

SWARM TACTICS AND THE EVOLUTION OF UAV WARFARE IN MODERN CONFLICTS

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Recent armed conflicts such as the Second Karabakh War and the ongoing Russia-Ukraine war have demonstrated a paradigm shift in modern warfare tactics and technologies. These conflicts are characterized by the use of non-traditional combat methods, enhanced precision weaponry, information warfare, and advanced command and reconnaissance systems. Notably, unmanned aerial vehicle (UAV) systems—particularly combat and reconnaissance drones—have become key tools for achieving tactical superiority when manned aviation is impractical or ineffective due to strong air defense systems or hazardous combat environments. The analysis of recent wars has revealed a trend toward miniaturization, energy efficiency, multifunctionality, and autonomy of UAV systems, often enhanced by artificial intelligence technologies. A significant emphasis is placed on the use of drone swarms, which offer advantages in coordinated target detection, high-impact strikes, and autonomous decision-making. This paper explores the tactical applications of military UAV swarms, identifies key mission objectives, and outlines principles and approaches to their deployment.

The aim is to investigate the technical and operational challenges in swarm-based UAV warfare and to develop a structured framework for their use in future military engagements. The findings highlight the transformational role of UAV swarms in redefining battlefield strategies.

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