

THE LAND, SPACE, AND CYBERSPACE NEXUS: EVOLUTION OF THE OLDEST MILITARY OPERATIONS IN THE NEWEST MILITARY DOMAINS

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Over the last century, the domains of air, space, and cyberspace have joined the traditional warfighting domains of land and sea. While the doctrine for land operations is relatively mature, the doctrine for space and cyberspace continue to evolve in an often unstructured manner. This monograph examines the relationships among these domains and how they apply to U.S. Army and joint warfighting. It concentrates on the central question: How are U.S. military operations in the newest domains of space and cyberspace being integrated with operations in the traditional domain of land? This inquiry is divided into three major sections:

- **Existing Doctrine:** This section explores the current state of joint and U.S. Army doctrinal development for each of the domains of land, space, and cyberspace (as of October 2016). Note that this work was completed before the April 2017 release of the Army Field Manual 3-12, Cyberspace and Electronic Warfare Operations. The discussion assumes the reader is familiar with the doctrine of land operations, and thus it focuses more on the newer and lesser-known domains of space and cyberspace.
- **Operations in Multiple Domains:** This section examines the concept of cross-domain synergy and its ability to enhance globally integrated operations. It also examines the existing processes and entities defined in doctrine that provide expertise and support to joint force commanders.
- **Future Operations:** This section explores probable future operating environments as well as the resulting implications for U.S. Army and joint force development. It also identifies operational challenges that cut across all domains. It includes recommendations for

policy makers and senior leaders regarding the future development and integration of space and cyberspace doctrine.

By their very nature, military doctrine and operations are works in progress. In general, the current state of military doctrine in the relatively new domains of space and cyberspace include adequate means to support land-based joint operations. However, knowledge of the nature of these new domains is not intuitive and understanding their unique characteristics and capabilities is still a challenge for the military force writ large. Anticipated future trends favor the decreased emphasis on traditional large-scale land operations and increased frequency and intensity of conflict in space and cyberspace, perhaps even where these newer domains may become preeminent for a given operation. The joint staff's pursuit of achieving cross-domain synergy in planning and operations offers a credible method to face some of the challenges of the future joint force, but this will likely remain an evolutionary vice revolutionary endeavor.

The scope of this study extends from current doctrine toward the anticipated operational environment over the next 20 years. Material considered and presented here is limited to unclassified and open source information; therefore, any classified discussion must occur via another venue. This monograph provides cursory summaries and observations of over a thousand pages of official joint and service documentation. Thus, it serves as a synopsis with analysis of the important issues related to joint operations in land, space, and cyberspace. This information should allow senior policymakers, decision makers, military leaders, and their respective staffs to gain common understanding and professional appreciation for the wide array of frameworks and

concepts as well as their interconnections. Of course, the reader should always defer to the full text for details and context.

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