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# Conquering the Elements: Thoughts on Joint Force (Re)Organization

MICHAEL P. NOONAN and MARK R. LEWIS

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Operation Iraqi Freedom demonstrated, or should have demonstrated, that joint warfighting—that is, the synergistic application of the unique capabilities of each service so that the net result is a capability that is greater than the sum of the parts—is not just the mantra of the Department of Defense, but is, in fact, a reality. Nevertheless, as successful as Operation Iraqi Freedom was, the department might take the concept of joint operations to still another level. If Operation Iraqi Freedom provided the observer with glimpses of innovative, task-organized units such as the Army's elite Delta Force special missions unit working with a platoon of M1 Abrams main battle tanks and close air support, we still see a segmentation of the battlespace that creates unnatural seams, inhibiting the full potential of a joint force. How does this square with future joint operational concepts? Can the current architecture of joint force command and control arrangements react responsively and effectively to the threat environment that exists today and will likely confront our forces in the future? Is there a better way? In this article, we will explore those questions as we look at alternative joint force architectures that might better unleash the full capability of the Department of Defense.

### *The Paths to Military Innovation*

In simple terms, states prepare their militaries for the future by reworking, reequipping, or redesigning their forces to better meet their security needs, to develop decisive means, or to ensure their competitive lead in military capabilities. "Transformation" is the pursuit of such an increase in military capability, and the DOD's *Transformation Planning Guidance* tells us that it is a "strategic imperative" for the US military to transform.

The *Transformation Planning Guidance* defines transformation as "a process that shapes the changing nature of military competition and cooperation through new combinations of concepts, capabilities, people, and organizations that exploit our nation's advantages and protect against our asymmetric vulnerabilities to sustain our strategic position."[1] Each of the four components of transformation can be seen as a path or axis along which one might proceed toward military innovation, either separately or in conjunction with a journey down one or more of the other paths. In order to put our discussion within a broader framework, each of the paths bears closer examination at the outset of this article.

- *Concepts*. New operational concepts seek to create synergies between the aerospace, ground, and maritime forces. The development of the blitzkrieg doctrine of rapid mechanized warfare supported by close air support is the oft-cited prime example of a new operational concept.
- *Capabilities*. In a limited sense, new capabilities derive from new technologies. Clearly, technology plays a pivotal role in military transformation. The arrival of the tank and FM radio transformed the battlefield (which in turn enabled the development of the transformational blitzkrieg concept), and nuclear weapons completely changed the face of warfare. Today, advances in precision strike weapons and information technology have enabled the military to do things never before contemplated. Indeed, the destruction of a regime no longer requires the destruction of a society. Technology plays a key role in many of the service transformation visions, from the Air Force's super-stealthy F-22 fighter to the Army's future combat system and the Navy's effort to transform ballistic-missile submarines into land-attack platforms.
- *People*. One aspect of transformation is learning to use the complex technologies properly. It is not enough to present new technology and simply instruct service members in the technical operation of the new systems. Blending the skill and experience of high-quality people with functional technology is what produces a gain in combat capability, and the continual process of assessing, recruiting, and retaining those people will require a transformation in the way the Defense Department approaches personnel challenges.
- *Organizational Changes*. Organizational changes seek to give commanders more options by optimizing their assets in ways best suited to carry out

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tasks. At its heart, it is about assigning the right resources (human or materiel) to a command and control architecture properly structured to achieve mission accomplishment. The development of the Greek phalanx or the Napoleonic division—both of which provided a clear battlefield advantage over similarly equipped enemies—can be seen as exemplars of organizational change.

Military forces are complex adaptive systems that are sensitive to perturbations that can produce unintended consequences throughout the system. Adjustments in any of the four components of transformation cannot be fully understood without experimentation. Joint force experimentation brings together each of the four paths discussed above.[2] The challenge, however, as Barry Posen notes, is that innovation is generally unsuccessful absent a major wartime defeat or the concerted efforts of civilian policymakers.[3] This is simply because the cultures and bureaucratic interests of the services make those organizations difficult to change.[4] As Thomas Mahnken has pointed out, "Because revolutions in military affairs disrupt long-standing norms and structures, it is not surprising that organizational resistance to change is one of the most formidable barriers to innovation."[5] Clearly, waiting for a major wartime defeat is undesirable. Likewise, the services have shown the ability to stalwartly resist concerted efforts to make them change. With this in mind, we next turn to an examination of jointness and the individual services.

### *The Evolution of Jointness*

The specific climates in which the services carry out their operational assignments directly shape both their outlook on war and peace and those tools with which they equip themselves.[6] Throughout most of its history, the United States has practiced warfare that was more easily compartmentalized by the nature of its dimension or medium. Each service had a distinct role and operated nearly independently: the Navy laid claim to blue-water operations, the Marine Corps developed itself into an expeditionary force, and the Army focused on large-scale ground warfare. With the relatively late arrival of the Air Force, that service built its doctrine around the belief that bombers could collapse the enemy's will as they collapsed his cities, and thus strategic airpower trumped the other services, relegating them to operations on the periphery. As recently as World War II, many, if not most, of the battles were either primarily land (the European campaign), primarily maritime (the Pacific campaign), or primarily air (the Battle of Britain or the strategic bombing of Germany's industrial centers). Historically, therefore, military campaigns conducted along the lines of the separate services are understandable. The separateness of military operations into different mediums is an assumption born from history.

Even as changes in the strategic context began to drive the need for more precise applications of combat power, bureaucratic struggles over budgetary divisions, contradictory advice, and operational inefficiencies within the Department of Defense brought about calls for "jointness." The passage of the

Goldwater-Nichols legislation of 1986 (and subsequent legislation dealing with special operations forces) sought to change the way the department did business. This legislation came about largely because interservice rivalry had hindered military effectiveness in operations such as the Iranian hostage rescue attempt (1980) and the invasion of Grenada (1983).[7]

At its core, the legislation empowered regional Combatant Commanders with command and control responsibility for their geographic area,[8] strengthened the role of the Chairman of the Joint Chiefs of Staff, and made joint assignments a prerequisite for selection to general or flag rank. The logic was simple enough: a strengthened warfighting chain of command staffed by officers experienced in working with their counterparts from the other services would increase the operational effectiveness of the US military writ large. Reality, however, often trumps logic.

The invasion of Panama (1989) and the Persian Gulf War (1990-91) were largely described as exemplars of joint operations following the passage of the Goldwater-Nichols legislation. In reality, these conflicts were fought along service lines. The Marines operated in their sectors, the Army in other areas, and special operations forces in yet other areas. Similarly, aviation from all four services generally had their own areas of responsibility, with the Air Force usually preferring to "go downtown" to attack strategic targets in pursuit of air-war-specific objectives.

If the United States handily won those conflicts, then why is true joint warfighting important? Principally, the answer is because in most circumstances the coordinated, complementary use of cross-service capabilities allows for the most efficient use of force. Two changes have affected the way US forces fight. First, technology now allows the services to communicate and share information quickly, enabling them to work more closely together. This, combined with advances in munitions, has the potential to create a synergy among the services and yield greater combat power in smaller force packages than ever before. Second, as has been pointed out, most of our conflicts have proven to be relatively small (but operationally complex) wars—with or without strategic consequences.[9] More and more frequently, we are seeing the nature of warfare transition from an endeavor aimed at whole nations or societies to conflicts that require the United States to employ military power with exacting precision against portions of a society, much like a surgeon who cuts out a cancerous tumor from otherwise healthy tissue.

Technologies, organizations, and operational concepts have evolved over time, and the assumptions that drove the separation of conflicts into land, maritime, and air dimensions are no longer valid. The continued acceptance of these assumptions, however, is creating a conflict within the joint operational architecture. The localized and intense nature of US military engagement over the past decade, combined with the smaller base of troops and equipment from which to draw capabilities, means that the services must work more closely together to

produce a synergistic effect. The challenge is that organizational barriers hinder the optimal use of our forces, even after 16 years of the jointness Goldwater-Nichols was designed to promote. This is because we are seeing the emergence of new, "transformational" operational concepts. As General Tommy Franks, commander of US forces in both Afghanistan and Iraq noted, in those conflicts, "For the first time, we had reliant operations, where one service is reliant on the performance of another service. I believe that is transformational."[10] As effective as those forces were, to maximize their potential, these concepts require a concurrent change in organizational structures. Air Force Chief of Staff General John Jumper described some of the existing structural barriers colorfully, when he said:

> You go into an [Aerospace Operations Center] today, and what will you see? Tribal representatives sitting down in front of tribal workstations, interpreting tribal hieroglyphics to the rest of us who are on watch. And then what happens? They stand up and walk over to another tribal representative, and reveal their hieroglyphics, which are translated by the other tribe into its own hieroglyphics and entered into its own workstation. What if machines talked to one another? That would break down the stovepipe.[11]

### *Joint Forces Today*

To understand where those organizational barriers lie and how they constrain forces in modern operations, it is necessary to first look at how Combatant Commanders organize the joint force now. Today, when a direct military response is required, a Combatant Commander has the option of delegating the authority necessary to a subordinate commander. These subordinate organizations are "Joint Task Forces," and their commanders are "Joint Force Commanders." Each service then forms a component command through which it fulfills its responsibilities under US Code Title 10 by providing trained and ready forces to the joint force. Sometimes the Joint Task Force has service-based component forces as the subordinate commands, but often the JTF Commander chooses to organize under functional subordinate commanders. Functional components are created when two or more services operate within the same "dimension or medium." For instance, a Joint Force Land Component Commander is responsible for "the proper employment of . . . land forces; planning and coordinating land operations; or accomplishing such operational missions."[12] As a result, both Army and Marine ground forces are usually assigned to his command. Similarly, both Air Force and Navy aircraft are usually members of the Joint Force Air Component Command. In these cases, the Joint Force Commander generally draws the functional component commander from the component that provides the bulk of the assets to the command. This organization is depicted in Figure 1, on the following page.

This concept has led to a joint force organized to achieve unity of command—one of the Principles of War[13]—in land, maritime, and aerospace stovepipes. Operations do not become "joint" until the component command, or three-

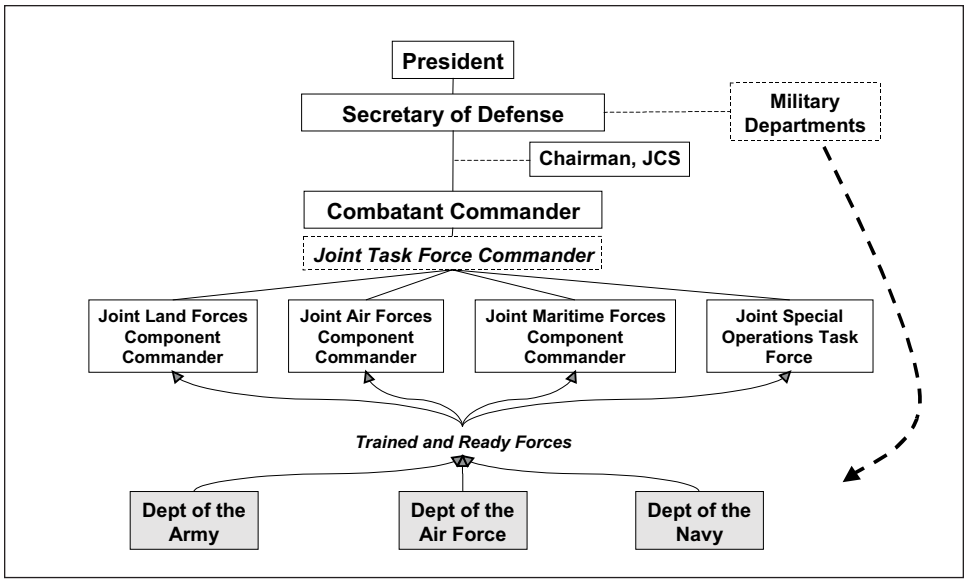


Figure 1. Joint component commands today.

star flag officer, level. This creates situations such as the four separate wars along component or service lines in Desert Storm, for instance; and the example of Mogadishu, where special operations forces and main force units worked independently; and how Operation Anaconda in Afghanistan appears to have been hampered by a serious disconnect between land and air forces.[14]

Therefore, at least two challenges arise from this joint architecture. The first is that it creates an artificial wedge or seam between components in today's multi-dimensional operations. The second is that jointness kept at the three-star level does not support emerging operational concepts using smaller, dispersed forces, both on the ground and in the air.

*Challenge #1: Modern Operations Are Multi-Dimensional*

Modern operations no longer occur in a single dimension or medium. Segmentation by medium or dimension was a logical approach when services operated separately (largely by circumstance), but it no longer facilitates military effectiveness. Now one must consider the changes in information technology, precision weapons, and the need for the precise application of force in the evolving nature of joint operations across the spectrum of conflict. Are Army forces launched from a Navy ship supported by Air Force bombers dropping precision-strike munitions engaged in a land, maritime, or air operation? That the answer is not so clear is no surprise, nor is it a surprise that such uncertainty can drive organizational confusion.

The result can be organizational stovepipes where a ground commander may have to send his request for air support up the ground forces chain of command several echelons to the "terra-based" component commander level.

There, the request can move horizontally to the air component commander and back down the air component command structure to the operational level air commander, who will actually plan and fly the mission. Moreover, while many officers can talk "joint," they still think "service." What is joint doctrine in name actually reinforces the service-centric nature of our operations. At the most basic level, planning procedures and operational concepts fundamentally constrain regional Combatant Commanders to think in terms of land (Army), air (Air Force), and maritime (Navy) terms, even though warfare is no longer so easily compartmentalized.

In addition, as the nature of warfare changes, labels of what is thought of today as "conventional" and "unconventional" may blend in the future to such a point where it is more useful to conceive of military operations as either autonomous or centralized. Autonomous operations are generally handled by small, hand-selected, and extremely well-trained and well-equipped forces. Special Operations Forces provide a good example of units fitting the autonomous operations profile. Special Operations Forces are not perfectly suited for all manner of missions, but they are able to accomplish results disproportionate to their size precisely because of the high performance standards set and met by their members, the collective experience they bring to bear, and the latitude they are given to perform their duties. Centralized operations, conversely, accomplish their goals by massing forces under stricter command and control arrangements to offset the lower experience levels found in the majority of personnel in main force units. This autonomous/centralized dichotomy does not compartmentalize well along traditional land, air, and maritime lines.[15]

Furthermore, as security operations evolve in the modern era, "multidimensional" no longer refers only to the mediums of land, sea, and air in which the forces operate. Today, the term "multiple dimensions" encompasses all elements of national power focusing simultaneously on a security problem. The State Department is often involved, for instance, as is the Justice Department and even the Treasury Department. So too are many quasi-governmental or nongovernmental agencies. Yet, the Department of Defense often must coordinate those efforts into one comprehensive campaign plan. To that end, DOD has recognized the need for input and action from other national, international, and nongovernment agencies in a joint interagency process, and it tested an interagency group during the "Millennium Challenge '02" experiment. These organizations and agencies are not easily melded into land, sea, or air command structures, however, and to try to do so impedes their ability to contribute to the mission.[16]

*Challenge #2: At What Level Do Forces Become "Joint"?*

The second conflict comes from the underlying assumption that the three-star level is the appropriate echelon where the component forces should "join" to make joint forces. Advances in technology allow the elements of each service to communicate and share information quickly with each other, en-

abling them to work more closely together. This, combined with advances in munitions, has the potential to create a synergy among the services and yield greater combat power in smaller force packages than ever before. As American forces transform, they no longer need to bring to bear great numbers of forces to engage the enemy in a climactic battle of attrition. Today one small team of ground operators working in conjunction with just a few airplanes often can do what once would have required much larger ground and air forces.[17] The combat power that once was deliverable only by divisions and wings has now devolved down to lower and lower levels of organization. Once, massive formations grew out of the amalgamation of many separate entities, as forces layered the myriad combat, combat support, and combat service support organizations on top of one another to build a force of adequate mass and firepower. Thus, the force grew to be so large that it made sense to merge it into the joint world at the component command level.

That these heavy forces have been hugely successful in the past is indisputable. Nevertheless, they are also hugely dependant on gigantic logistical trains that stretch for hundreds of miles. These trains, in turn, require combat power to safeguard them. But transformational visions of a future battlefield see it unconstrained by traditional lines or designations such as "front" and "rear." Forces will be supported by "just in time" or "reachback" logistical concepts that supply the force with materiel and information without significantly expanding its footprint in the area of operations. The battlespace will no longer be the linear, one-dimensional battlefield of the industrial age, but a much more fluid situation driven by information-age technologies and operational concepts that create discontinuous battle lines across all three dimensions.[18]

These changes enable the development of emerging operational concepts centering around the precept of massing effects without massing physical presence. Non-organic platforms deliver those effects from beyond traditional battlespace boundaries, and they will extend beyond the use of traditional kinetic and explosive lethal forces to encompass both non-lethal weapons and information operations. Joint forces attack the enemy not only in his physical domain but in the realm of human psychology as well, in campaigns designed to disorient and demoralize the enemy. The idea is that if one hits certain pressure points, the enemy leadership will crumble from within, even while retaining the military capability to continue the fight.

Figure 2, on the following page, depicts today's doctrinal command and control linkages between ground and aerospace forces,[19] but what the preceding discussion indicates is that the interaction between forces operating in different mediums is going to have to happen at levels well below where the interaction happens today. Layers of command diffuse the intent of the commanders actually engaged in the battle and add complexity to decisionmaking cycles, which then erodes the responsiveness between components necessary to make these emerging concepts successful. Thus, the assumption that the component commander or

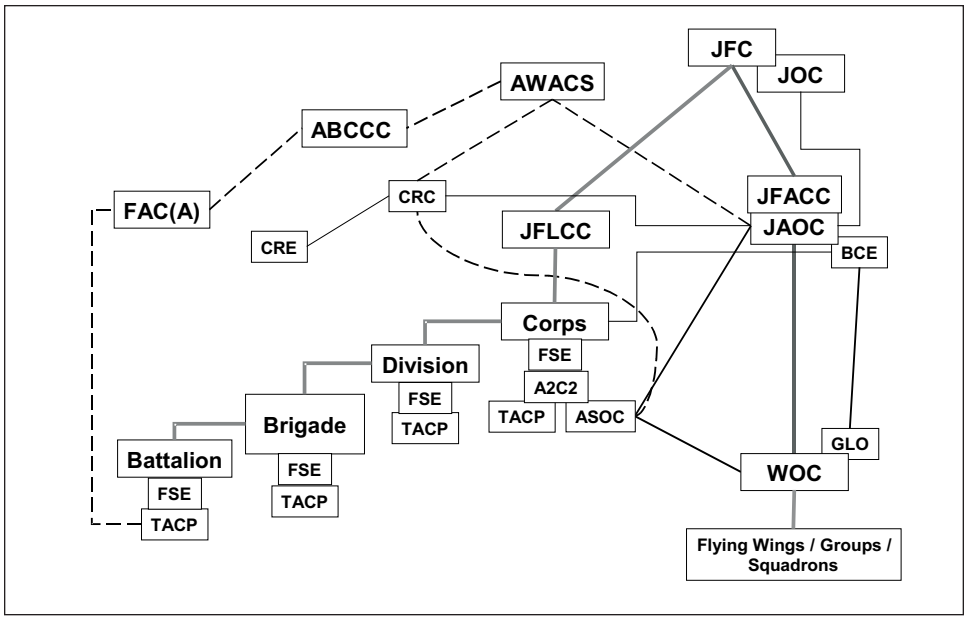


Figure 2. Doctrinal command and control architecture for joint aerospace/ground operations.

three-star level is the appropriate echelon to bring together the separate forces into a joint force is creating a conflict between the nature of today's operations and the way the joint operational architecture is organized.

With this disjointed architecture in mind, it should be readily apparent why problems such as the reported difficulties coordinating close air support with ground operations in Afghanistan occur. In an interview for the Army's *Field Artillery* journal, Army Major General Franklin L. Hagenbeck, commander of the 10th Mountain Division and the on-scene commander for Operation Anaconda in Afghanistan, hinted that operational effectiveness was limited because close air support (particularly from the Air Force) was hindered by overreliance on precision-guided munitions, difficulty in hitting non-fixed targets, and strict targeting procedures.[20] Understandably, some in the Air Force countered that the Army's last-minute attempt at coordination and unrealistic requirements for close air support assets effectively hamstrung the Air Force before the mission even began.

Because the components are split by the medium in which they operate (and services to which they belong), commanders in one joint component rarely interact with their counterparts in peacetime. Furthermore, since the military habitually waits until a crisis emerges before it forms ad hoc joint organizations to fight the developing battle, tactical- and operational-level commanders rarely have the opportunity to develop the deep expertise in joint operations that modern contingencies require. In the case of Operation Anaconda, it is not clear that

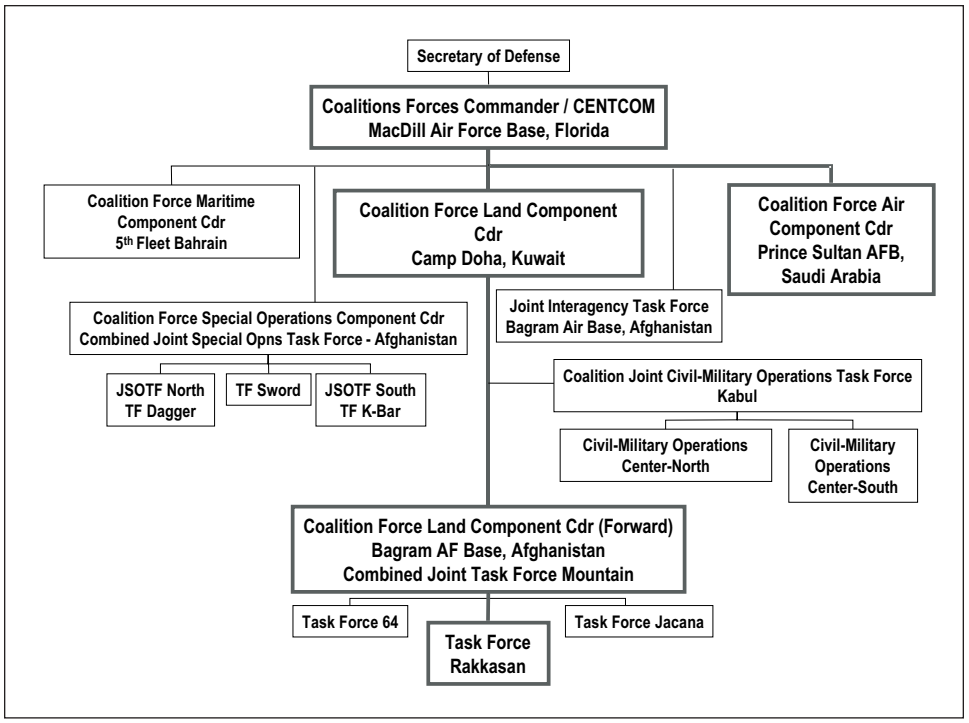


Figure 3. Command and control diagram of Operation Anaconda.

the conventional ground forces understood how the air forces plan and operate. Nevertheless, even if communication between the services was precise, Figure 3 shows how the chain of decisionmaking was separated, both geographically and functionally.[21] As Figure 3 plainly depicts, the connection between commanders happens, as indicated by the heavier lines, at the Joint Force Commander level. There are some staff interactions at various headquarters below the component command level, but those are coordination linkages only. At no time do the commanders doing the fighting in either element actually interact. The result: ineffective coordination between air and ground forces hampered the mission.

How can this problem be resolved? One way would be to put liaisons from each of the services into the planning cells of the other components. However, that happens today, and we still see these coordination problems. Clearly, the development of standing joint task forces where land, maritime, and air component forces come together during peacetime to train and develop the habitual relationships required to successfully prosecute complex joint operations is another option—and one already under scrutiny by the Defense Department. That could develop more competent joint units, but it would not necessarily remove the organizational barriers that hamper the Combatant Commanders. These solutions address the problem in the margins; they do not provide a marked, transformational increase in capability.

### *The Future of Joint Operations? Thinking Functionally*

One way to approach the problem is to look at the two assumptions that support today's joint force architecture and see if those assumptions can be modified or discarded. Those assumptions are, first, using the medium in which they operate as the organizing principle around which components are formed (land, sea, and air) and, second, the very high-level component command echelon (three-star level) as the appropriate place to bring together the separate components of the joint force. Perhaps an innovative solution that attacks those assumptions will open up possibilities for transformational solutions.

When joint doctrine refers to "functional component commands," it is speaking of the medium in which the force operates.[22] As joint operations have evolved, this has created unnatural seams. Today, military operations, even at relatively low levels, are happening in multiple dimensions simultaneously. To be successful, the principle of unity of effort must cut across these mediums, and therefore must cut across the stovepiped component or functional commands. Why does the Defense Department retain ground, maritime, and air component commands when modern operations do not lend themselves to such a neat compartmentalization? We propose a transformational approach whereby the component commands are defined along mission-oriented functional requirements rather than the existing organizational architecture paradigm of medium-based commands.

If one approaches the challenge with an eye toward organizing a joint force into mission-oriented functional component commands, Combatant Commanders could draw from the unique strengths of the individual services (and agencies) to group complementary capabilities under a structure better organized to support the demands of a complex multi-dimensional operation.[23] For instance, one way to achieve this would be to establish a command structure organized along strike, security, support, and information operations commands. In this example:

- The Joint Force Strike Component Commander would have responsibility for those assets—ground, maritime, and air—required to conduct offensive operations against enemy forces.[24]
- The Joint Force Security Component Commander would be responsible for the protection of the forces and lines of communication, as well as host-nation security.
- The Joint Force Support Component Commander would be responsible for the theater's logistical, maintenance, and transportation needs.
- The Joint Force Information Operations Component Commander would be responsible for providing information systems such as intelligence, surveillance, and reconnaissance (ISR) functions, civil-military operations, public relations, and psychological operations, while simultaneously targeting enemy information systems.

This structure is just an example, but the point is that the services (and other agencies) would provide assets to the commanders much as they do today,

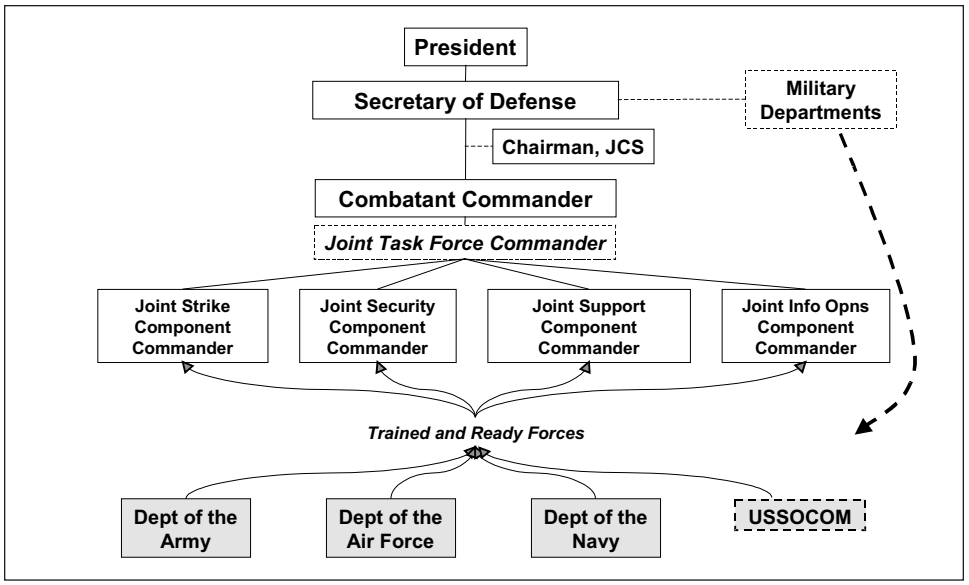


Figure 4. Joint functional component commands.

but each joint component commander would have comprehensive responsibility for a functional—instead of environmental—slice of the battlefield. Operation Iraqi Freedom provided a glimpse of the potential of this synergy as small groups of special operations forces flushed Iraqi forces into pre-arranged "kill boxes," where they were destroyed by air power.[25] After this ad-hoc arrangement, the next logical step might be to give the Joint Force Air Component Commander operational control over an Army ground unit to optimize the effectiveness of air power, and this is now under consideration in parts of DOD.[26] We propose that the Defense Department simply take the next step and transform such ad-hoc arrangements into a truly functional component command.

Organizing the joint force along functional lines does not need to mean fundamentally changing the services' responsibilities under Title 10. As Figure 4 indicates, the services would still provide trained and ready forces to the Combatant Commander, who in turn would allocate them to the Joint Force Commander. The Joint Force Commander would likely continue to appoint Joint Functional Component Commanders from the service providing the preponderance of assets or expertise the mission requires. Each "functional" joint staff would have all the services and functions represented as required. Joint Functional Component Commands would be organized with combat arms, combat support, and combat service support forces as required to support their mission—i.e., logistics support elements within the Joint Force Strike Component Commander's forces, etc.[27]

The benefits of such functionality would be at least fourfold. First, such arrangements would eliminate the unnatural seams between air, land, and maritime elements all working toward the same goal and allow for the better integration of

non-DOD assets. In this way, it would strengthen the principle of unity of command along mission-focused lines. Second, it would force commanders to think about supported/supporting relationships in a more fluid way. The paradigm of air forces supporting ground maneuver is clearly ripe for rethinking, as the example of the kill boxes shows, but those are work-arounds within the confines of the environment-based architecture. Third, it would push jointness down to the levels necessary for operational success, removing no longer needed echelons of command that add complexity and slow response times. Last, done properly, with ample joint experimentation and realistic joint training, it would help develop the habitual relationships, confidence, and standard operating procedures needed to build the cohesive, highly skilled teams this sort of organization would require to be successful.

### *Conclusions and Recommendations*

The *Transformation Planning Guidance* describes four paths to transformation as concepts, capabilities, people, and organizational changes. The focus of this article is on organizational changes that may optimize the joint force architecture. We believe we are seeing the emergence of transformational operational concepts, and if we move to put our organizations in tune with those concepts, the potential result offers a valuable opportunity for experimentation and innovation within the current force structure and platform capabilities of US forces. In other words, an organizational transformation, when combined with new operational concepts, provides the best opportunity to realize increased military capability in the near term.

Transformations in the human dimension and transformations brought by the introduction of revolutionary technologies hold great potential as well, but their influence is in the longer term. Changes in the way the Defense Department assesses, recruits, and retains people will have an impact as new systems come on-line and new generations of people age into positions of responsibility. Likewise, when dealing with the pursuit of transformational technologies, challenges will arise when funding constraints, for example, or research and development difficulties create bottlenecks that delay the arrival of the breakthrough technologies.

Under the functional component command system proposed here, the on-scene commander would have a more holistic view of his operational area. In a battlespace no longer constrained by land, maritime, or air compartmentalization, the commander would stand to gain a better appreciation of how to apply the finite resources available to best accomplish the missions assigned. Critics of this approach may be concerned that the very core competencies of the services and the expertise needed to plan and coordinate such capabilities would not be sustainable under such a joint system, but this proposal is in no way an attempt to dismiss the challenges of geography or to minimize the unique strengths of our service institutions and their members.[28] To the contrary, this approach may provide a way to apply all the right tools at the right time by approaching three-dimensional operations in a truly unified and comprehensive manner, while maximizing effectiveness by allowing the core competencies of our forces to act as combat multipliers buttressing one

another. Will such reorganization from segmented, medium-based commands to a mission-oriented functional approach eliminate all the challenges in the conduct of military operations? Of course not—Clausewitzian friction and fog will always complicate the battlefield. Nevertheless, the reorganization described here could eliminate seams that currently inhibit the capabilities of our forces. It should be the subject of future experimentation within the Department of Defense.

Such experimentation should focus on numerous elements. First, there is a clear need for the development of a coherent and clear vision of joint operational art that might be based upon the joint functional component approach. Second, joint units should be formed to experiment with functional joint operational concepts in order to develop cohesion and to devise and revise the development of doctrine. These units should be standing in peacetime—not thrown together ad hoc during times of crisis. Third, pilot programs at all levels of professional military education should be formed to develop a joint culture—also, this should extend to nonmilitary members from other agencies who will join with the uniformed military in these joint task forces, and military members across all ranks should develop closer ties with those agencies, too. Last, joint training and education should eventually be aligned at all levels of professional military education to advance and improve upon the joint vision. Joint transformation along these lines would contribute to the reduction of risk posed by the international threat environment and allow the US military to maintain its decisive military edge.

**NOTES**

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6. See, for example, Colin S. Gray, *Modern Strategy* (New York: Oxford Univ. Press, 1999).

7. For useful discussions of the Goldwater-Nichols legislation, see James R. Locher III, *Victory on the Potomac: The Goldwater-Nichols Act Unifies the Pentagon* (College Station: Texas A&M Univ. Press, 2002); and Gordon Nathaniel Lederman, *Reorganizing the Joint Chiefs of Staff: The Goldwater-Nichols Act of 1986* (Westport, Conn.: Greenwood Press, 1999).

8. The armed forces of the United States are organized into ten combatant commands. US Space Command, US Special Operations Command, US Strategic Command, US Transportation Command, and US Joint Forces Command are organized around functional responsibilities, while US Central Command, US European Com-

mand, US Northern Command, US Pacific Command, and US Southern Command have geographic areas of responsibility. Generally speaking, commands with geographic responsibilities are known as "unified commands," or informally as "warfighting commands," which means that they have been established to execute a broad, continuing mission that requires the participation of significant elements of two or more services. US Department of Defense, Joint Pub 3-0, *Doctrine for Joint Operations* (Washington: DOD, 10 September 2001), Chapter II.

9. See, for example, Max Boot, *The Savage Wars of Peace: Small Wars and the Rise of American Power* (New York: Basic Books, 2002).

10. Quoted in Fred Barnes, "The Commander: How Tommy Franks Won the Iraq War," *The Weekly Standard*, 2 June 2003, http://www.weeklystandard.com/Content/Public/Articles/000/000/002/722iittz.asp.

11. Quoted in "Out of CAOCs Comes Order," *Jane's International Defense Review*, May 2003, p. 22.

12. Taken from the DOD Dictionary, http://www.dtic.mil/doctrine/jel/doddict/data/j/02835.html.

13. Joint Pub 3-0, p. II-1.

14. Note that Special Operations Forces are generally organized under a separate command structure, or Joint Special Operations Task Force (JSOTF), as well. On Operation Anaconda, see Robert H. McElroy with Patrecia Slayden Hollis, "Afghanistan, Fire Support for Operation Anaconda: An Interview with Major General Franklin L. Hagenbeck," *Field Artillery*, September-October 2002, pp. 5-9.

15. See Michael P. Noonan, "The Military Lessons of Operation Iraqi Freedom," *FPRI E-Note*, 1 May 2003, http://www.fpri.org/enotes/20030501.military.noonan.militarylessonsiraqifreedom.html.

16. For an overview of Millennium Challenge '02 see http://www.jfcom.mil/about/experiments/ mc02.htm.

17. See, for example, Evan Thomas and Martha Brant, "The Secret War," *Newsweek*, 21 April 2003.

18. For an interesting discussion of these issues, see Huba Wass de Czege and Richard Hart Sinnreich, "Conceptual Foundations of a Transformed U.S. Army," *AUSA Institute of Land Warfare Paper No. 40*, Association of the United States Army, Institute of Land Warfare, Arlington, Va., March 2002, http://www.ausa.org/PDFdocs/lwp40.pdf.

19. Adapted from US Department of Defense, Joint Pub 3-.09.3, *Joint TTPs for CAS* (Washington: DOD, 1 December 1995), http://www.dtic.mil/doctrine/jel/new_pubs/jp3_09_3.pdf. Key: FSE, fire support element; TACP, tactical air control party; A2C2, Army airspace command and control; GLO, ground liaison officer; FAC(A), forward air controller (airborne); ABCCC, airborne command and control center; BCE, battlefield coordination center (Army); ASOC, air support operations center; CRC, control and reporting center (USAF mobile C3 radar threat warning, battle management, theater missile defense, etc.); CRE, control reporting element.

20. McElroy with Hollis, pp. 5-9.

21. Adapted from Johann Price, "Operation Enduring Freedom: Commands and HQs June 1, 2002," *Order of Battle*, 23 June 2002, http://orbat.com/site/agtwopen/oef.html.

22. Joint Pub 3-0, p. II-16.

23. The Joint Requirements Oversight Council (JROC) Draft of Joint Operations Concepts also mentions the topic of functional approaches to command and control but does not provide specifics. US Department of Defense, "Joint Operations Concepts: JROC Draft," Final Draft, 7 March 2003.

24. Depending on the mission, a multidimensional approach expanded to include other agencies and departments might include CIA paramilitary forces, for example, Treasury agents tracing illicit funding, and law enforcement personnel from the FBI or DEA. The same holds true for the other joint force components.

25. Thomas and Brant.

26. This example was raised by Vice Admiral Arthur Cebrowski, USN Ret., at the US Army War College's Annual Strategy Conference, Carlisle Barracks, Pa., 10 April 2003.

27. Calls for a functional approach are not new. For instance, in 1997, the Secretary of Defense Strategic Studies Group proposed creating a functional command and control system based upon the tenets of Joint Vision 2010—i.e., precision engagement, dominant maneuver, full-dimension protection, and focused logistics (Executive Report of the Secretary of Defense Strategic Studies Group II, Department of Defense, 1997). The Institute for Defense Analyses' Air/Ground Expeditionary Force (AGEF) report called for functional command and control arrangements centered upon strike, force protection, and support (Philippe Loustaunau and Mark Lewis, *Aerospace/Ground Expeditionary Force (AGEF)* [Alexandria, Va.: Institute for Defense Analyses, October 2001], p. 12). Similarly, Colonel Douglas Macgregor has often written about the need for change in the joint force architecture. His most recent work discusses a joint task force system where two-star officers would be in charge of headquarters responsible for maneuver; strike; intelligence, surveillance, reconnaissance (ISR); and sustainment (Douglas Macgregor, *Transformation Under Fire: The Strategic Revolution in Land Warfare* [Westport, Conn.: Praeger, forthcoming]). We make no distinction between maneuver and precision strike because such a division leads to a continued segmentation of the battlefield.

28. Distinguished writers such as Kenneth Allard and Williamson Murray, among others, seem skeptical about the ability to overcome service attitudes. See C. Kenneth Allard, *Command, Control, and the Common Defense* (New Haven, Conn.: Yale Univ. Press, 1990); and Williamson Murray, "The Evolution of Joint Warfare," *Joint Force Quarterly*, No. 31 (Summer 2002), pp. 30-37.