

ARMY SUPPORT OF MILITARY CYBERSPACE OPERATIONS: JOINT CONTEXTS AND GLOBAL ESCALATION IMPLICATIONS

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Military cyberspace operations have been ongoing since before the advent of the Internet. Such operations have evolved significantly over the past 2 decades and are now emerging into the realm of military operations in the traditional domains of land, sea, and air. The goal of this monograph is to provide senior policymakers, decisionmakers, military leaders, and their respective staffs with a better understanding of Army cyberspace operations within the context of overall U.S. military cyberspace operations. To accomplish this, it first looks at the evolution of Department of Defense (DoD) cyberspace operations over the past decade. Next, it examines the evolution of the Army implementation of cyberspace operations. Finally, it explores the role of cyberspace operations in the escalation of international conflict. The scope of discussion is at the survey level of detail to provide an overall appreciation for the complex and dynamic nature of evolving cyberspace operations. It is limited to unclassified and open source information; any classified discussion must occur at an appropriate venue. Although the details contained herein are largely focused on military applications, the reader must realize that whole-of-government efforts are essential for the successful implementation of national security efforts in cyberspace.

This monograph has three main sections:

- **Evolution of Military Cyberspace Operations.** This section examines the founding of U.S. Cyber Command from its roots in various military units focused on defensive and offensive cyberspace operations. It reviews the initial operation of the command under the leadership of General Keith Alexander as well as its current operations led by Admiral Michael

Rogers. Also, it assesses the command's mission to direct operations, defend networks, and, on order, conduct full spectrum operations, with respect to its appropriateness and adeptness for the command and control of military cyberspace forces.

- **Evolution of Army Cyberspace Operations.** Having examined the evolution of joint cyberspace operations, this section focuses on parallel evolutionary efforts in Army cyberspace operations toward the establishment of Army Cyber Command. It examines initial operations of the command under the leadership of Lieutenant General Rhett Hernandez as well as its current operations led by Lieutenant General Edward Cardon. This includes a brief review of recent efforts to establish Fort Gordon, GA, as the center of gravity for Army cyberspace activities.
- **Cyberspace Operations in a Global Context.** This section examines the sufficiency of the current cyberspace force structure to address an international environment of multiple actors interacting with varying degrees of tension. In such a global situation, cyberspace operations seeking to produce certain effects must also be examined for their potential to cause escalation of activities; possibly even up to the point of existential threat. The section presents a modified Kahn escalation ladder as a useful metaphor to explore how cyberspace activities may integrate with traditional military operations across the spectrum of international conflict as well as how such defenses influence national responses related to deterrence and escalation.

This monograph examines the past and present of joint and Army cyberspace military operations as well as how these operations may fit into the complex and dynamic sphere of international deterrence and escalation. To facilitate the best evolutionary path for future activities, it provides recommendations in the areas of current priorities, authorities, strategic engagement, multi-role modeling, and other paradigms and factors to consider in future examinations of the topic.

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