* [4].

The transformation of warfare aligns with the idea that future advantage will derive not from having advanced weaponry in isolation, but from integrating them into coherent fighting systems. There are observations and studies that clearly show that only the uncrewed aerial platforms are *“ill-prepared to support a war in Ukraine”* [5]. As a result, a trend is visible in specialized research about uncrewed aerial vehicle/systems (UAV/UAS) swarms as intelligent strike and EW (Electronic Warfare) systems, where the swarm is treated not as a cluster of interchangeable drones, but as a distributed architecture of different functions coordinated through adaptive control and multi-domain logic [6]. The air domain is the best known so far, being the point of initiation for a new Blitzkrieg because it offers the best way to understand the battle space before engaging other capabilities, ground or maritime. In the classical model, airpower supported land maneuvers. In the new model, UAS would often trigger planning and action and continuously update the integrated maneuver.

Uncrewed aerial systems have revolutionized the way wars are fought, offering multiple uses and specific missions

across all levels of military operations. At the strategic level, their primary roles include intelligence, surveillance and reconnaissance (ISR), preserve a clearer picture in the theater of operations and makes communications, consequently these functions contribute to maintaining awareness, network functionality and ensure continuity of military tasks. At the operational level conduct jamming, decoy operations, and target tracking/acquisition, disrupting the coherence of the enemy's sensing and response. At the tactical level, they are used to carry out precise strikes (loitering strikes, top-attack, close interdiction) on static or moving targets, and also provide logistical support. This enables the rapid translation of opportunities into immediate battlespace effects [7].

The key change is not only precision, but tempo. Analytical work on agentic swarms emphasizes that AI-enabled (AI - Artificial Intelligence) systems can compress the observe, orient, decide, and act cycle beyond unaided human speed, forcing defenders into a reactive posture. This vision supports the core Blitzkrieg objective of paralyzing enemy planned operations. At the same time, the air domain remains vulnerable. Swarms depend heavily on relevant and opportune intelligence, resilient networking, strike power, and survivable autonomy.

3.2. Ground domain

Currently, one of their most significant roles of uncrewed military ground vehicles (UGV) is that they can absorb exposure in high-risk spaces, such as attack corridors [8], ambush zones, or urban edges. Their value lies not only in protection of personnel, but in preserving tempo of operations. Any maneuver concept that aims at rapid exploitation must solve the problem of obstacles. Ground robots can assist with route reconnaissance, obstacle identification, breaching support, and risk reduction in contaminated or heavily targeted terrain. In conceptual terms, this matters because Blitzkrieg has always

depended on momentum and exploiting success after break through.

Also, historically, fast advances fail when fuel, ammunition, maintenance, and replacement do not keep up. Uncrewed logistics convoys and AI-powered supply nodes would allow military forces to reduce the operational pause that usually follows initial success. In doctrinal conception, the real innovation is the shift from periodic resupply to a more continuous sustainment flow.

Given that the contemporary battlespace is characterized by VUCA (volatility, uncertainty, complexity, and ambiguity) as well as a non-linear nature, rather than concentrating firepower in a limited number of high-cost manned platforms, a networked force based on uncrewed land systems could distribute rapid strike capabilities across multiple directions of effort.

In a new Blitzkrieg, UGV would not simply accompany troops, but they would contribute directly to breaking through enemy lines (in offensive) or avenues of approach security and defense of directions of effort.

Still, the ground domain poses difficult constraints. Terrain complexity, urban density, mud, road degradation, debris and the destroyed military equipment, obstacle clutter, and line-of-sight fragmentation all reduce the efficiency of uncrewed systems. Ground robots are also especially vulnerable to capture, signal loss, and mobility failure.

3.3. Maritime domain

In coastal or riverine theaters, uncrewed maritime systems (Autonomous Underwater Vehicles – AUV and Uncrewed Surface Vessels – USV) can be used both as offensive and defensive weapons so understanding how they work is essential for all military personnel (especially for leaders). Uncrewed maritime systems allow operations in challenging conditions, such as surveillance, mine countermeasures, and intelligence gathering, without endangering personnel [9]. They can isolate the operational space, complicate maritime and

amphibious operations (from sea to land), disrupt force reinforcement at sea as well as military logistical processes. If traditional naval air operations involve the deployment of fixed-wing aircraft and helicopters from carriers to project power, today, aircraft carriers designed for UAV operations are being developed [10] to ensure maritime security and conduct strikes. In these situations, the strategic effect can be significant even if the kinetic effects are reduced. Uncertainty and delay may be sufficient to affect maritime operations.

The maritime domain contributes to the military campaign by isolating the maritime battlespace from other domains, striking vessels, disrupting fire support and logistics, and expanding the adversary's defensive challenges. [11] This is especially important in theaters where river crossings, port access, or amphibious movement shape the pace of operations.

Maritime uncrewed systems also face substantial practical limitations. Underwater communication remains difficult, autonomy in maritime environments is constrained by navigation and endurance issues, and coordination between aerial and maritime domains is technically challenging.

4. Cross-domain integration - the real center of gravity in the new Blitzkrieg

The central statement is therefore simple: the new Blitzkrieg is not armored vehicles at high speed, but networked multi-domain shock by uncrewed military systems. The most important feature of the new Blitzkrieg concept is not any single platform or domain. It is integration. The concept only works if aerial, ground, and maritime systems are tied together by a common logic of sensing, disruption, strike, and sustainment.

In the doctrinal terms, it is essential that through a distributed network, uncrewed systems initially detect, map, and analyze the operational environment and then attack with the most appropriate systems (air, land or sea), disrupt and isolate the enemy, while

delay force reinforcement and logistical support. Furthermore, the distributed network constantly reallocates detection and strike functions in almost real time. The deeper doctrinal implication is that the advantage would come from combining aerial overwatch, mobile uncrewed aerial and ground systems and digital coordination into a continuously adapting maneuver web. This is very close to the logic discussed in the proposed concept, where humans define intent and limits while uncrewed platforms perform speed and intensive tasks above the known threshold.

Along the same lines an integrated UAV-USV-UUV approach can force coastal defenders to manage simultaneous air, surface, and subsurface threats. This creates

a similar doctrinal effect to that sought by the Blitzkrieg on land: fragmentation of enemy attention, misallocation of defensive resources, and delayed operational coherence.

Specialized research on agentic drone swarms [12] makes clear that offensive swarms will generate corresponding layered defenses: passive sensing networks, EW, directed-energy systems, and kinetic interceptors in a software-based approach (AI). The reported 2026 Kupiansk attack is a good example, and it is useful as an indicator of what analysts think is emerging [13]. This means no uncrewed operational model can assume one-sided dominance for long.

An integrated action diagram could have the following logic, as seen in Figure 1.

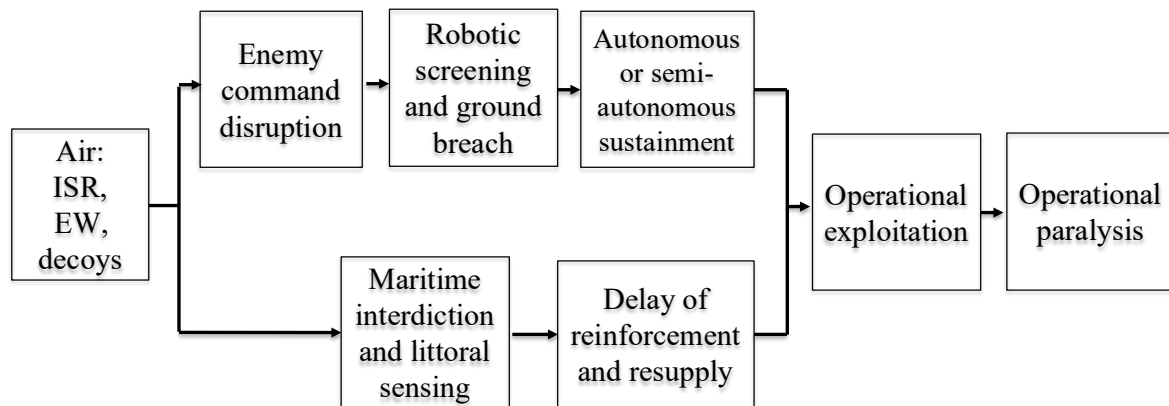


Figure 1 Integrated Multi-Domain Action Framework in the New Blitzkrieg

It is well known that the command - control process in a military structure serves as both a combat multiplier and a unifier of all the diverse elements of combat power.

However technological advances in the field of uncrewed systems will require adapting how military forces increasingly composed of autonomous systems are led. Consequently, to make the most effective use of large fleets of uncrewed systems, commanders will need to expand their comfort zones and embrace a greater level of decentralized decision-making in operations. In multi-domain integrated operations involving uncrewed systems, artificial intelligence could be a solution for integrating components [14].

This approach demonstrates its value in situations that require rapid, high-precision computations, such as drone guidance or missile interception, and in operations that involve long, repetitive cycles like sustained surveillance or the defense of key sites. It can also empower future commanders to effectively manage vast numbers of autonomous and semi-autonomous systems across an increasingly complex and dynamic battlespace. Ultimately, moving from the current military mission command approach centred on human operators to mission command of combined (humans and AI) teams is not a cognitive faraway leap.

Although uncrewed systems offer promising possibilities, as seen in Ukraine [15], the

nature of war itself has not changed, remaining a violent struggle to dominate the enemy and impose one's will against him.

6. Conclusions

Autonomous military systems, target recognition, surveillance, cyber defense, military transport and logistics, AI-augmented vehicles and networks, as well as combat training and simulation are undeniable advantages of emerging new technologies.

The historical Blitzkrieg achieved shock by combining air and armored mobility, communication, concentrations, and initiative more effectively than its adversaries. A New Blitzkrieg would pursue the same operational objective, but through very different means, and its decisive instrument would be an integrated network of uncrewed systems operating across air, land, and sea.

Although to different extents, uncrewed systems across the three domains of operation (air, land and sea) have all been used and developed at an accelerated pace. UASs have been the most used to-date due to the wide range of areas in which they can be applied, as well as because the comparatively fewer technical challenges impeding their wider use and application. While UMSs and UGSs have not yet seen widespread use to the same extent, all types of uncrewed system are attractive due to the wide-ranging military areas of application.

In this emerging and conceptual model, uncrewed aerial systems would shape and disorganize the battlespace through persistent sensing, decoying, jamming, and

strike. Ground systems would convert disruption into a break through, distributed fires, autonomous sustainment, and engineering support, and maritime systems would isolate the theater and complicate reinforcement. What joins these components is not merely technology, but a doctrine of machine-tempo integration.

The most relevant conclusion is therefore not that uncrewed systems will simply replace traditional arms, but that they are redefining what joint forces means (multi-domain operations).

Even though uncrewed systems have many vulnerabilities, military people are usually much more exposed than machines to both lethal and non-lethal threats. These range from conventional firepower and nuclear, chemical, or biological hazards to the battlespace effects of exhaustion, extreme temperatures, and intense emotions such as fear, anger, hatred, or the instinct for self-preservation.

Just as German Blitzkrieg helped lay the groundwork for success in World War Two, there exists the opportunity to further develop combat doctrine to incorporate in a new Blitzkrieg all uncrewed systems before our future enemies do. AI and uncrewed systems are continuously developing and the only question is whether we are able to shape our approach as France should have done before the war with Germany.

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