CROSS-DOMAIN INTEGRATION

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Common to successful military operations in all ages—combat or otherwise—is the synergy created by controlling or influencing more than one domain. Control of a single domain, particularly land, can secure success, but control of, or influence through, more than one domain usually helps achieve continuing advantage more effectively and efficiently. For example, in the Civil War, the gradual capture of southern coastal ports and the Mississippi River in the maritime domain aided the Union effort just as did defeat of Confederate armies in the field.

The advent of military aircraft made a third domain accessible, which all belligerents exploited to gain military advantages in WW I and to create decisive effects in and after WW II. Allied Combined Bomber Offensive targeting of the German transportation system in WW II was cited as one of the major reasons for the rapid German collapse during the last

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[Through] dominance across domains the Air Force grants joint freedom of maneuver in all warfighting domains: land, [maritime], air, space, and cyberspace. This, in turn, allows the Joint Force Commander to achieve desired outcomes across the full range of military operations: from humanitarian relief saving those in need, through preventing war via dissuasion and deterrence, to inflicting strategic paralysis on implacable opponents. Without the Air Force's ability to present this spectrum of capabilities to the joint team in peace, crisis, and war, national security would be at risk.

--*The Nation's Guardians: America's 21st Century Air Force*,"
Chief of Staff White Paper,
29 December 2007

months of 1944 through surrender in May 1945. This is an example of the decisive use of the air domain to affect the land domain. In a similar manner, recent revolutions in spaceflight and computer technology have opened two new domains of space and cyberspace to military exploitation. Technical advances, operational best practices, and other military innovation will likely allow use of these domains in ways that permit decisive effects in the near future. Many argue that cyberspace has already reached this point. Because of the relatively low "entry cost" for adversaries, and because so much of Western economy and society depend on technology in cyberspace, cyberspace weapons may become "weapons of choice" for use *against* the United States, its partner nations, and its interests.

Military operations take place in and through the air, land, maritime, space, and cyberspace domains and the information environment. **The Air Force exploits advantages in the air, space, and cyberspace domains to achieve joint force commander (JFC) and national objectives in all domains and the information environment.** In either a supporting or supported role, these functions can be conducted independently from, or in concert with, land and maritime operations. Air Force operations are crucial to the success of operations in all domains. For example, Air Force forces provide focused, rapid global mobility; conduct information operations (IO) that shape and influence the operational environment; isolate operations from hostile air or ground interference; and provide the eyes and ears of a sophisticated command and control system. The specific tasks involved in any given Air Force operation may vary greatly, depending on the context of the larger contingency, national policies and objectives, forces available, and a host of other considerations. Air Force forces can be the supported force (e.g., for strategic attack; global airlift; acting as the primary maneuver and fires force supported by special operations forces [SOF] and indigenous friendly forces, as in the early phases of Operation ENDURING FREEDOM [OEF]; and counterair to enforce aerial exclusion zones). They may also act as a supporting force (e.g., close air support, IO, helping determine treaty compliance, and airlift as part of a larger foreign humanitarian assistance effort). In large, complex contingencies, Air Force forces may often perform supported and supporting roles simultaneously. In addition, Air Force forces accomplish a wide variety of traditional and information-related functions, classically described as intelligence surveillance and reconnaissance (ISR).

From an Airman's perspective, several concerns remain preeminent: firstly, **air superiority is normally a desired state before all other combat operations. Attaining air superiority[1]–and air supremacy,[2] when required–helps provide both the freedom to attack and freedom from attack, as well as enhancing freedom of action and maneuver. Operating without air superiority or supremacy radically increases risk to surface and air operations.** Gaining air superiority and supremacy

[1] "That degree of dominance in the air battle by one force that permits the conduct of its operations at a given time and place without prohibitive interference from air and missile threats" (Joint Publication [JP] 3-01, *Countering Air and Missile Threats*).
[2] "That degree of air superiority wherein the opposing force is incapable of effective interference within the operational area using air and missile threats" (JP 3-01).

involves both offensive and defensive missions. The commander, Air Force forces (COMAFFOR) is normally also the joint force air component commander (JFACC), who in turn is normally designated the area air defense commander (AADC). The AADC is responsible for defensive counterair operations. The JFACC is charged with integrating offensive and defensive counterair operations to achieve air superiority for the JFC. See Annex 3-01, *Counterair Operations*, for more information concerning air superiority. Secondly, **space superiority is important in maintaining unique advantages in precision applications, global command and control (C2), situational awareness and understanding, and operational reach.** Space superiority ensures the freedom to operate in the space domain while denying the same to an adversary. Like air superiority, space superiority involves offensive and defensive aspects. The JFACC should normally be designated the supported component commander for space control operations within a joint force.

Finally, **cyberspace operations are also vital for maintaining advantages in *all* domains.** All components of the joint force contribute to operations in cyberspace. In many cases, JFCs may retain control of cyberspace operations at their level. Cyberspace superiority ensures freedom to operate in cyberspace, which is "a global domain within the information environment consisting of the interdependent network of information technology infrastructures, including the internet, telecommunications networks, computer systems, and embedded processors and controllers"[3]

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[3] Chairman of the Joint Chiefs of Staff (CJCS) Memorandum 0363-08, "The Definition of Cyberspace."