TRADOC Pamphlet 525-3-1

The United States Army's Operating Concept for

Operational Maneuver

2015 - 2024

Version 1.0

2 October 2006

Foreword

From the Commanding General
U.S. Army Training and Doctrine Command

In April 2005, I approved TRADOC Pamphlet 525-3-0, the Army's capstone concept for the future Modular Force – *The Army in Joint Operations*. The capstone concept focused on the theater-strategic level of war and introduced a number of fundamental operational themes that form the foundation of our thinking about operations in the 2015-2024 timeframe. Since its approval, the capstone concept has substantively influenced the *Capstone Concept for Joint Operations* (Aug 05), as well as other emerging joint concepts, and established the baseline for the completion of the other Army concepts comprising the Army Concept Strategy. Now, I am releasing this pamphlet, the first of our "operating" concepts.

The *Operational Maneuver* concept addresses the operational level of war within the family of Army concepts. As such, it is largely focused on the ways and means by which future commanders will flexibly link a broad array of tactical actions within major operations to achieve Joint Force Commander's (JFCs) campaign objectives. It extends development of the primary operational themes presented within the capstone concept and describes the employment of large ground formations in the future joint operational environment. It also addresses operational art for *full spectrum operations*, including consideration of how future commanders will approach campaign design and the linkage of tactical actions for irregular warfare, that is, within extended campaign frameworks that are heavily weighted toward the achievement of political, economic, and informational ends.

As this concept demonstrates, the Army has a well-developed body of ideas regarding how we can better support JFCs to conduct successful campaigns in the future. However, it is equally clear that the Army cannot achieve its conceptual goals for improvement without an array of capabilities that must be developed by other Services and the larger joint community, particularly in the areas of strategic responsiveness, operational agility, and network-enabled battle command. Thus, I strongly encourage the use of the *Operational Maneuver* concept in our interactions with other Services and joint organizations, both to advance the intellectual dialogue regarding future operations and to strengthen the basis for defining future Army and joint requirements, in the spirit of joint interdependence. In addition, the concept is intended to inform and influence Army wargaming, experimentation, combat developments, research and development, and future investment strategies.

As with all concepts, the *Operational Maneuver* concept is in continuous evolution. It will be refined and updated as new learning emerges from research, operational experience, and the results of continuing investigations into future operations.

William S. Wallace
General, United States
Commanding

Executive Overview

The Operational Maneuver operating concept is divided into seven chapters:

- Chapter 1 introduces the concept and defines its purpose and scope.

- Chapter 2 describes the joint operational environment and the fundamentals of joint campaign planning and design that are projected to guide future campaigns. Additionally, this chapter discusses the continuing need for the conduct of simultaneous, full spectrum operations.

- Chapter 3 briefly describes the central idea of the concept in terms of the operational problem to be solved and the associated solution synopsis, which are also summarized below.

- Chapter 4 is a detailed exposition of the operating concept itself.

- Chapter 5 addresses six core functions and how they are implemented in support of operational maneuver.

- Chapter 6 describes the fundamental capabilities required to execute this concept, categorized largely in terms of the six core functions.

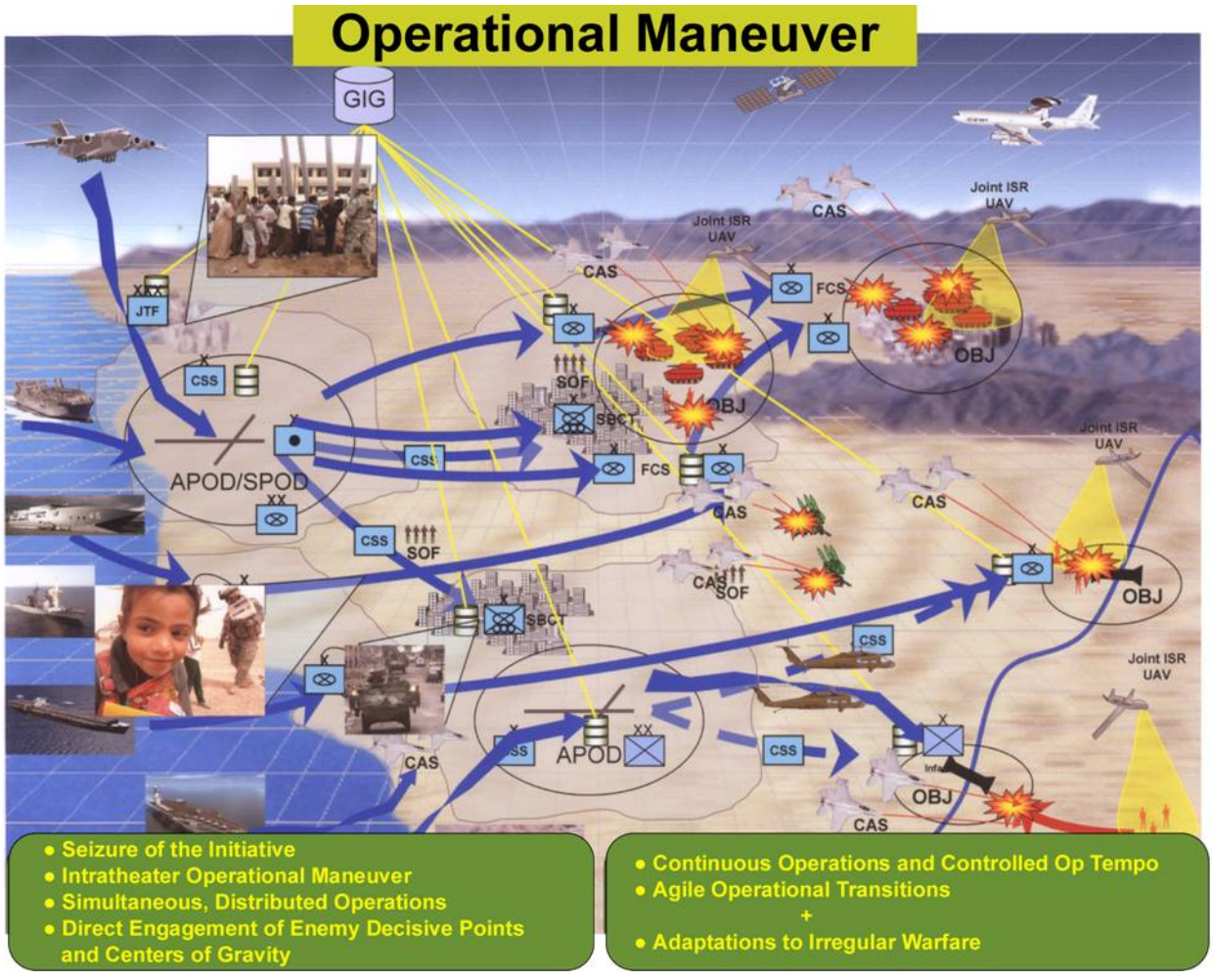
- Chapter 7 summarizes those operational features of the concept that distinguish it from past practice.

Operational Problem. Strategic mandates, the expectation of long-term military commitments abroad to achieve national goals with respect to the global war on terrorism, and the estimates encompassed within the future Joint Operational Environment all project commitment of U.S. forces to military campaigns more frequently, in more complex environments, for a broad range of purposes, while confronting changing threat combinations. This environment will require Army future Modular Force commanders to flexibly link a broad array of tactical means to support achievement of the JFC's campaign objectives and strategic ends. To engage, deter, and defeat an adversary in a joint campaign, the JFC must exploit all available assets – Army, joint, interagency, and multinational. Campaign design dictates overarching military objectives, identifies factors critical for success, and defines the operational concept intended to achieve campaign objectives, in concert with other elements of national power.

Solution Synopsis. Future Modular Force operational-level commanders participate in the overall campaign design and plan and conduct the major operations required to achieve campaign objectives. Operational art is the intellectual process through which commanders link tactical operations over time within major operations to achieve interim and final objectives, through the combination of three primary defeat mechanisms--***destruction, dislocation, and disintegration***. In ***irregular warfare***, campaign planning and design focus more fully on the achievement of political, economic, social, and informational objectives and require linking tactical operations ***directly*** to the achievement of those objectives.

In accordance with the joint campaign plan and the integrated actions of other components, the future Modular Force will ***seize the initiative*** through shaping and entry operations. ***Intra-theater operational maneuver*** by ground, air, and sea of powerful, modular, combined arms formations extends the reach of the JFC, enables the force to exploit opportunity, and generates dislocating and disintegrating effects through the ***direct engagement of decisive points and centers of gravity***. Empowered by improved intelligence that contributes to higher levels of situational understanding, the future Modular Force conducts ***simultaneous, distributed operations*** within a non-contiguous battlefield framework to act throughout the joint operations area (JOA) and threaten the entirety of enemy dispositions, thus hastening the achievement of operational objectives. ***Continuous operations*** and ***controlled (high) operational tempo*** similarly help overwhelm the enemy's ability to respond effectively and support a pace of physical destruction and psychological exhaustion not achievable today.

Throughout the campaign, the future Modular Force must be prepared for ***agile transitions***, deliberately posturing for future operations. It must be able to shift seamlessly between conventional operations and ***irregular warfare*** and to conduct ***simultaneous or subsequent stability operations***, for which there will be a persistent requirement. The inherent versatility and the hybrid nature of the future Modular Force form the foundation for the effective combination of operations against both conventional and unconventional threats in any future environment.



Department of the Army
Headquarters, United States Army
Training and Doctrine Command
Fort Monroe, Virginia 23651-1046

***TRADOC Pamphlet 525-3-1**

2 October 2006

Military Operations

THE ARMY OPERATIONAL MANEUVER CONCEPT

Summary. United States Army Training and Doctrine Command (TRADOC) Pamphlet (Pam) 525-3-1 is the Army's Operational Maneuver Concept. In concert with the Army Capstone Concept (TP 525-3-0) and the Tactical Maneuver Concept (TP 525-3-2), it completes the core triad of strategic, operational, and tactical concepts required to establish the fundamental operational foundation for the future Modular Force. This concept also serves as a baseline for the development of Army supporting functional concepts, describing how those broad functional capabilities are applied at the operational level of war. The ideas presented here are fully integrated within the evolving context of our estimates of the future operating environment, joint and Army strategic guidance, and the framework of joint concepts. They incorporate years of research, wargaming, experimentation, and operational lessons learned by the Army, other services, and the joint community.

Applicability. This concept forms part of the foundation and baseline for the subsequent development of the supporting concept capability plans and conduct of experimentation described within the Army Concept and Capabilities Development Plan. It also functions as the conceptual basis for developing required solution sets across the domains of doctrine, organizations, training, materiel, leadership and education, personnel, and facilities (DOTMLPF). This concept applies to all TRADOC, Department of Army (DA), and Reserve Component (RC) activities that develop DOTMLPF requirements for the future Army.

Suggested improvements. The proponent of this pamphlet is the Director, Concept Development and Experimentation Directorate, Army Capabilities Integration Center, Headquarters (HQ), TRADOC. Comments and suggested improvements may be submitted on DA Form 2028 (Recommended Changes to Publications and Blank Forms) through channels to Commander, TRADOC (ATFC-ED), Fort Monroe, VA 23651-1046. Suggested improvements may also be submitted using DA Form 1045 (Army Ideas for Excellence Program Proposal).

Availability. This publication is available in electronic form on the TRADOC Homepage at http://www.tradoc.army.mil.

---

*This pamphlet supersedes TRADOC Pamphlet 525-3-92, dated 2 June 2003.

Contents

Contents (continued)

Chapter 1
Introduction

1-1. Purpose. This concept addresses the operational level of war within the family of Army concepts. As such, it is largely focused on the ways and means by which future commanders will flexibly link a broad array of tactical actions within major operations to achieve JFC's campaign objectives. In concert with the Army Capstone Concept (TP 525-3-0) and the Tactical Maneuver Concept (TP 525-3-2), it completes the core triad of strategic, operational, and tactical concepts required to underwrite the design and employment of the future Modular Force. This concept also serves as a baseline for the development of Army supporting functional concepts, describing how those broad functional capabilities will be applied at the operational level of war.

1-2. Scope.

a. This concept is firmly based on and further extends development of the operational themes presented within the capstone concept. By and large, it describes the tailoring and employment of larger land power formations for major combat and other operations in the 2015-

2024 timeframe. It addresses operational art for full spectrum operations including emphasis on the distinctions in campaign planning, design, and execution for irregular warfare.

b. Organizationally, the concept focuses at the level of theater army, corps, and division and describes how those command and control (C2) echelons shape the operating environment and allocate capabilities to support tactical operations (brigade and below).[1]

c. The concept directly links to approved and emerging joint concepts, most notably the Capstone Concept for Joint Operations (CCJO) and Major Combat Operations (MCO) joint operating concept. It also accounts for the enduring ideas of the National Military Strategy (NMS), National Defense Strategy (NDS), and the provisions of Chapter 3 within the Army Transformation Roadmap.

1-3. References. Appendix A contains references for this pamphlet.

1-4. Explanation of Abbreviations. The glossary contains abbreviations used in this pamphlet.

Chapter 2
The Joint Operational Environment.

2-1. General.

a. Emerging cultural, religious, ethnic, political, and economic realities will greatly complicate the future geopolitical environment. The resulting mix of global strategic, operational, and tactical issues transcends borders and involves opponents with worldwide connections that will present a demanding combination of challenges and dilemmas for the United States. Security challenges will be more varied and unpredictable and the range of operational settings within the spectrum of conflict considerably more complex, driving an expectation that U.S. military assistance in civil support operations and stability operations will continue to rise.

b. In future conflict, opponents will attempt to counter U.S. strengths by attacking or exploiting perceived weaknesses, especially our dependence on networked command and intelligence, surveillance, and reconnaissance (ISR), that are so vital to the U.S. system-of-systems approach to warfare. To accomplish this task they will employ special purpose forces, long-range strike, weapons of mass effects, and information capabilities. Opponents will attack U.S. relationships with host and supporting nations, the media, commercial interests, and multinational (MN) or interagency partners (IA). Opponents will attempt to create doubt of the legitimacy of U.S. efforts in overseas operations by aggressively exploiting anti-U.S. sentiments and perceptions. If immediate tactical success is out of reach, adversaries will seek to preserve their military forces, particularly ground forces, while conducting strategic operations to degrade U.S. national will, fracture its alliances and coalitions, and limit the scope of U.S. involvement. The resulting conflicts will be complex, fluid, and lethal.

---

[1] It is recognized that the division most often operates at the higher tactical level. However, future concepts must also account for its potential role as an operational-level headquarters in some contingencies.

2-2. Specific. The NDS and the CCJO postulate four primary security challenges for the future. This sub-section cites all four, but focuses on two of them—conventional (traditional) and unconventional (irregular) threats—because they are the most germane to this concept. Subsequently, section 4 describes the future operational methods projected to succeed against these two broad threat sets.

a. ***Conventional (traditional) Challenges***

(1) Conventional operations conducted within a state-on-state framework will continue to be relevant in the future environment. States will remain wedded to strategies based on the use of military power to achieve their goals, in conflicts that range in size from smaller scale contingencies (SSC) to MCO and occur in often unforeseen locations and varied climatic and topographical conditions. As recent events have shown, even smaller scale or stability operations may escalate with little warning into larger scale hostilities. Thus, regional aggressors will continue to modernize conventional forces and invest in capabilities that will enable them to dominate their neighbors.

(2) Simultaneously, viewing the U.S. or a U.S.-led coalition as the main threat to the achievement of regional ambitions, creative future adversaries are expected to adopt anti-access strategies, involving several integrated lines of operation (from diplomacy to information operations to military actions), aimed at preventing or limiting U.S. involvement in regional crises. Adversaries will undertake deliberate efforts to create mass casualties in order to erode U.S. public will to remain engaged. In addition, the prudent aggressor will seek to accomplish his initial objectives as quickly as possible, leaving ample time to deny or prepare for external intervention.

(3) Knowing that there are no guarantees that intervention can be denied and that confrontation with the U.S. may be unavoidable, some potential adversaries are designing their operational forces to avoid U.S. strengths and exploit U.S. vulnerabilities (such as increasing U.S. reliance on digital technologies) based on careful study of U.S. operational experience. Future adversaries will exploit all aspects of the environment and population to complicate U.S. ISR, targeting and precision munitions delivery.

(4) Wargaming further suggests that some adversaries may be content, in the face of U.S. intervention, to move quickly from an offensive posture to a strategic defense, based within urban areas and other complex terrain. Threat ground forces will also enjoy a “home court advantage” which provides them an intimate knowledge of terrain and the ability to blur the lines between fighter and civilians. They will operate dispersed, using decentralized C2, and present U.S. forces less distinguishable patterns, while exploiting high and low-tech ISR, leveraging commercial and other technical means, and a potentially sympathetic population. Actions will focus on degrading or destroying vulnerable links in U.S. systems of systems capability. They will employ precision fires, conduct opportunistic maneuver, and emplace extensive engineering and obstacles, including advanced multi-capable mines and other innovative means to counter superior US mobility. Finally, adversaries will deploy more capable integrated air defenses, including the proliferation of man-portable air defense systems (MANPADS) employed in an offensive manner along likely air avenues of approach to deny use of the air for maneuver.

(5) The combination of these capabilities by a resolute adversary possessing large armies, a large population, and large territory presents a significant challenge to U.S. forces, for which even a stalemate can only be reversed at significant cost. Such conflicts cannot reasonably be expected to be concluded within a single campaign of short duration.

b. ***Unconventional (irregular) Challenges***

(1) Unconventional warfare may be conducted as the principle choice of adversaries who are overmatched in size or military technologies, or these kinds of operations may be combined with conventional capabilities to present an even more complex threat. Adversaries will seek to exploit asymmetric advantages with respect to fuller knowledge of the operating environment, employ low-tech counters to U.S. strengths, and focus on particular U.S. vulnerabilities (e.g., lines of communications). Combining terrorism with ambushes and fleeting tactical engagements, including attacks against civilian authorities and non-military targets, these operations will frequently be unpredictable and may often appear to be without patterns. Additionally, adversaries will continue to search or develop ways to attack ground and air forces with inexpensive, yet lethal, methods and devices to disrupt mobility.

(2) By sheltering forces within complex terrain and local populations and refusing large-scale battle to preserve strength, the unconventional adversary resists exposure to defeat by superior U.S. conventional military capabilities and presents difficult challenges of identification and engagement, with increased risk of collateral damage and civilian casualties. Indeed, unconventional operations will often require U.S. forces to increase their own exposure to achieve effective engagement, while also extending those forces to encompass protection or defense of local populations and facilities.

(3) Employed throughout history, unconventional operations by themselves do not often lead to decisive results for the adversary, but they may perpetuate stalemate and frustrate the achievement of long-term political stability within regions of concern. Thus, when carried out by a determined, motivated adversary able to coordinate action on a wide scale, unconventional operations will require the U.S. forces to exercise an extraordinary degree of flexibility and adaptiveness. Moreover, success in unconventional warfare will often require a long-term commitment that effectively links military actions with the other elements of power. Future Modular Force units must be highly capable in these operations without sacrificing the ability to prevail in conventional combat.

c. ***Catastrophic and Disruptive Challenges***

(1) Catastrophic challenges involve the acquisition, possession, and use of weapons of mass destruction (WMD). Adversaries seek such capabilities to dominate their regions, deter external intervention, or both. Current U.S. policy dictates efforts to block acquisition and deter or deny their use in conflict. Appendix D addresses operational considerations for a conflict involving significant use of WMD capabilities. Acquisition of WMD by non-state adversaries presents a particularly difficult threat since their use by such groups will likely take unusual forms and decisions to employ them cannot easily be deterred by a reciprocal threat.

(2) Disruptive challenges may occur through the employment of breakthrough technologies to negate existing U.S. advantages in key operational domains. For example, a breakthrough in air defense could deprive U.S. forces of the uncontested use of airspace on which U.S. forces have come to rely upon during the past few decades. In view of such possibilities, the future joint force and the Army must be sufficiently robust, maintaining and improving a range of hybrid capabilities, to cope with technical surprise and avoid single-point failure.

d. ***Combined Challenges.*** The most dangerous future adversary would be one that combines capabilities in all four challenges in creative ways, adapting them before and during the course of a conflict to frustrate U.S. military action. The introduction of significant technical surprise in future conflict or the addition of even modest WMD capability to this mix would present an even more challenging threat. Development of the intellectual capital that will power a culture of innovation and adaptivity potentially represents the most effective response to combinations of threats that cannot be predicted.

2-3. Full Spectrum Operations.

a. The four security challenges described in the previous section will most often occur in combination with each other, rarely individually. In addition, they will give rise to a broad set of future contingencies encompassing many operational forms that are difficult to predict in time and character. Given these expectations, strategic and joint guidance unequivocally establishes full spectrum dominance—*the defeat of any adversary or control of any situation across the full range of military operations*—as the overarching goal of joint transformation and joint force development. Thus, it is imperative that the future joint force and the Army are fully prepared to be effective across the spectrum of conflict and in the conduct of *full spectrum operations* throughout the course of a future campaign.

b. Described as the range of military operations (ROMO) (see figure 2-1) within the CCJO or the spectrum of conflict in Army doctrine, these constructs essentially discriminate operations in terms of level of violence required and extends from routine military activities in peacetime to nuclear warfare. By virtue of its global interests and reach, the U.S. typically has substantial forces engaged worldwide on a continuous basis. "The problem the joint force faces is providing and sustaining the capacity for simultaneously and effectively countering . . . challenges across the range of military operations in multiple locations around the world."[2]

[2] CCJO, version 2.0, August 2005, p. 8. The chart is displayed on p. 10.

Figure 2-1 The Range of Military Operations

c. The idea of *full spectrum operations* (see figure 2-2) is related to, but distinct from the ROMO and spectrum of conflict[3]. In the same way that U.S. Armed Forces will be engaged simultaneously in multiple forms of contingency operations at any moment in time, the Army expects to simultaneously conduct three fundamental types of operations—offense, defense, and stability—during the course of future campaigns and major operations. The predominance of each of the three types of operations will vary according to the nature of the major operations, e.g., major combat operations versus counterinsurgency operations, as well as over time. Typically, major phases within a campaign may signal a shift in weight from one type of operation to another, as depicted in the charts on the next page.

d. Although sequentiality will also characterize the manner in which the three types of operations are conducted through the series of major operations that normally constitute a campaign, future commanders will need to plan for their simultaneous conduct, maintain a proper balance over time through the allocation of resources, and anticipate how that balance will and should change to achieve desired outcomes in the most effective and efficient manner. Failure to do so may generate conditions that impede operational success and extend the duration of future campaigns. Chapter 4 addresses these demands with respect to campaign planning and execution and distinguishes how requirements change over the course of a campaign as the nature of the conflict changes.

[3] Introduced in the 2001 Field Manual 3-0, *Operations*, the next revision of FM 3-0 will further develop the idea and give it more prominent emphasis.

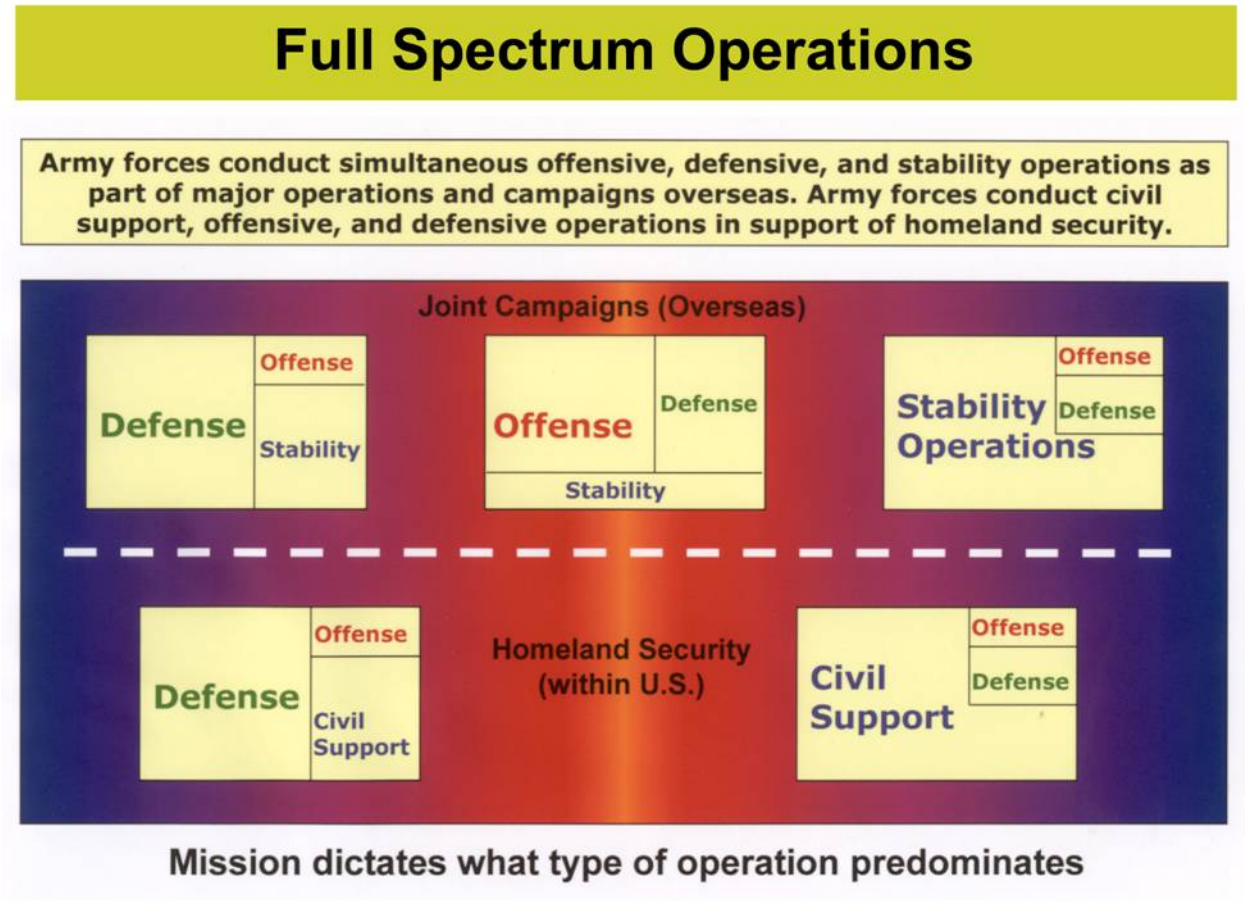


Figure 2-2 Full Spectrum Operations

2-4. Overview of the Army Capstone Concept. The future Modular Force will be a strategically responsive, campaign quality force, dominant across the spectrum of conflict and fully integrated within the joint, IA, and MN security framework. It will provide sustained land combat power to future joint operations, responding effectively and seamlessly to any conflict regardless of character or scale. Full spectrum capability will allow the force to succeed against the diverse threats and the volatile conditions expected to characterize the future operating environment through the adaptive combination of seven key operational ideas:

a. **Shaping and Entry Operations** shape regional security conditions, and—if forces are committed—shape the operating environment, help seize the initiative, and set conditions for decisive maneuver throughout the campaign. Shaping requires a comprehensive understanding of the unique conditions present within a particular region or area of operation (AO) (see figure 2-3). Use of multiple entry points will help overcome enemy anti-access actions, enhance surprise, reduce predictability, and, through the conduct of immediate operations after arrival, produce multiple dilemmas for the enemy. Capability to conduct entry into austere sites improves the responsiveness and effectiveness in stability operations such as disaster relief.

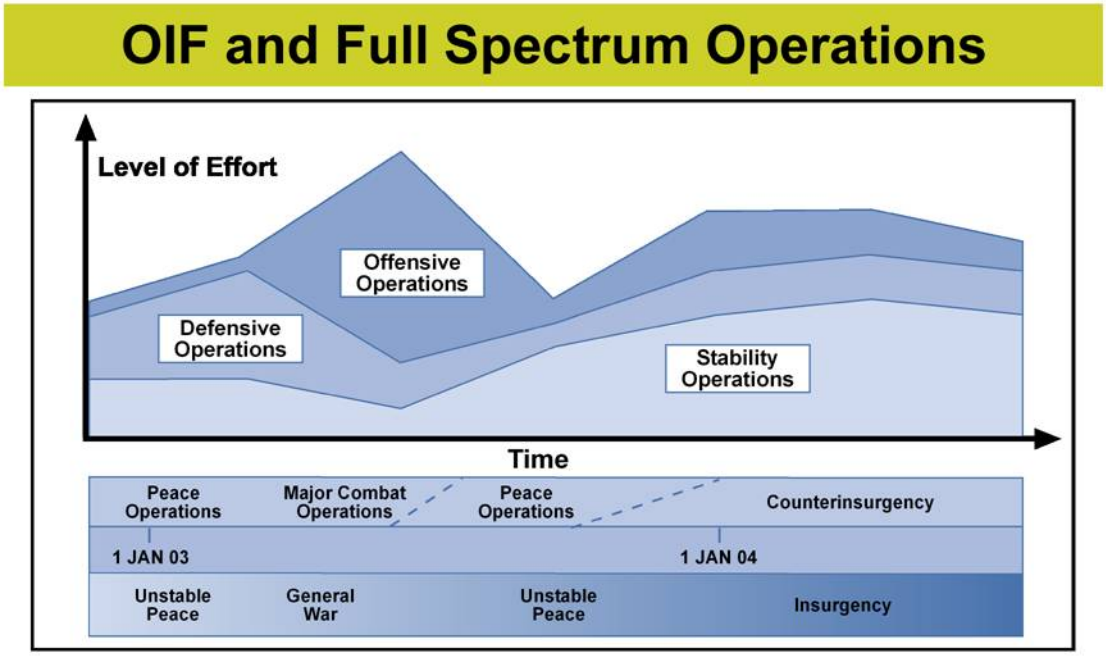


Figure 2-3. Operation Iraqi freedom (OIF) and Full Spectrum Operations

b. **Operational Maneuver from Strategic Distances** to a crisis theater will enable the force to deter or promptly engage an enemy from positions of advantage. Employing current and advanced joint lift platforms not dependent on improved ports, the Army will deploy modular, scaleable combined arms formations in mission-tailored force capability packages along simultaneous force flows to increase deployment momentum and close the gap between early entry and follow on campaign forces.

c. **Intratheater Operational Maneuver** by ground, sea, and air will extend the reach of the JFC, expand capability to exploit opportunities, and generate dislocating and disintegrating effects.

d. Once the initiative is seized, the future Modular Force combines its multidimensional capabilities in **Decisive Maneuver** to achieve campaign objectives:

(1) *Simultaneous, distributed operations* within a non-contiguous battlefield framework enable the future Modular Force to act throughout the enemy's dispositions to achieve dislocating and disintegrating effects.

(2) *Continuous operations and controlled operational tempo* will overwhelm the enemy's capability to respond effectively, resulting in physical destruction and psychological exhaustion at a pace not achievable today.

(3) *Direct attack of key enemy capabilities and centers of gravity* with strike and maneuver will accelerate the disintegration of the enemy operational integrity.

e. The future Modular Force also conducts **Concurrent and Subsequent Stability Operations**, the former to secure and perpetuate the results of decisive maneuver *during* the initial campaign, and the latter to "Win the Peace," once enemy conventional military forces are defeated, to ensure long-term resolution of the sources of conflict.

f. **Distributed Support and Sustainment** will maintain freedom of action and provide continuous sustainment of committed forces in all phases of operations, throughout the JOA, and with the smallest feasible deployed logistical footprint.

g. Throughout the future campaign, **Network-Enabled Battle Command** will facilitate more effective command and control (C2) and contribute to the situational understanding (SU) needed for self-synchronization and the most effective application of Joint and Army combat capabilities in any form of operation.

2-5. The Joint Campaign Framework.

a. *Fundamentals of the Joint Campaign*. An examination of operational maneuver begins necessarily with several fundamental elements of the joint campaign in which operational maneuver must be nested. Those elements are: operational defeat mechanisms, campaign design, decisive operations to achieve campaign objectives, and joint interdependence.

b. *Operational Defeat Mechanisms*. Army wargaming illuminates three such defeat mechanisms to be employed in combination during future campaigns:

Defeat Mechanisms

- **Destruction**. Defeat by destruction emphasizes the physical dimension of conflict and the application of lethal combat power to destroy enemy capabilities. It is closely related to the concept of attrition whereby one side defeats the other by a higher rate of destructive effects. Defeat thresholds based on destruction can be difficult to measure, particularly when the metrics applied focus narrowly on casualties, equipment destroyed, or enemy units rendered ineffective, especially if destructive effects are pursued indiscriminately without an appreciation of the value of those losses to the enemy's capability to continue to fight. Historically, this approach does not often lead to rapid decision, since well-disciplined and well-defended forces with the capability to reconstitute are often able to endure high levels of destruction before being compelled to capitulate. Nevertheless, destruction remains a key element of defeat for future conflict, but its power is multiplied when combined with disintegration and dislocation. Thus, the future joint force should employ destruction as a means, rather than as an objective or end-state.

- **Dislocation**. Defeat by dislocation emphasizes the use of maneuver of combined arms forces to obtain significant positional advantage over the enemy, in a manner that renders the enemy's dispositions less valuable, perhaps even irrelevant. The idea is to exploit superior SU and mobility to create new conditions through maneuver that undermine the enemy's current plans, reduce his options, and compel the enemy to expose his forces to react to U.S. dislocating maneuver. In effect, dislocation forces the enemy to choose to accept the neutralization of part of his forces or to accept higher risk of destruction in efforts to reposition forces for more

effective employment. Turning movements and encirclement operations are classic examples of dislocation. Additionally, by dislocating enemy forces, the JFC creates opportunities for air attack. When combined with destruction, dislocation contributes to more rapid decision at the tactical and operational levels. The "left hook" performed by the VII Corps in Desert Storm is a recent historical example of dislocating maneuver that rendered Iraqi defensive positions in and near Kuwait largely irrelevant and exposed them to piece-meal destruction as those forces tried to withdraw.

- **Isolation** is a form of dislocation and an effective means of shaping, particularly in irregular warfare. For example, in counterinsurgency operations, isolation is intended to quarantine the insurgency from its bases of support and so constrain the enemy's freedom of action. It permits friendly forces to establish higher levels of control in key areas and support more rapid stabilization through reconstruction, restoration of essential services, strengthening of indigenous security forces, and reinforcement of public support.

- **Disintegration**. Disintegration focuses on the integration of dislocating and destructive effects to shatter the coherence of the enemy's dispositions. Its effectiveness depends on U.S. capability to accurately identify those critical capabilities, decisive points, and elements of centers of gravity that, if attacked effectively, will lead to more rapid collapse of the enemy's capability to continue to fight. In many cases, disintegration will emphasize the destruction of the enemy military "nervous system", i.e., those capabilities that enable him to see, know, and effectively command and control. Thus, disintegration will focus on destruction of the enemy's ISR, target acquisition, battle command, communications, and precision engagement systems, as well as on disruption of lines of communication to critical forces. The greater simultaneity that can be achieved, the stronger the disintegrative effects will be, leading to poorly coordinated enemy action and paralysis at the tactical and operational level. Thus, disintegration also depends on U.S. capability to strike throughout the enemy's dispositions with fire and maneuver, in contrast to the highly phased, attrition-based campaigns of the past. Disintegration is key to accelerated decision.

c. In *unconventional warfare*, the defeat mechanisms of dislocation and disintegration are more complex and the opportunities to conduct direct destruction of key capabilities are less frequent. Moreover, they normally must be applied over extended periods of time and with greater discretion. Nonetheless, the requirement for selective destruction of key adversary capabilities, disintegration of the coherence of their organizations (and their popular appeal), and dislocation of their position—particularly their informational position vis-à-vis the population—are key considerations for irregular warfare in general and stability operations in particular. However, recent conceptual investigations suggest that it is possible to identify a set of "stability mechanisms" –compel, control, influence, and support—that are more applicable for irregular warfare and stability operations. These mechanisms are briefly defined in Chapter 4.

d. *Operational Art and Design*.[4] Although it is possible to foresee significant changes to campaign execution, general elements of operational design will continue to guide operational maneuver.

- Campaigns are inherently joint, IA, and MN in nature. Although campaigns may vary in scale, duration, and content, they are the operational extension of the commander's strategy.

- Joint operational planning generally applies to the conduct of combat operations, but is also applicable more broadly to the entire spectrum of conflict.

- Military campaigns are conducted in concert with the other instruments of national power to achieve strategic objectives. For major combat operations, the military instrument will most often comprise the decisive element; for other operations, the military instrument will more often be employed to support decisive outcomes generated by the political, economic, and informational instruments of power.

- Operational art is the intellectual means by which the JFC links major operations within the campaign design to achieve strategic objectives. The commander applies intuition informed by knowledge, experience, and a conscious effort to visualize the conditions of the operation or campaign before committing forces. Visualization, in turn, is informed by an understanding of the environment and the factors that are critical to achieving operational success.

- Operational design normally involves three major elements:

  - Re-defining strategic guidance into a desired ***end-state*** and the ***overarching military objectives*** that support achieving that end-state.
  - Identifying the critical factors to success, including adversary strengths—most notably ***centers of gravity***—and weaknesses. Within this element, commanders and planners further seek to identify what set of conditions must exist to compel an opponent to change behaviors or to meet political aims, as well as those conditions under which commanders will engage in or refuse battle.
  - Developing the ***operational concept*** that will achieve campaign objectives.

- Because each campaign is context specific, there is no commonly agreed checklist of prescriptive elements for an operational concept. As a minimum, the operational concept should address the defeat mechanism(s) to be employed, lines of operations, application of forces and capabilities, sequencing, synchronization, and operational functions.

- Commanders normally determine main and secondary efforts and sequence operations to achieve campaign objectives, a practice which will often incorporate specific phases that constitute operational steps, each producing interim decisive operational outcomes. Branches

[4] The following discussion is essentially doctrinal in nature, being drawn primarily from JP 5-0 on campaign planning. The use of this framework throughout several years of service and joint wargaming by both Blue and Red player teams testify to its continuing relevance to future operations. However, TRADOC is leading an investigation of several alternative forms of campaign design and planning that may prove to be relevant in future operations.

and sequels provide the means for changes in deployments, direction(s), or the conditions that affect decisions to engage in or refuse battle. Results of joint and Service wargaming forecast compressed sequentiality and a higher degree of simultaneity in the future.

- Traditionally, commanders also plan for operational pauses to avoid culmination, unacceptable risk, or vulnerability as operations become unsustainable. However, commanders prefer to leverage all resources in a balanced way to avoid the perception of a friendly operational pause and to continually keep pressure on enemy forces.

- Commanders synchronize efforts at the operational level by establishing proper command relationships between functional components and subordinate commands, the assignment of realistic tasks and objectives, effective task organization of forces, all adjusted over time in concert with changing battle conditions.

e. *Centers of Gravity*.

(1) In all armed conflict, achieving early decision requires the identification and attack of enemy centers of gravity and decisive points. Centers of gravity are those characteristics, capabilities, or locations from which a military force derives its freedom of action, physical strength, or will to fight. Destruction or neutralization of the enemy center of gravity is the most direct path to victory.

(2) Centers of gravity are not fixed; they vary according to the nature of the conflict, the nature of the adversary, and the level of war. They constitute strengths, not weaknesses, with respect to the enemy's capability to succeed. Centers of gravity are normally interdependent and comprised of a complex of different elements that resist destruction in a single blow, a single form of action, or a single element of combat power. Successful destruction of the enemy centers of gravity normally will lead rapidly to his defeat or capitulation. Conversely, failure to identify and destroy enemy centers of gravity will extend the conflict in time while placing its outcome in doubt.

(3) For high-end SSCs and MCO, centers of gravity will typically include the enemy's military forces, his battle command structure, the economic or sustainment infrastructure supporting the war effort, national will, the national leadership, and/or an existing alliance or coalition structure. Non-democratic aggressor states ensure their protection and continuance in power by means of their military and internal security forces—the ultimate center of gravity in MCO. For stability operations, counterinsurgency, and other operations less dominated by combat, centers of gravity will usually be harder to identify and attack and may not even be substantively subject to action by the military arm.

f. A Decisive Point is a geographic place, specific key event, or enabling system, that, when acted upon, allows commanders to gain a marked advantage over an enemy and greatly influence the outcome of an attack. When centers of gravity cannot be attacked directly, commanders attack the decisive points upon which they depend. Operational design includes the identification of decisive points the elimination of which will best degrade or neutralize the enemy center of gravity at strategic and operational levels. In irregular warfare, decisive points may be less tangible and more characterized by economic and political qualities, such as the conduct of national elections, the pacification of key regions, or the restoration of critical economic infrastructure.

g. The essence of *operational art* lies in being able to orchestrate actions in order to achieve decisive effects against the enemy's main source of power—his center of gravity which he seeks to protect. Because of their complexity, centers of gravity must be the focus of the entire joint force, as well as by those agencies and organizations employing other instruments of national power. In the future, advanced capabilities will enable U.S. joint forces to strike enemy centers of gravity and decisive points virtually at the onset of the conflict. However, simple approaches are insufficient, particularly against resolute, adaptive adversaries intent on protection of the sources of their power.

h. Therefore, while the *campaign design* will focus on decisive points and centers of gravity, it will remain important to fix less relevant enemy forces and erode enemy capabilities, thereby presenting the enemy with multiple dilemmas. The future joint force must have the capability to participate in both aspects: direct attack against the elements that comprise centers of gravity, and, neutralization of other forces and means to prevent their use by the enemy to interfere, reinforce, or otherwise contribute to the protection of centers of gravity. By keeping pressure on multiple enemy capabilities, the JFC erodes enemy will and reduces his flexibility.

i. *Decisive Operations in the Joint Campaign.* Decisive operations in the joint campaign are based on the rapid, integrated and near simultaneous application of joint forces throughout the JOA, enabled by continually updated information and intelligence enabling the JFC to better understand the situation.

(1) The centerpiece of decisive operations is a series of simultaneous air-ground offensive operations distributed throughout the JOA and designed to dismantle the enemy’s system of defense, destroy critical capabilities as rapidly as possible, isolate enemy forces, deny them the ability to maneuver effectively, and expose them to piecemeal destruction.

(2) Within this system of rapid joint and combined arms offensives, the combination of all-source precision engagement and dominant position by ground forces will be critical to the enemy’s destruction, dislocation, and disintegration. The achievement of dominant position threatens enemy decisive points and centers of gravity. Precision engagement compels the enemy to disperse, avoid movement, and seek sanctuary. Failure to reposition makes him vulnerable to piecemeal destruction; conversely, should the enemy attempt movement on any significant scale—whether to attack or defend more effectively—he exposes himself more fully to fires. Decisive operations, thus combine maneuver and precision engagement to pose a multidimensional threat that the enemy cannot easily escape or counter.

(3) In contrast to the discussion above, decisive operations in irregular warfare take on a significantly different, protracted character, in which large scale engagements seldom take place. In addition, as noted earlier, the defeat mechanisms of dislocation and disintegration are more complex and the opportunities to conduct direct destruction of key capabilities are less frequent. When an operation or campaign is dominated by irregular warfare there are significant distinctions in campaign planning and design (discussed in detail in para 4-7).

j. *Joint Interdependence*. The synchronized employment of land, air, sea, space, and special operations forces, provides the joint commander with the widest range of strategic, operational,

and tactical options. Joint operational experience over the past 20 years shows steady progress towards achieving joint interoperability, but the services must become more interdependent to fully exploit and optimize the capabilities of each component. In fact, neither the individual components nor the joint force overall can fully accomplish assigned missions without the participation and contribution of all components. Although each service contributes its own unique capabilities to the joint campaign, each dominating its own environment, their operational and even tactical interdependence will be critical to overall joint force effectiveness. Joint interdependence is achieved through the deliberate reliance of each service on the capabilities of others to maximize its own effectiveness while minimizing its vulnerabilities. Key joint interdependencies critical to successful employment of landpower in future campaigns include:

- **Joint Battle Command**. Integrated joint battle command and ISR capabilities to gain information superiority, share a common operational picture (COP), enhance joint-integrated information operations, support decision superiority, and improve the ability of joint force and component commanders to plan, prepare, execute, and assess operations.

- **Joint Force Projection**. Advanced strategic and operational lift capabilities to facilitate strategic responsiveness and operational agility within the JOA, integrated and synchronized through theater and national C2 organizations. Strategic force projection must evolve to more effectively support campaign execution throughout the decisive phase, while capabilities for operational maneuver permit the joint force and ground commanders to act throughout the entire theater.

- **Joint Air and Missile Defense.** A comprehensive, networked, joint/combined theater protection system, extended to regional partners, encompasses both offensive and defensive air and missile defense, provides security of intermediate staging bases and ports of debarkation, enables uninterrupted force flow against diverse air anti-access threats, and expands to cover the entire JOA during campaign execution to ensure freedom of action. Current trends forecast increasing reliance of ground formations on joint theater air and missile defense (AMD) assets rather than organic assets for protection against air and missile threats.

- **Joint Sustainment**. Integrated joint sustainment that reduces redundancies without sacrificing robustness, increases efficiencies, provides strategic-to-tactical distribution, and minimizes the logistical footprint in theater. Effectively interdependent joint sustainment will likely require the development of joint theater logistic C2 echelons capable of integrating the strategic-to-tactical distribution required to maintain high operational tempo.

- **Joint Fires**. Integrated joint fire control networks that provide more effective application of all source fires, from theater to tactical levels. Future formations will routinely employ joint fires as independent elements of future ground force operations and as fully integrated elements in support of maneuver to tactical level.

Chapter 3
The Central Idea: Operational Maneuver

3-1. Operational Problem. Strategic mandates, the expectation of long-term military commitments abroad to achieve national goals with respect to the global war on terrorism, and the estimates encompassed within the future Joint Operational Environment all project commitment of U.S. forces to military campaigns more frequently, in more complex environments, for a broad range of purposes, confronting changing threat combinations. The JFC will leverage all available assets—Army, joint, IA, and MN—to engage, deter, and defeat an adversary in a joint campaign. Controlling operational theaters and defeating enemy military forces will usually require the joint force to maneuver land forces in order to bring enemy forces to battle on favorable terms, as well as to secure decisive landforms, infrastructure, and population centers. This environment will require the Army to flexibly link a broad array of tactical means to the strategic ends supported by the JFC's campaign objectives. Campaign design dictates overarching military objectives, identifies factors critical to success, and describes the operational concept intended to achieve campaign objectives, in concert with other elements of national power (see figure 3-1).

3-2. Solution Synopsis.

a. Future operational commanders will participate in the overall campaign design and plan and conduct the major operations required to achieve campaign objectives. Operational art is the means by which operational-level commanders link tactical operations over time within major operations to achieve interim and final objectives, through the combination of three primary defeat mechanisms—destruction, dislocation, and disintegration. In irregular warfare, campaign planning and design focus more fully on the achievement of political, economic, and informational objectives and require linking tactical operations *directly* to the achievement of those objectives (in contrast to the explicit military objectives which characterize conventional operations).

b. In accordance with the joint campaign plan and other components of the joint force, the future Modular Force will ***seize the initiative*** through shaping and entry operations. ***Intra-theater operational maneuver*** by ground, air, and sea of powerful, modular, combined arms formations extends the reach of the JFC, expands capability to exploit opportunity, and generates dislocating and disintegrating effects through the ***direct engagement of decisive points and centers of gravity***. ***Simultaneous, distributed operations*** within a non-contiguous battlefield framework enable the force to act throughout the enemy's dispositions, present multiple dilemmas, and, sequenced over time, achieve operational ends more rapidly. ***Continuous*** *operations and* ***controlled (high) operational tempo*** overwhelm the enemy's ability to respond effectively and support a pace of physical destruction and psychological exhaustion not achievable today.

c. Throughout the campaign, the force must be prepared for ***agile transitions***, deliberately posturing for future operations and transition to subsequent campaigns, including the conduct of simultaneous and subsequent stability operations and other forms of irregular warfare, for which there will be a persistent requirement. The inherent versatility and the hybrid nature of the future

Modular Force form a foundation for the effective combination of operations against both conventional and unconventional threats in any future environment (see figure 3-1).

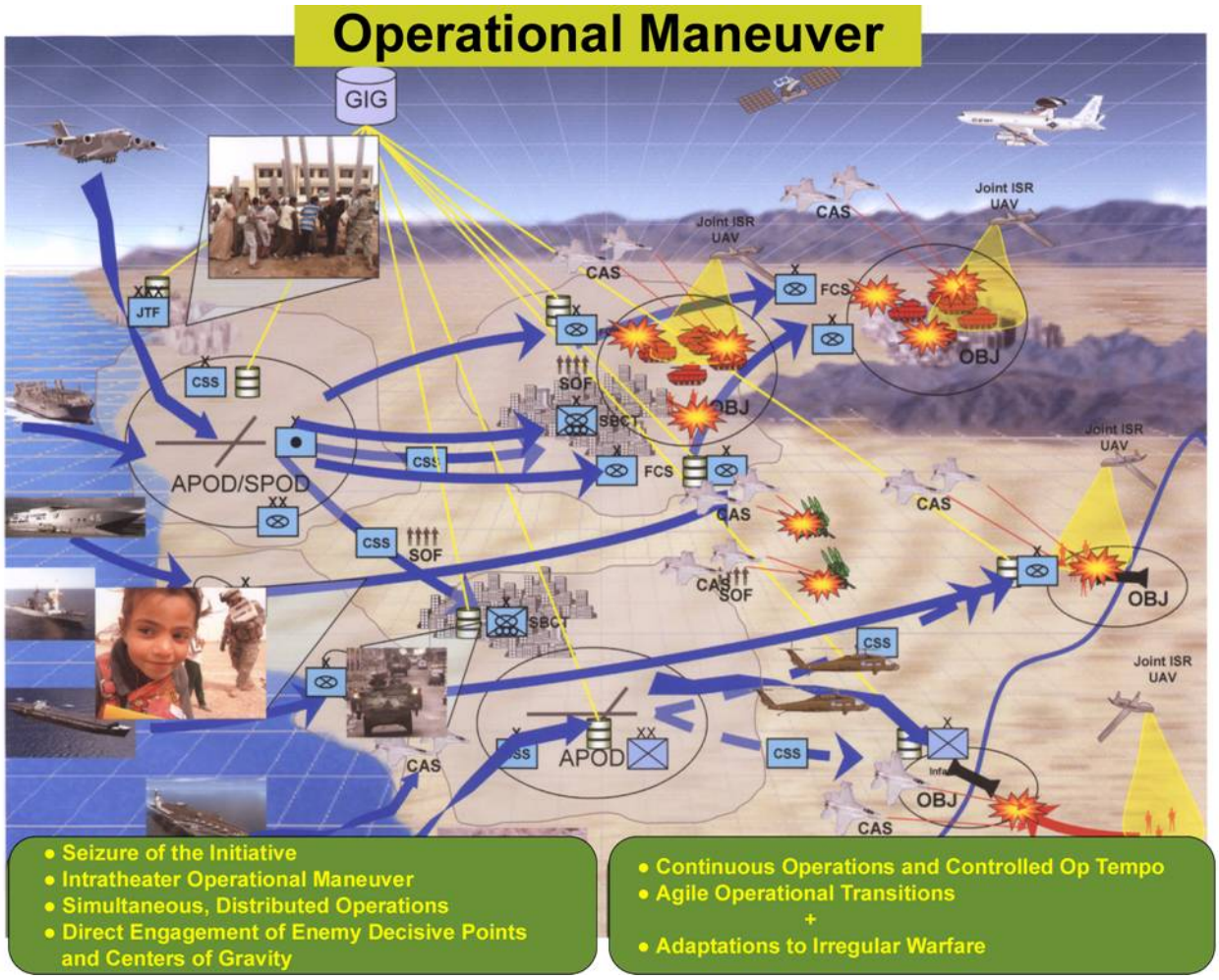


Figure 3-1 Operational Maneuver

Chapter 4
Operational Maneuver in the Joint Campaign

a. In 2004, the Army initiated an effort to modularize its forces, an organizational innovation long identified through Army wargaming and concept development as a desirable end for multiple reasons. For example, force modularization will enable the more rapid formation of capabilities-based force packages, tailored to the specific mission and conditions of each future contingency, as well as the re-tailoring of forces during the course of a conflict. Overall, current force modularization encompasses three primary forms of brigade combat teams (BCT)—infantry, heavy, Stryker—and five multifunctional types of support brigades: surveillance, sustainment, combat support (also known as maneuver enhancement), fires, and combat aviation. In addition, a large number of functional support and theater brigades (engineers, military police,

AMD, signal, military intelligence, medical, chemical, etc.) will be retained in the force. Brigades equipped with Future Combat Systems (FCS) will add a fourth variant of maneuver BCT to the mix as those capabilities are fielded over the next ten years.

b. In conjunction with modularity, the Army also decided in 2005 to retain a three echelon structure above the level of the brigade, comprising divisions, corps, and theater armies. Although this structure may appear to perpetuate the status quo, considerable change is projected within that framework with respect to the purview, functions, and improved joint capability at each level. The completion of this process in the form of the Modular Army represents a strong step toward the future from an organizational perspective. It is reasonable to expect the concept of modularity to evolve over time as technologies mature and additional capabilities are developed and injected into the force. This concept, in fact, assumes that continuing evolution will take place. Thus, the discussions in this section account for the expanded reach and purview of theater armies, corps, and divisions as currently planned, but extend beyond those boundaries into a deeper future.

4-1. Seizure of the Initiative.

a. In accordance with the joint campaign plan and parallel actions by other components, the future Modular Force will seize the initiative in the ground dimension early during the joint campaign through a combination of shaping and entry operations. Operational commanders initially shape the operating environment through flexible deterrent options and entry operations, then continue to shape conditions throughout the campaign. Overall, the goals of joint and Army entry and shaping operations are to create the conditions for decisive operations, including actions to: neutralize the enemy's early advantages; deny enemy initial objectives; force the enemy to assume a defensive posture; build offensive momentum; threaten/destroy key enemy capabilities; and accelerate transition to decisive operations. Essential actions by ground forces to shape the operational environment during the initial phase of the joint contingency include the following:

- Overcoming enemy anti-access measures**.** Direct action of maneuver and strike forces will contribute to joint efforts to destroy and degrade anti-access elements such as the enemy's long-range precision engagement system, offensive and defensive air capabilities, unconventional forces, surveillance and targeting systems, and battle command systems.

- Destruction of other key enemy capabilities for command, control, communications, computers, intelligence, surveillance, and reconnaissance (C4ISR) and logistical structures essential to enemy offensive operations.

- Establishment of essential C2, intelligence, and logistical infrastructures within and external to the JOA, including early entry command posts (EECP).

- Seizure of key terrain and facilities required to support force flow, extension of the area of influence, dislocation and preemption of enemy forces, and conduct of decisive operations.

- Conduct of information and intelligence operations to gain and maintain information superiority.

b. *Entry Operations***.**

(1) Future commanders introduce combined arms force packages into the JOA via multiple lift platforms into multiple entry points, building quickly from battalion to brigade to larger formations with integrated maneuver support and sustainment. Entry operations are conducted under the protection of the rapidly established joint theater air and missile defense (JTAMD) and force protection networks, shielded further from denial or interdiction by air and maritime superiority that may be local, wide area, or theater-wide in scope. Carefully planned as springboards for early attack of key enemy capabilities, every entry operation is supported by information operations (IO), joint fires and intelligence, ground-based precision fires, security operations, integrated sustainment, and other shaping actions to assure continuous operations. Deployment of theater army operational command posts (OCPs) and corps and division EECPs ensures that effective C2 capability is emplaced to control these complex operations and exploit joint assets.

(2) The future Modular Force will conduct continental U.S. based forcible entry operations (see figure 4-1) (mounted and dismounted) using strategic assets (air and sea lift, joint precision fires, space-based C4ISR, and other enablers) during any phase of the joint campaign. Formations also conduct forcible entry from forward operating bases over operational distances using heavy lift, vertical take-off and landing (VTOL) capabilities, supplemented and supported by joint lift and enablers, including super-short take-off and landing (SSTOL) fixed wing aircraft.

(3) As essential components of the early entry force, subordinate maneuver forces will be required to seize and defend entry points to facilitate follow-on force flow, set conditions for future maneuver to multiple points in the theater, and enable earlier transition to offensive operations. In addition, combat forces may deploy preemptively to seize and defend objectives critical to the enemy's own offensive plan. Seizing these carefully chosen objectives will often shape maneuver for the rest of the campaign and set conditions that are critical to its duration and outcome.

(4) During this time in a campaign, higher echelon Army combat support structures may not be fully in place. As a result, early entry forces must be able to draw on support from air and naval forces, as well as from MN partners that may already be engaged. The duration of these missions demand that early entry tactical elements be able to defeat successive attacks by conventional and unconventional forces. Moreover, because these defenses occur during a time when sustainment flow must compete with force flow, it will be important that the initial formations be durable and place minimal demands on the logistical system. In these conditions, entry forces initially conduct active defensive operations, but seek to seize the initiative as soon as possible and transition to offensive action.

(5) Once entry is assured, the JFC orchestrates the flow to build combat capability quickly and evenly in order to prevent gaps between early arriving forces and counter-offensive

and decisive operations forces. The combination of multiple entry points and direct deployment to objective areas changes the geometry of the battlefield, reduces vulnerability to enemy long range fires, compels the enemy to respond to many simultaneous threats, and eventually achieves the operational momentum required to transition to decisive operations.[5]

(6) Stability operations, humanitarian assistance, and disaster relief also require rapid strategic response and "early entry," although the capabilities-based force packages mission tailored for those operations will typically be weighted toward the combat support and logistical capabilities that are more applicable to those situations. Similarly, operational agility in these contingencies demands the ability to rapidly "maneuver" combat support and sustainment formations, rather than (or as well as) maneuver BCTs, from inside or outside the JOA to the point of need.

(7) A fundamental common denominator in the early stages of all contingencies is the need to exploit all available sources of information and intelligence prior to and during initial operations in order to establish the requisite level of SU needed for effective decisions and operational execution.

c. *Continuous Shaping Operations*. Carried out with the routine and deliberate integration of joint resources, continuous shaping operations (see figure 4-1) include efforts to:

- Continuously develop the situation and provide situational awareness and actionable intelligence to subordinate elements; when necessary, direct specific operations to provoke enemy reactions and refine intelligence and SU.

- Protect subordinate maneuver forces from enemy action during engagements and battles through the simultaneous attack of enemy forces within subordinate unit objective areas, as well as against supporting enemy forces outside objective areas.

- Deny the enemy the capability to reinforce, re-synchronize his efforts, or exercise initiative.

- Disrupt enemy lines of communications (LOC).

- Enable subordinate maneuver forces, through higher levels of standoff destruction, to finish engagements more rapidly without prolonged reliance on decisive close combat assault, and to transition to subsequent engagements without an operational pause.

- Ensure continuous sustainment and high operational tempo.

- In accomplishing all the above, ensure continuous freedom of action for Army and joint elements operating within the land domain while denying the same to the enemy.

[5] In principle, advanced capabilities for force projection will give future commanders considerably more flexibility and choices with respect to initial dispositions for the conduct of the campaign, further posturing forces for operational success.

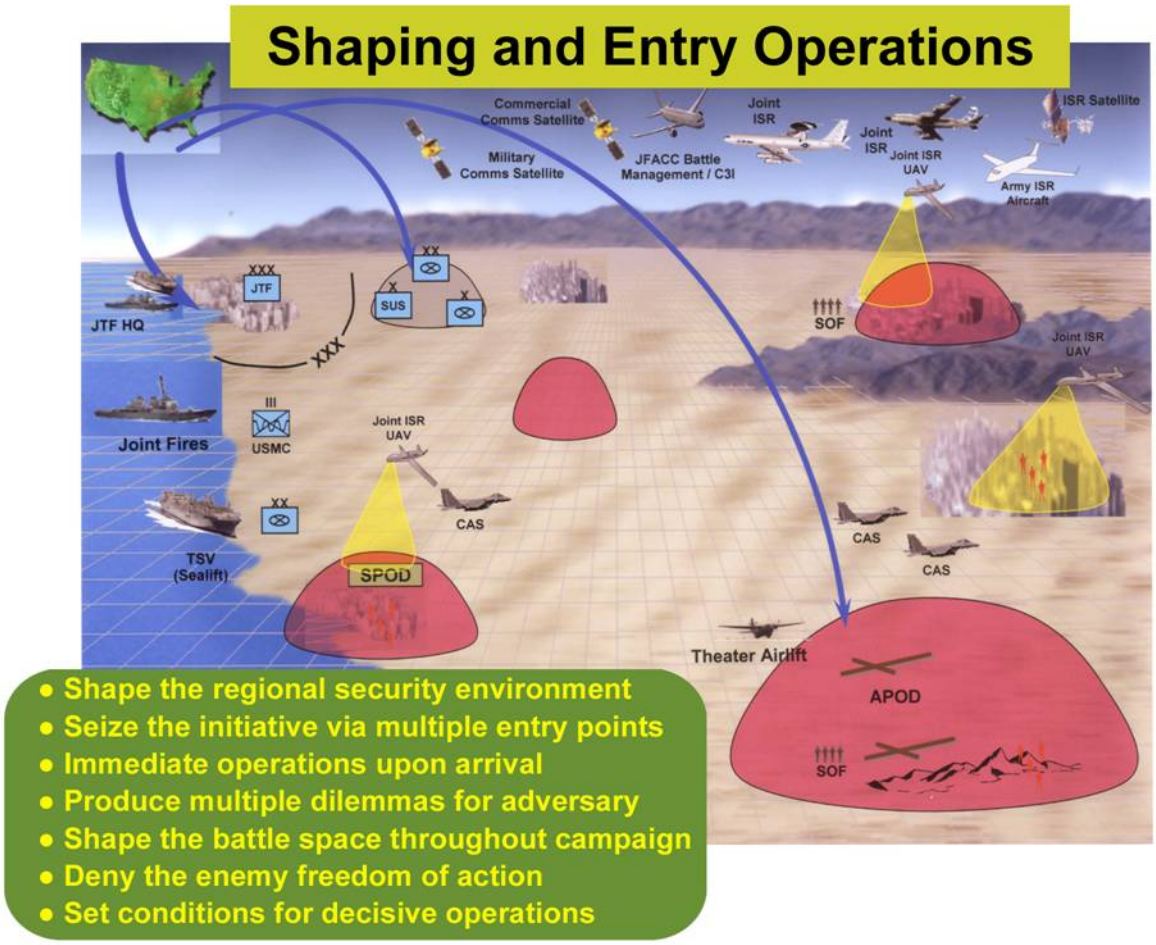


Figure 4-1 Shaping and Entry Operations

d. Naturally, corps and divisions also employ maneuver to set conditions for future operations through: the conduct of mobile strikes and raids; repositioning of subordinate forces to dislocate enemy forces or secure positional advantage for subsequent operations; preemptive seizure of key terrain; and internal re-tailoring of subordinate forces to meet changing battlefield conditions. These actions further change the geometry of the battlefield to U.S. advantage and increase the complexity for the enemy.

4-2. Intratheater Operational Maneuver.

a. While successful tactical maneuver insures engagements take place in the most favorable conditions, operational maneuver seeks to insure those engagements are sequenced in time, space, and purpose to achieve a decisive military result, directly tied to a specific campaign objective. The future Modular Force executes *joint-enabled* operational maneuver to extend the reach of the Joint Force Commander, enable him to respond to opportunity or uncertainty, isolate portions of the battlefield, and exploit success. Operational *movement* of the force will position or reposition formations to secured positions of advantage to dislocate enemy forces or place them at a disadvantage for *subsequent* operations. In contrast, operational *maneuver* repositions forces in depth in proximity to objective areas for *immediate* attack, potentially exposing the

entire enemy area of operation (AO) to direct attack, and constrains enemy efforts to mass, re-synchronize forces and operations, reinforce, and sustain.[6] Operational maneuver can also be focused on seizing key terrain and decisive points and destroying critical enemy forces and capabilities in depth. In all cases, it is intended to have a definitive impact on the course and outcome of the campaign, often accelerating decision or setting conditions for subsequent phases of the campaign (see figures 4-2 and 4-3).

b. Typically, ground-based operational maneuver may precede or follow tactical penetration, envelopment, or exploitation. It may be executed in isolation or in concert with parallel operational maneuver by other formations. Operational maneuver by air depends on the suppression or destruction of enemy air defense, air superiority and security of the landing area. It will normally be most effective when it is supported by the rapid advance of ground-mobile forces to reduce risk, reinforce, exploit the results of the air-based maneuver, and keep the adversary from isolating the air-delivered force. In all cases, forces must be capable of reorientation against follow-on objectives with minimum delay.

c. It is envisioned that the future Modular Force structure at operational level will conduct maneuver and sustainment to operational depth by multiple battalions (overall, brigade-sized capability), either mounted, dismounted, or mixed in nature. Operational maneuver may be supported by and extended further in scale through joint allocation of VTOL and fixed wing aircraft (SSTOL, legacy fixed wing) to generate and sustain operational maneuver of one or more brigades in close sequence.

d. Subsequently, maneuver elements must also be able to assume the defense temporarily when executing vertical maneuver. While the air-maneuver element depends upon higher echelons to provide the airlift and create the conditions that make air assault possible, it must defend entry points and key terrain until sufficient force is assembled to permit offensive operations, or until link-up with ground elements advancing on other axes is achieved. Again, minimization of sustainment demands can be critical if the defensive posture lasts more than a few days.[7]

e. The future joint force may also execute sea-based operational maneuver along the JOA littoral by means of advanced sealift platforms. By virtue of their range and size, austere access high speed sealift capability will enable simultaneous deployment or redeployment of multiple, combat configured battalion task forces for immediate employment, while the joint high speed sea vessel will accomplish the same for company teams. Sea-based operational maneuver will rely heavily on sea-based assets for fires, ISR, and sustainment.[8]

---

[6] The distinction between operational movement and maneuver is significant with respect to the immediate impact achieved against the enemy and the time available for the enemy to respond. The mobility capabilities required for operational maneuver and the level of joint support required will normally be considerably more demanding.

[7] Historical experience and futures wargaming clearly demonstrate that vertical maneuver involves considerable risk from an able enemy employing both high-tech and low-tech capabilities and creative TTP. Therefore, development of advanced capabilities for vertical maneuver must be accompanied by parallel development and holistic integration of the defensive means and platform characteristics required to mitigate risk to acceptable levels.

[8] In connection with the desirability of improving sea-based maneuver, the Army is examining the feasibility and operational significance of conducting air assault of dismounted and mounted formations from seabased platforms that would comprise an Afloat Forward Staging Base. This concept is featured in the Joint Seabasing joint integrating concept and discussed more fully in the Army's forthcoming *Move* functional concept.

f. In its narrowest sense, then, operational maneuver requires the near-simultaneous movement and support of multiple tactical formations by ground, air, and sea from separate staging areas to locations in depth from which their combat power can be focused against critical enemy forces and facilities. The process is repeated in succession and in concert with other ongoing operations into successive phases of the campaign until the enemy's system of defense is destroyed beyond recovery.

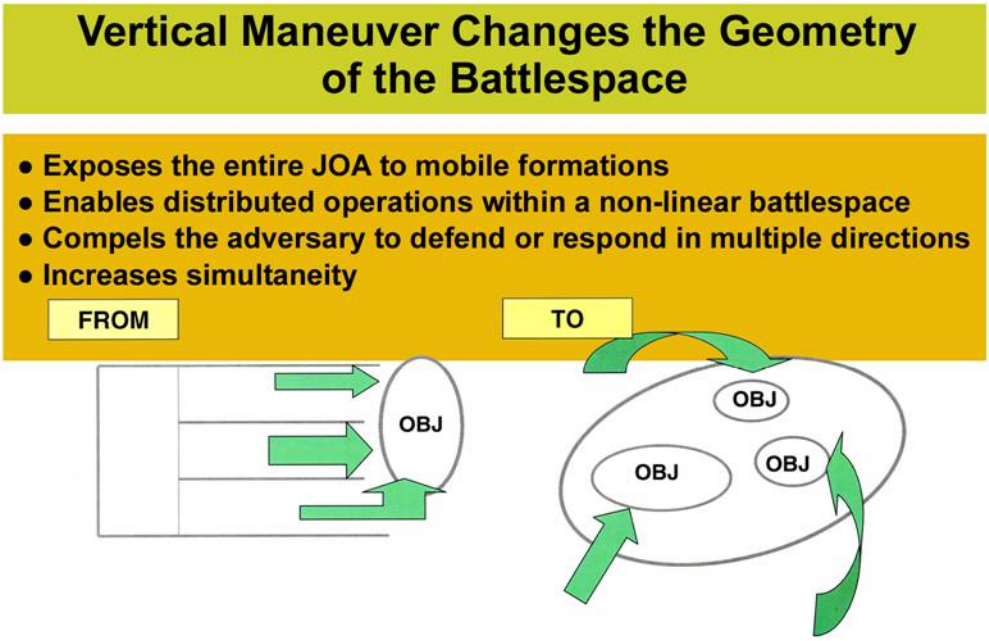


Figure 4-2 Vertical Maneuver Changes the Geometry of the Battlespace

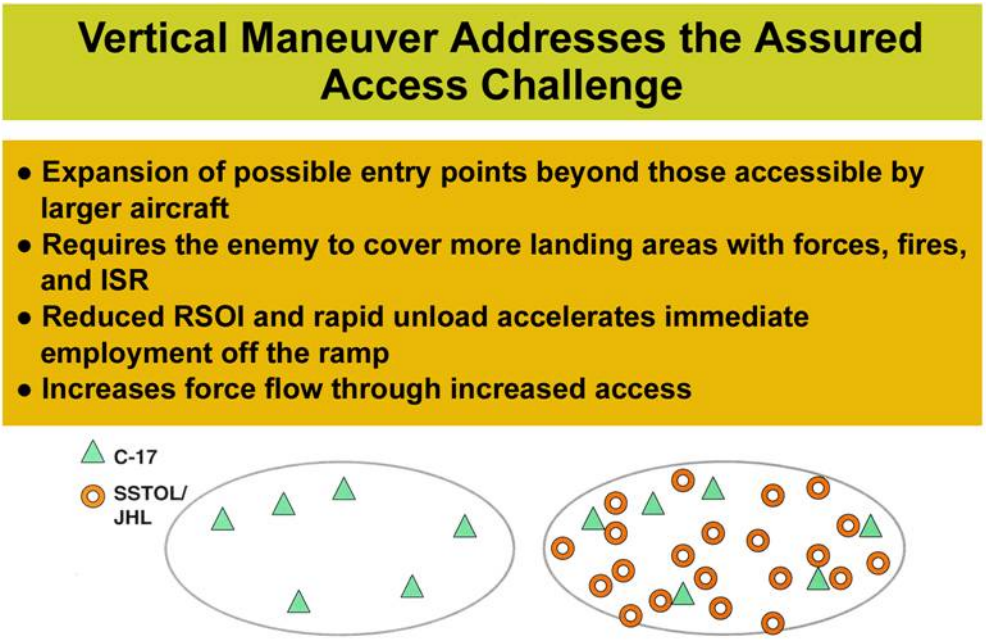


Figure 4-3 Vertical Maneuver Addresses the Assured Access Challenge

4-3. Simultaneous, Distributed Operations.

a. As a force deliberately designed for decentralized, non-contiguous operations, future Modular Force divisions and corps will be employed in simultaneous operations distributed across the entire JOA in accordance with the commander's comprehensive view of the campaign. Superior SU, enabled by advanced, networked C4ISR capabilities embedded at all levels, enables ground commanders to operate non-linearly, bypassing what is less important or non-threatening, to focus operations against the forces and capabilities that are most critical to the enemy's defense. Advanced, air-ground, combined arms capabilities with respect to mobility, long-range precision fires, multi-capable ISR, flexible multi-modal sustainment, and advanced C3 enable the force to mass effects without massing forces and significantly expand its operational reach. *Simultaneous engagement by air-ground maneuver elements*, employing future advanced lift, reconnaissance, and attack aviation assets, supported by joint fires and suppression of enemy air defenses, will allow Army forces to transit the JOA, in any terrain. Forces distributed throughout the battlefield act in concert to multiply the effects achieved, while their dispersion simultaneously reduces vulnerability to enemy counters. Collectively, these capabilities will reinforce the effects of fires, present a set of multidimensional options to paralyze and overwhelm the enemy, and lead to rapid collapse of enemy forces.

b. However, destruction of every enemy formation is not necessary to achieving operational control of the theater. What is essential is rapid neutralization of the enemy's system of defense, so that he loses the freedom to engage when and where he chooses, and the ability to employ maneuver and standoff fires effectively. In many cases, it may suffice initially to fix static enemy formations while maintaining security against breakout and unconventional threats. The faster the enemy's key fighting formations or capabilities are destroyed or fixed, the faster indigenous and follow-on forces can reestablish territorial security and control.

c. The non-contiguous operational framework (see figure 4-4) expected to characterize future campaigns will also require conduct of defensive operations that may be either short or long-term in duration. For example, the exposure of the widely distributed facilities of the joint support structure to attack by unconventional forces, long range fires, aviation and the remnants of enemy forces will present additional requirements for ground defense. Moreover, as ground formations quickly advance to critical objectives throughout the Joint Operations Area (JOA), bypassing some enemy forces and leaving other enemy force remnants intact, commanders will often be required to assume the defensive in specific areas in order to respond to small scale enemy attacks, maintain LOCs, or to isolate force remnants until they can be resolved. Conditions will often dictate that corps and divisions dedicate subordinate forces to defend critical support facilities and vital support operations such as logistical convoys. In situations in which commanders choose not to permanently secure all LOCs and bases, this security requirement will demand new solutions that integrate air, electronic, and ground defenses of both stationary and moving "islands of infrastructure" within the JOA.

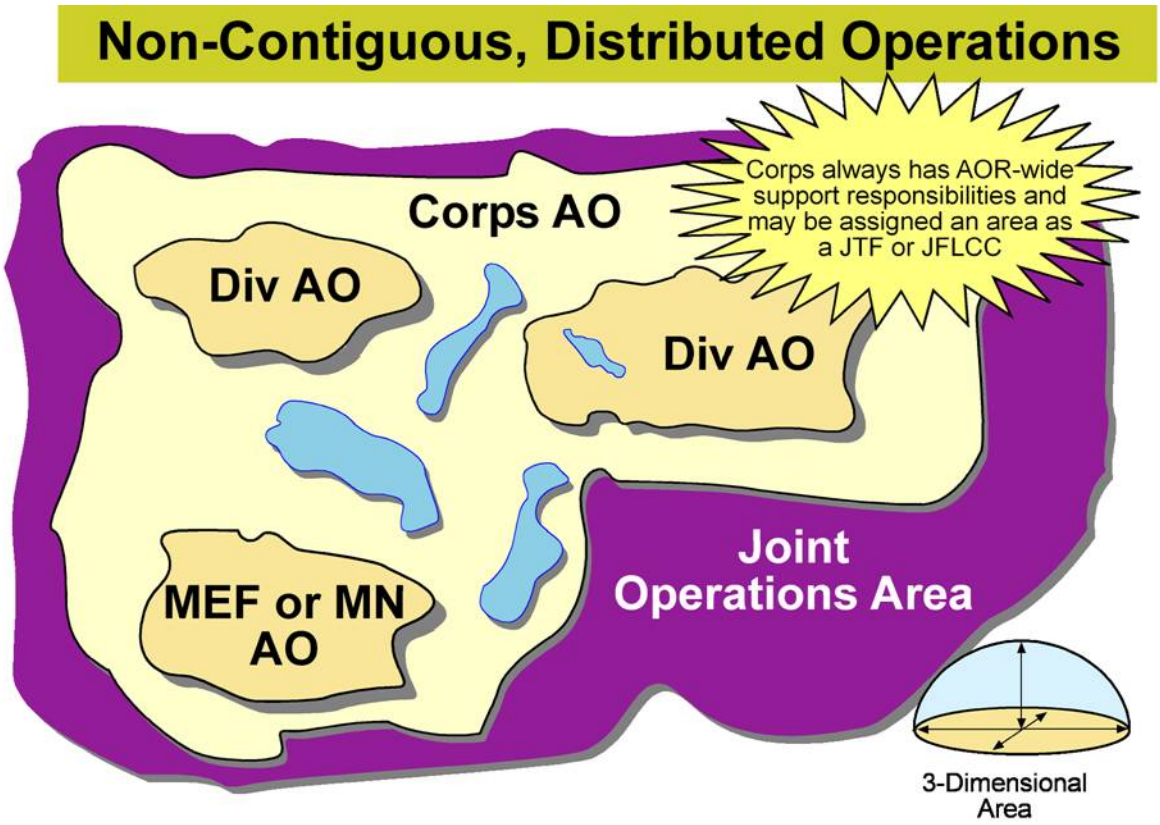


Figure 4-4 Non-Contiguous, Distributed Operations

d. Conversely, where presence is deliberately maintained in operational areas after objectives have been secured, commanders should plan and prepare to conduct stability operations as a critical means of setting the conditions needed to attain and maintain a stable peace both during and after MCO through the early neutralization of insurgents and die-hards.

e. In these situations and others, defensive success will depend on the same capabilities critical to offensive operations: a high level of SU, information superiority (IS); employment of precision tactical stand-off engagement to destroy attacking enemy formations; exploitation of higher echelon fires and effects; use of deception and integrated force protection means; and execution of precision maneuver in spoiling attacks and counter-attacks. Together, these elements constitute a "shield of blows" within a mobile, fluid framework of defensive operations. In contrast, the unit capabilities required for stability operations will differ substantially to address the many non-combat tasks required to establish and maintain order.

4-4. Direct Engagement of Enemy Decisive Points and Centers of Gravity.

a. The future Modular Force will employ long-range fires and operational maneuver to directly attack enemy decisive points and centers of gravity. These focused operations deprive the enemy of key capabilities essential to defensive integrity and staying power, further accelerating collapse.

b. A key element in this approach will be the depth of knowledge and SU of the entire operational environment that enables joint and Army commanders to accurately identify and link decisive points and centers of gravity operationally with concrete military objectives.

c. The capabilities for operational maneuver described earlier, particular the movement of mounted, protected formations by air to locations in proximity to critical enemy objectives, represent one of the most important future means of conducting direct attack. In addition, improved capabilities for organic long-range fires and the employment of joint fires complementary to and in support of ground operations represent other important means of direct attack.

4-5. Continuous Operations and Controlled Operational Tempo.

a. Operational pauses during the course of large campaigns, unavoidable in the past, can give the enemy time to reorganize and reconstitute, inevitably extending the duration of the campaign. Future commanders will seek to conduct continuous operations with few significant pauses, along multiple lines of operations, from all directions and dimensions. By these means, commanders will seek to create and control an operational tempo that overwhelms the enemy's capability to respond effectively and generate a collective exhaustion in enemy formations

b. High operational tempo and continuous pressure will seriously hinder the enemy's ability to regroup, reconstitute capabilities, or reconfigure forces to support new plans. The primary means of maintaining continuous pressure will be the cycling of brigade formations under operational level direction, based on synchronization of battle and logistical rhythms.[9] Continuous operations will require innovative sustainment concepts and capabilities (see para 5-6), based on sharp reductions in sustainment demand, significant improvements in reliability, and refined procedures for accelerated throughput, battlefield distribution, and mission staging. Absent these improvements, it will prove quite difficult to maintain continuous land component pressure on the enemy.

c. However, commanders may deliberately choose to take an operational pause under certain battle conditions. In addition, continuous pressure can be maintained without continuous maneuver. For example, inter-component cooperation can achieve the same effect, most notably the employment of the air and special operations forces components to keep pressure on the enemy and preserve the conditions that will allow maneuver to continue without delay when appropriate. In fact, the key perspective with respect to continuous operations and high operational tempo is the enemy's. The means employed may vary, as long as the enemy continues to have to deal with multiple threats and faces unrelenting pressure from multiple sources.

4-6. Agile Operational Transitions.

a. As recent operational experience has demonstrated, future commanders must focus on adjusting to requirements for operational transitions during the course of the main conflict, for

[9] Cycling brigade formations to maintain continuous operations assumes that divisions will routinely be mission-tailored with four to six maneuver BCTs.

example, shifting the weight of effort between offensive, defensive, and stability operations. Achieving an operational decision in major combat operations does not necessarily guarantee an end to hostilities. Even if the aggressor capitulates outright or his major conventional forces surrender, it still may be necessary to dispose of pockets of conventional resistance, unconventional forces, and armed militia or gangs. When there is no formal capitulation, resolution may become even more challenging.

b. In linear warfare, follow-and-support units typically conduct "mopping up" operations in rear areas as the front line advances. In contrast, the JFC cannot assume these operations will occur automatically given the non-contiguous framework of distributed operations. Consequently, commanders must deliberately plan for the reestablishment of territorial security concurrent with major offensive operations and in a way that does not obstruct them.

c. However, each conflict or campaign will require its own unique approach. Provided enemy forces are denied freedom of movement, not all pockets of resistance need be reduced with the same haste. In some cases, political requirements may dictate early clearing, especially within the borders of the host nation in key population centers. In others, clearing may be necessary to destroy or capture long-range systems or weapons of mass effect. And in yet others, residual enemy forces may occupy ground that is essential to continuing combat and sustainment operations. Where none of these requirements prevails, it may suffice to isolate the remnants in question until they surrender, or until the conclusion of major operations allows them to be dealt with at leisure. These conditions will also compel elements of the future force to assume the defensive periodically.

d. In summary, the future Modular Force will not occupy or clear areas in the traditional sense. Rather, commanders carefully select the forces to be employed and direct purpose-centric operations that circumvent irrelevant enemy forces and focus on most dangerous and high payoff objectives for mission success. In the course of these operations, U.S. ground forces must be able to rapidly transition into and out of combat or between missions against an adaptive enemy without loss of operational momentum. Regardless, decisive resolution is likely to take time and large numbers of ground forces. The comprehensive diverse capabilities of the general purpose force significantly reduces, but does not eliminate, the need for commanders to alter the mix of forces or to introduce new forces for post-MCO stability requirements.

e. Effective transitions between major combat operations and concurrent and subsequent conduct of stability operations and irregular warfare are particularly important (see figure 4-5). Indeed, the conduct of OIF presents a recent, compelling object lesson regarding the critical significance of effective transition and the need for thorough advance planning and preparation.

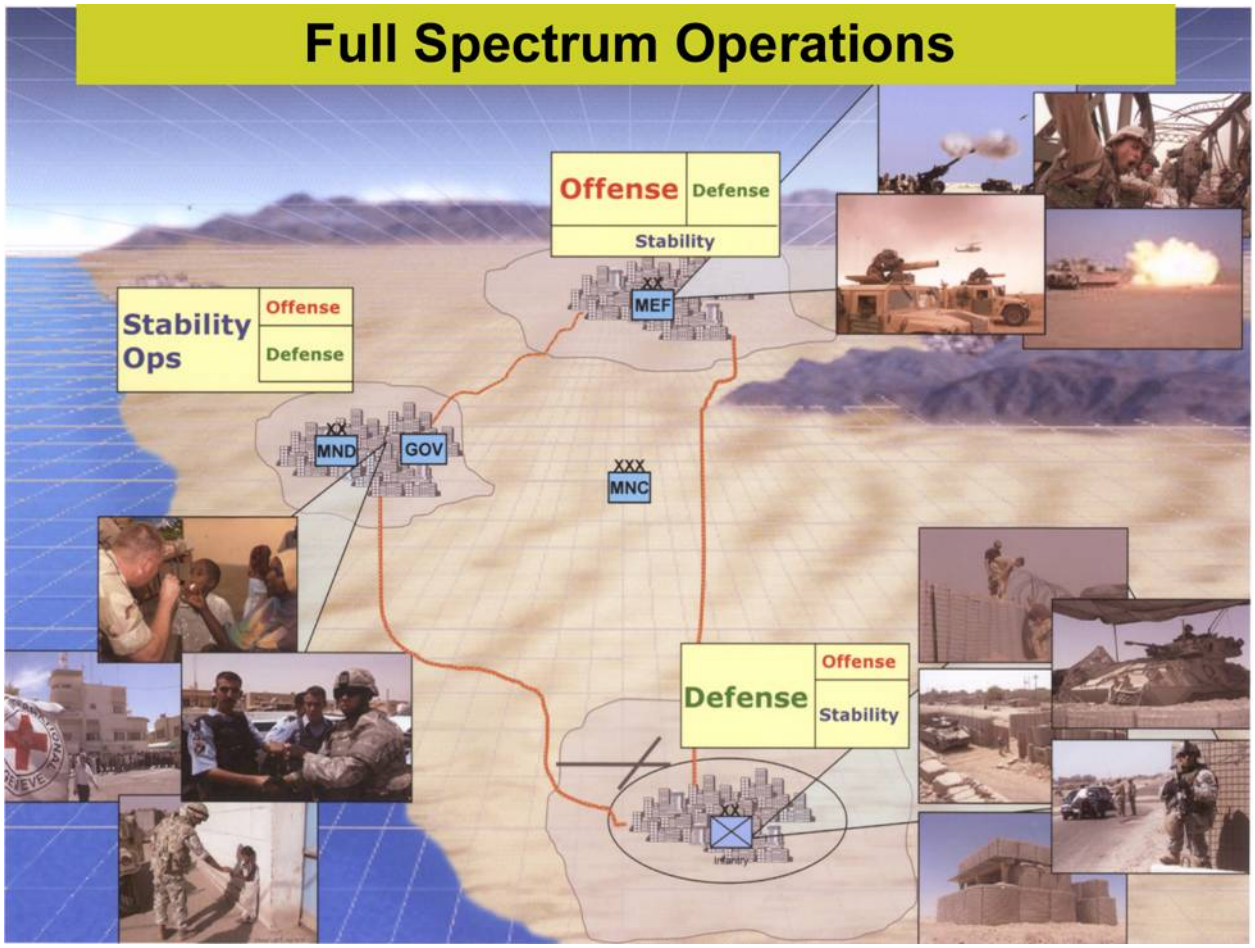


Figure 4-5 Complex and Full Spectrum Mix of Operations

4-7. Irregular Warfare.[10]

a. The fundamentals of campaign planning and design described earlier also apply to the conduct of the various operational forms involved in irregular warfare, although the context will vary considerably. Military operations in support of conflicts for which irregular warfare is the predominant requirement will most often be a necessary, but not sufficient component, to achieve the desired end-state. Instead, the application of political, economic, and informational instruments of power will normally generate more decisive impact on that goal. For this reason, in contrast to traditional major combat operations which are focused on the achievement of objectives most often stated in military terms, campaign planning and design in irregular warfare will necessarily focus more on the achievement of political, economic, social, infrastructure, and informational objectives.

[10] At present, the term Irregular Warfare does not have an approved definition. A simple definition proposed by the Combined Arms Center, which serves well for this concept, is "unconventional military warfare conducted by irregular forces."

b. Stability Mechanisms.[11] As noted earlier, the defeat mechanisms described in Chapter 2 with respect to conventional campaigns have less utility for irregular warfare and stability operations. Conceptual investigations based on historical and recent operational experience suggest that the stability mechanisms of compel, control, influence, and support are more applicable.

Stability Mechanisms

- **Compel**. Compel involves the use of force or the threat of force to: destroy residual or insurgent enemy forces; establish dominance; display U.S. resolve and commitment; protect U.S. and coalition forces, indigenous lives and property; or force compliance with mandates, agreements, or civil authority. The credibility of the compel function and the capabilities associated with it fundamentally underwrite the other three stability mechanisms.

- **Control.** Control focuses on imposing order in accordance with the objectives of the operation. It can include securing sites, locations, populations, and key individuals as well as physically occupying key terrain to establish control over urban and rural areas.

- **Influence.** Influence focuses on how the Army imposes its will on the situation through information operations and its day to day presence.

- **Support.** Support to civilian agencies in domestic and international situations may be necessary. In domestic emergencies, the Army provides key capabilities in accordance with U.S. law. In collapsed or failing states overseas, the Army's support in creating a self-sustaining government is a significant challenge that may require a considerable commitment over a protracted time period.

c. For highest effectiveness, stability mechanisms must be combined and balanced throughout the course of non-conventional campaigns. In that respect and others, these elements show promise in helping future commanders think about the full spectrum nature of irregular warfare, involving a frequently changing combination of offensive, defensive, and stability actions.[12]

d. As with conventional combat operations, successful campaigns in irregular warfare begin with a clear statement of the desired end-state. Given the protracted nature of irregular warfare, theater and operational-level commanders must understand that the desired end-state may take years to achieve and may evolve over that time span. Similarly, enemy centers of gravity must be accurately identified. Centers of gravity in conventional operations typically include the destruction of regime-ensuring forces, the capture and occupation of political centers, capture or destruction of enemy strategic leadership, and psychological domination of the enemy's will, all

[11] Although the concept of stability mechanisms has clear merit, considerable work is required to further develop these embryonic ideas.
[12] Balancing simultaneous lines of operations, discussed further below, is another useful "mental framework" for campaign design and planning in irregular warfare.

of which are subject in large measure to military action. In contrast, centers of gravity in irregular warfare will often include such elements as:

- Personal and community-based security, ultimately guaranteed by effective indigenous defense, security, and police forces.

- Political legitimacy of both the government in power and the opponents to that government.

- Public support of and confidence in the government.

- Economic viability of the state at the macro level, accompanied by personal economic well-being at the local level.

- Information superiority vis-à-vis the adversary's efforts to influence public will and opinion.

e. Accordingly, U.S. strategic and operational-level objectives in irregular warfare campaigns will often involve the following:

- Destruction of selected enemy leadership and physical capability to conduct operations.

- Isolation of the enemy through physical denial of outside sources of support.

- Pacification of particular regions, perhaps sequenced over time.

- Establishment of law and order.

- Restoration of essential public services.

- Strengthening political institutions from local to national level to support stable governance.

- Conduct of legitimate elections.

- (Re)establishment of financial institutions and protection of economic centers and resources.

- Establishment of control of borders.

- Denial of enemy means to communicate internally and with the population; conversely, establishment of effective public information programs to influence behaviors and attitudes.

- Training and support of indigenous police and military forces to enable them to assume increasingly greater roles in maintaining security.

f. Future Modular Force commanders will not exercise responsibility for establishing these PMESII[13] objectives, although they must participate in that process at the level of theater strategy and campaign design and advise the U.S. political leadership regarding the best means of employing deployed formations over time to achieve those objectives. More to the point, commanders must be able to articulate how military actions directly support the kinds of objectives enumerated above, and must adjust those operations over time as objectives are achieved or modified. Establishing a long-term campaign framework is essential to guide and inform policy decisions and will also function as a check on whether or not military activities are, in fact, contributing to the achievement of strategic objectives. That long-term campaign framework will inevitably be sequenced and phased since it will be extraordinarily difficult to accomplish all objectives simultaneously.

g. In this kind of campaign, operations by large formations will be the exception, rather than the rule. Most military actions will occur at the tactical level, often decentralized to battalion, company, and platoon level, and distributed widely throughout the region. Essentially, therefore, the operational art exercised by commanders in this environment requires them to link highly distributed tactical actions directly to strategic and operational-level objectives that are largely non-military in nature, without conducting the major operations that typically comprise the linking mechanism in conventional war. Furthermore, operational-level commanders must articulate those linkages clearly to both the U.S. political leadership directing the overall campaign and to the tactical Army leaders executing the tactical actions that support overall campaign objectives. In a conflict in which commanders and forces are routinely deployed and redeployed on a rotational basis, it is particularly important to ensure that each new commitment of forces is accompanied by a renewed understanding of the overarching objectives that tactical operations and other military activities are intended to support. Absent a deliberate effort to articulate these linkages, military action in irregular warfare may prove to be successful at the tactical level, but ultimately ineffective in the long run.

h. The issues of phasing, sequentiality, and simultaneity are also critical considerations for campaigns dominated by irregular warfare. For example, military commanders may correctly view the establishment of a high level of security against irregulars as a prerequisite for achieving progress in economic or political domains.[14] However, the U.S. experiences in OIF and OEF have demonstrated that executing a sequential plan that overly emphasizes combat activities may jeopardize the timely achievement of other equally important, or even more important, objectives which must be pursued immediately despite the absence of ideal security conditions. In essence, effective simultaneous and visible progress in multiple domains will often be essential to strengthen public support and constrain the irregular adversary's freedom of action. Balancing these competing demands over time represents a fundamental element of operational art in irregular warfare.

---

[13] The PMESII model addresses activities that fall into political, military, economic, social, infrastructure, and information categories. As used here, the PMESII acronym is used to illustrate the fact that military operations will primarily assume a supporting role in irregular warfare. However, in the absence of effective collaboration and action by the U.S. agencies primarily responsible for P_ESII, the M component may rise in significance should it be necessary for deployed forces to undertake missions in domains that are normally beyond their purview.

[14] Effective planning and preparation during an MCO phase of operations will often reduce the level of security challenges that have to be addressed post-MCO by creating conditions that eliminate or hinder opportunities for insurgents to emerge and operate effectively.

i. The doctrinal concept of lines of operations (LO) (see figure 4-6) is one means of establishing a campaign framework at both operational and strategic levels for linking tactical actions to campaign objectives. A former commander in OIF devised the following operational campaign framework to guide and integrate military operations in the Baghdad region.[15] Execution required extraordinary attention to the question of balancing activities and resources to show visible progress along each LO. In addition, the "tactical actions" carried out by Army forces extended broadly into many non-combat activities such as reconstruction, restoration of public services, creation of employment opportunities for city residents, control of funding provided to local organizations and officials, and conduct of interface and liaison between U.S. agencies, indigenous organizations, and even private volunteer and non-governmental organizations. In the course of these operations, it was also imperative for the command to: adjust operational staff organization; mission tailor forces; distribute resources to tactical levels (rather than pool at operational level); and develop unique measures of effectiveness to assess success. As the chart indicates, forces carried out all actions within the context of the urgent and continuing need for effective IO to shape and project the message for the public of the results being achieved across the other five LOs, while simultaneously seeking to neutralize the information campaign conducted by insurgents and factions hostile to U.S. presence.

j. Joint wargaming and experimentation are only just beginning in 2005-06 to devote significant attention to irregular warfare in the 2015+ timeframe. To this point in time, little has emerged from that work to suggest significant departures from current joint and service doctrine regarding the conduct of stability operations, counterinsurgency, and other forms of irregular warfare. As a real-time, real-world battle laboratory, recent operational experience is the best source at this time for achieving a clearer picture of the future requirements of irregular warfare at the operational level. From that experience, it is clear that the methods and capabilities employed by enemy in this area are evolving, with exploitation of new information and communications technologies comprising the area in which the most meaningful change is taking place. For example:

- Use of (disposable) cell phones and internet links provide modern insurgents alternatives to traditional civilian and military communications. Difficult to identify, track, and interdict, these means also enable insurgents to communicate without the range restrictions common to military communications or couriers, coordinate with external support, and arrange and/or disguise financial backing for their operations.

- The internet is also proving to be a near limitless source of information and networking capability to insurgent groups, significantly reinforcing their ability to collect technical and tactical information in support of their operations, both directly and through surrogates.

- The "speed" of these technologies and networks in response to insurgent requirements substantively enable them to adapt more quickly, while their redundancy makes them near impossible to shut down.

[15] Major General Peter W. Chiarelli and Major Patrick R. Michaelis, "Winning the Peace: The Requirement for Full Spectrum Operations", **Military Review**, Jul-Aug 2005. With respect to the question of sequentiality, the authors cited restoration of essential services as the first among equals within the set of LOs.

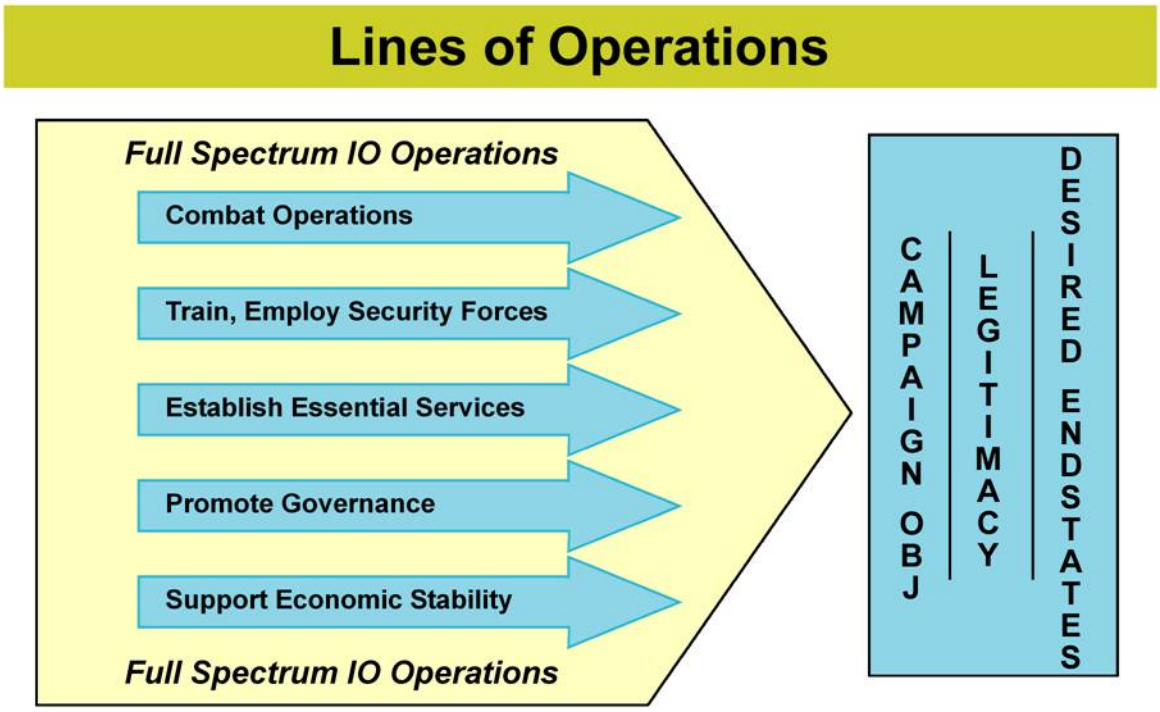


Figure 4-6. Lines of Operations

- Simultaneously, these same technologies appear to be increasing the vulnerability of friendly and indigenous forces to enemy action by virtue of their visibility, particularly via the global media which very rapidly propagates sensitive operational information into the worldwide web.

- Moreover, as in Iraq today, the insurgents may enjoy the informational and propaganda benefits of unofficial collaboration with regional news networks that have willingly and pervasively transmitted insurgent perspectives throughout the region, as well as globally. Such alliances may well represent standard practice in future conflicts. Because they present a unique threat to a U.S. center of gravity—national will—it is imperative that they be accounted for and that means be found to neutralize the enemy's advantage in this area for both current and future operations.

k. Although this concept foresees no radical change in the operational methods associated with the conduct of irregular warfare in the future, many of its key conceptual elements and projected capabilities of the future Modular Force, if properly adapted, will actively support success in irregular warfare:

- Achievement of higher levels of SU, based in part on better exploitation of human intelligence, indigenous sources of information, and an increased level of social and cultural awareness imbued within the force.

- Continuous pressure, in lieu of continuous operations, to keep the enemy in a reactive posture, restrict his options, and deny him the freedom of action to integrate or initiate wide-scale operations or react effectively to friendly operations.
- The ability to operate distributively within a non-contiguous battlefield framework.

- Superior intratheater and tactical mobility, to enable very rapid repositioning of forces in response to enemy action throughout the JOA and permitting the conduct of surprise raids and strikes.

- Adaptive dominance: the ability to adjust to frequently changing ROE, smoothly transition from one form of operation to another, continuously balance offensive, defensive, and stability actions, and adapt to changes in enemy methods.

- Small unit tactical excellence, a hallmark of U.S. ground forces.

- Improved capability to discriminate between combatants and non-combatants, with means to apply both lethal and non-lethal effects with precision.

- Better integration of MN forces, despite inevitable differences in modernization and capabilities.

- Expanding span of control and span of command to enable commanders to effectively employ a broader spectrum of capabilities-based forces.

- Organizational structure permitting more rapid mission-tailoring.

- Integration of nation-building activities with combat operations.

l. Given the expectation that U.S. Armed Forces will continue to be involved in multiple, ongoing stability operations and face a multitude of irregular threats over the long term—for which landpower is likely to comprise the decisive element with respect to the military instrument of national power—the Army is already taking significant action to improve its readiness, capabilities, and effectiveness in this area. In addition to several major study efforts, initiatives are already underway across DOTMLPF domains, with particular emphasis on organizational change, training, and leader development.[16] The development and incorporation of "Red team" staff elements in operational headquarters to provide alternative enemy perspectives and courses of action is another important innovation. Other efforts include expanding the Army's ability to interact more effectively with coalition and IA partners and achieving higher levels of understanding of complex environments. Many/most of these initiatives focus on the Army's "human capital" and require significant changes within the institutional Army for their realization. The Army also intends to expand learning in this area through increased emphasis on these kinds of operations in its wargaming and experimentation programs.

[16] The Army is also making extraordinary efforts to improve tactical capabilities, including many materiel innovations that are rapidly being "spiraled" into the Current Force.

Chapter 5
Supporting Functions for Operational Maneuver. Operational maneuver will entail the continuous and agile combination of the six key operational supporting functions: battle command, see, strike, move, protect, sustain.

5-1. Battle Command.

a. Unlike their organizationally fixed predecessors, future Modular Force theater army, corps, and divisions will become rapidly tailorable command echelons capable of integrating a varied mix of Army forces across the operational and higher tactical levels of war. Focused on major operations in support of joint operational and strategic objectives, theater armies, corps and/or divisions will normally participate in all phases of joint operations from initial entry to conflict termination in any form of conflict and operating environment. These HQ will be capable of C2 of all Army, joint, and MN forces (see chart below). They will also be organized, designed, and equipped to fulfill C2 functions as the Army Forces (ARFOR) Component, Joint Force Land Component Command (JFLCC), or the Joint Task Force (JTF). These headquarters will also have the inherent capacity to interact effectively with IA, non-governmental, and private volunteer organizations.

(1) Theater army headquarters are envisioned to continue their evolution from primarily administrative headquarters dedicated to a geographic combatant commander, to fully capable MN HQs with embedded joint staff elements and linkages for joint interoperability. Besides the headquarters, each theater army consists of a standard base of dedicated, regionally focused, theater-level forces that would be required in any contingency operation. Unlike the current set of primarily single functional theater-level commands, the future Modular Force will evolve toward multi-functional theater enabling commands. In addition to its Main Command Post (CP) focused area of responsibility (AOR) wide, the theater army headquarters will have an OCP as a small organic organization that facilitates rapid deployment for immediate response to contingencies while accepting augmentation, when required. In most cases, the broad geographic and extensive functional requirements of the theater army as the Army Service Component Command responsible for ensuring Title X and other directed support to the combatant commander will require a large variety of additional functionally based formations to be mission tailored to its multifunctional theater enabling commands for each contingency.

(2) Unlike the theater army, corps and division headquarters (HQ) are not dedicated to any specific AOR and have no dedicated units assigned. Corps and divisions are also envisioned as multifunctional, self-contained HQ nucleus with embedded joint staff elements and linkages for joint interoperability. These commands are expanded into larger formations through adaptive force-tailoring of modular formations per the specific requirements for each contingency. Subordinate modular formations tailored into the corps and divisions for contingency or ongoing stability operations will include maneuver, fires, surveillance, maneuver enhancement, aviation, protection, and sustainment brigades. The bulk of the combat power of the force will reside in the modularized, combined arms BCTs of varying types—Stryker, heavy, infantry, and FCS—normally task organized into divisions.

(3) However, the numbers and types of forces tailored to the corps and division will vary for each conflict. For example, one contingency may present conditions wherein a single fires unit is all that is required in terms of augmentation, while another may require the combination of several modular fires brigades into a larger (temporarily established) formation subordinate to the corps. Innovative command and support relationships will emerge to support mission tailoring and task organization, as will the development of modular designs that include multifunctional capabilities. The modular nature of subordinate brigades and the commonality inherent within their organization permits rapid initial tailoring as well as retailoring during the course of an operation to adapt to the changing situation. Mission tailoring may also include augmentation by both RC units and staff elements at theater army, corps, and division. The chart below identifies the most likely employment of Army operational-level HQ in joint roles.

Headquarters Suitability for Theater and Joint Roles

	ARFOR	*C/JFLCC*	*C/JTF*
Theater Army	AOR-wide	MCO*	SSC**
Corps	JOA	SSC*	SSC**
Division	Small JOA	SSTR*	SSTR**
Theater Enabling Commands	N/A	N/A	Special Purpose***

* With suitable land force (U.S. Marine Corps, MN) augmentation
**With suitable Joint/MN augmentation
*** Theater Enabling Commands (TECs) such as a Theater Sustainment Command (TSC) or Theater Protection Command (TPC), are suitable for serving as joint/MN special purpose functional commands for their respective functions.

b. The Operational Level.

(1) At the operational level of war, the theater army is the primary integrator of U.S. and MN landpower in the future joint campaign involving major operations.[17] The theater army headquarters will be sufficiently robust to detach one or more OCPs from its organic structure, when required, in order to establish temporary subordinate control nodes or echelons for operational control or tactical control of Army forces. The theater army assigns missions and operating areas to subordinate units and defines timelines for their operations. When the combatant commander acts as the JFC, the theater army will normally provide the JFLCC commander and HQs.

(2) When required, the theater army can provide a JTF-capable HQs for contingencies. During major operations, the theater army builds and maintains combat power and sustains the campaign as the principal Army link between the strategic logistical base and the logistical support of tactical formations. It cycles forces to maintain overwhelming tempo, synchronize major sustainment pulses, and minimize operational pauses. While it continuously supports

[17] In certain contingencies, the corps and division will also function at the operational level of war, the primary distinction being questions of scale. In those contingencies, C2 and planning requirements will include those enumerated in this section.

current operations, the theater army's planning focus is on future operations (planning horizon greater than 120 hours), enabling it to posture forces and means for the future. A key theater army role is the establishment of the C4ISR network of networks and operational-to-tactical level infosphere, fully integrated within the joint framework, required for subordinate forces to see, understand, and act first.

(3) For large scale conflicts requiring major land operations along different, simultaneous lines of operations, more than one corps will be required, with one employed as an intermediate Army HQs in the JFLCC role. Within an assigned JOA or land area of operation (AO), the corps assigns missions and operating areas to subordinate units and defines timelines for their operations. Overall, the corps operating area at is likely to grow significantly, with organic capabilities to conduct long-range strike or temporarily influence conditions beyond 500 km.[18] The corps also allocates subordinate fires, aviation, surveillance, combat support, and sustainment forces to weight the current battle and posture for future operations. Continuous mission tailoring insures that the corps and its subordinate formations are optimally configured to respond effectively to changing conditions (as well as changing missions and roles) within the JOA. In addition, the corps applies mission-tailored capabilities to protect engaged forces from enemy capabilities, isolate enemy forces within the JOA where required with fires and/or blocking forces, and prevent the enemy from reinforcing or reconstituting. Because of the serious threat that enemy precision fires present to freedom of maneuver, the corps role in destroying or neutralizing this threat as early as possible is one of its most important contributions to accelerating decisive operations.

(4) Other important C2 functions and responsibilities at this level include:

- Integration of forces and capabilities in three dimensions. The preponderance of vertical lift and attack capability is maintained at the operational level to ensure the most efficient employment of that scarce capability to exploit the vertical dimension in pursuit of campaign objectives (with respect to both maneuver and sustainment).

- Ensuring full dimensional protection of subordinate formations.

- Conducting security operations to ensure stable conditions for sustainment, maneuver support, and concurrent stability operations.

- Ensuring continuity of effort and momentum through sustainment, mission-tailoring, and effective husbanding of resources.

- Directing fully integrated information operations.

- Ensuring effective coordination with Army and joint Special Operations Forces for both operational awareness and provision of directed support.

[18] To date, wargaming and experimentation have not suggested definitive metrics for a corps AO. In any event, the size of such an AO will always vary in practice in accordance with the factors of Mission, Enemy, Terrain and weather, Troops available, Time available and Civil considerations (METT-TC), and the scale of the operation in question.

c. Military Decision-Making Process (MDMP) and the Collaborative Information Environment.

(1) The distribution of battle command capabilities between multiple distributed nodes and the capability for multi-echelon collaborative planning from joint to tactical levels is expected to eliminate much of the sequentiality seen in planning today, and highly accelerate the MDMP in future operations. Because command levels simultaneously participate in plan development, both vertically and horizontally, commanders are able to foster clearer understanding of intent and fuller appreciation for the implications of plans across units and formations, strengthening the foundation for more effective mission command than is possible today.

(2) The common operational picture (COP) and all of its components—Blue, Red, logistics, terrain, Green, Gray, etc.—are continuously updated, via automation rather than hand-fed, with "drill down" capability on specific objects or events displayed within the COP.[19] Thanks to this continuously refreshed COP, tactical maneuver formations self-synchronize their execution of mission orders in accordance with commander's intent, making incremental adjustments in progress in response to actions taken or effects achieved by other formations participating in common battle. Similarly, strike elements planned to attack certain targets are routinely diverted to new targets based on in-air adjustments to priorities or other changes within the planning methodology.

(3) With respect to enemy actions, new decision support tools developed to support pattern recognition and predictive analysis assist commanders at all levels in recognizing the intent of what might otherwise be viewed as random actions by the enemy and other actors. Iterative simulation of possible enemy courses of action (COA) against U.S. COAs enable commanders to quickly narrow options and reach decision sooner, allowing more time for development of in-progress branches and sequels. Red cells established at headquarters from theater army to division, can enrich the consideration of COAs by suggesting imaginative alternatives that the enemy might employ during operations. The capability for theater army, corps, and division command posts to routinely reach back to joint/Service knowledge centers and home station operations centers (HSOC) for analytical, planning, and information support helps reduce task burden on deployed CPs.

(4) In this manner, maneuver and support forces mission-tailored to theater armies, corps, and divisions remain committed on a near-continuous basis without significant operational pauses and essentially operate from a series of fragmentary orders. Organizationally, the proliferation of small, mobile air and ground command posts, permit the exercise of battle command on the move without significant degradation of situational understanding (SU) or communications connectivity.

.

d. Joint C2 Roles. The future theater army, corps and division will also be designed, as noted earlier, to fulfill the role of JFLCC or JTF in certain contingencies, providing several

[19] Green and Gray refer to elements within the operating environment which are neutral or otherwise not firmly committed to a combatant side.

meaningful operational benefits to future unified commands: improved strategic responsiveness for short warning contingency operations; reduction of delays in standing up an effective joint task force for land-centric operations; improved capability to conduct full spectrum operations; and standing capability for inherently higher levels of interoperability and integration than exist today with other components of the joint force, coalition partners, host nation, and IA and non-governmental entities. In addition, the theater enabling commands will provide enhanced special purpose functional capability to the joint force when required. However, the challenges associated with creating joint functional, JFLCC- and JTF-capable Army HQ are not trivial. Among the current shortfalls that will require remedial action are those cited in the chart below.[20]

Current Challenges with JTF Formation and Operations

- Preparation and training of JTF commanders and staff elements, beyond the inherent service-based expertise, is normally inadequate at the time a JTF HQ is formed.
- JTF augmentation elements on joint manning documents are often not sufficiently prepared or trained to perform their duties and inadequate numbers of joint manpower exchange officers exist.
- No universal standing operating procedures exist to guide JTF staff processes.
- Ad hoc staff processes and hierarchical organization often lead to sequential, vice simultaneous action and hinder rapid decision-making, planning, and effective C2 of current operations.
- The combination of inadequate information management and insufficient levels of COP and situational understanding compromise the achievement of information superiority.
- Integration of JTF elements, normally, is incomplete.
- Planning is often hindered by the lack of familiarity with JOPES and other planning tools.
- Institutionally, several DOTMLPF shortfalls compromise effectiveness:
    - Incomplete doctrine for JTF C2, particularly with respect to core staff processes.
    - Current organizations do not provide the personnel necessary for staffing joint boards, bureaus, cells, and committees.
    - Materiel shortfalls exist with respect to IM, decision support, and interoperability tools.
    - Leader development standards have not been developed to adequate standard.

e. Multinational Considerations. Theater armies and corps are likely to incorporate MN formations in future campaigns for both MCO and irregular warfare. Effective operational harmonization may well become more difficult in the future, especially given the trend toward assembling ad hoc coalitions to deal with crises and the growing differences between U.S. ground force capabilities and those of its potential partners. Integration efforts will be especially beneficial in the areas of information sharing, although commensurate requirements for multi-level security, collaborative planning, and common data standards must be resolved.
Until greater levels of interoperability can be achieve routinely, future theater armies and corps will have to give special attention to the division of labor between the MN formations and Army forces mission-tailored to them. The lower intensity and operational tempo of irregular warfare may mitigate risks associated with mixed forces under theater army or corps direction and provide greater opportunities for emplacing work-arounds and developing shared TTP during

[20] Joint Staff J39 and Joint C4ISR Decision Support Center (DSC) study, 2002.

operations (rather than prior to operations). The challenges that must be overcome to achieve effective levels of operational integration are examined in more detail in Annex E.

5-2. See.

a. Successful prosecution of decisive operations at the intended tempo will require a continuous flow of high quality information about enemy and friendly forces, terrain, local societies and infrastructure, and other significant elements present within the conflict environment. The future Modular Force is a knowledge-based, network-enabled, commander-centric force organized and designed to operate within the network-enabled and collaborative information environment of the future, enabled by a flexible, adaptive, joint-integrated C2 system.

b. Information superiority (IS) is essential to the fundamental concept of simultaneous, distributed operations described above. However, the struggle to maintain information superiority against a capable, creative adversary will be challenging and continuous, not a constant advantage to be taken for granted. Efforts to achieve information superiority must be integrated within major operations from pre-deployment to final decisive operations and pursued with intensity and purpose, as a necessary condition for achieving the highest levels of force effectiveness. Surge efforts may be required to insure that IS is maintained during critical periods. At the same time, operational-level echelons must recognize when they possess IS and when they do not. Moreover, they must be able to continue to operate under conditions of degraded C4ISR capability, but adjust operations accordingly in response to higher levels of uncertainty. In this context, it is imperative to understand what constitutes a sufficient level of information to conduct maneuver operations with an acceptable level of confidence of success. In general, degraded capabilities with respect to the ability of the force to "see" the operating environment will tend to force operations back into a more deliberate, phased, linear operational framework.

c. As described in the capstone concept, advanced C4ISR capabilities will form the backbone of the future force, introducing potentially the most revolutionary advances in force effectiveness and enhancing the optimized application of all other capabilities to execute the operational concepts described above. In particular, corps and divisions will rely on a knowledge-based C4ISR network of networks, vertically and horizontally integrated from strategic to tactical level. Drawing information, updated in near real time, from a wide variety of automated and manual sources—on-board sensors, unmanned air and ground vehicles, space platforms, and an assortment of correlated databases—this knowledge backbone will be focused on improving and accelerating the decision-action cycle. Wargaming and experimentation point to rising emphasis on airborne collectors and sensors, some autonomous in function in search mode, some multi-purpose and reprogrammable, some long endurance, and some expendable. The need for capabilities that can provide *persistent surveillance* of critical enemy capabilities (e.g., WMD) is also rising in significance.

d. The network will provide the means for forces to achieve situational awareness (SA) and establish, maintain, and distribute a common (joint) operational picture tailored to force and to the situation. At operational and tactical levels, commanders exploit the baseline of SA provided from the theater network, but maintain sufficient organic assets to develop actionable

intelligence and meet immediate tactical requirements. In addition, the agility and redundancy of the network should enable future commanders to "maneuver" it as required to ensure largely uninterrupted connectivity with forces distributed widely within the JOA as conditions and missions change.

e. As a space-empowered force, the future Modular Force will routinely exploit the overhead constellation of military and civilian space platforms for intelligence, focused surveillance, area reconnaissance, long haul communications, early warning, positioning, timing, navigation, missile defense, weather and environmental monitoring, and access to the global information grid. The layered redundancy and improved capabilities provided through space will sharply improve development of SA at all levels, help resolve many current operational constraints (e.g., fleeting target engagement or limits on range and mobility of terrestrial communications), and strengthen the commander's confidence in the knowledge backbone that supports him. Development of capability to cross-cue intelligence and non-intelligence platforms will lead to more responsive and comprehensive targeting information. Space support will extend from national to tactical level and prove particularly indispensable in immature theaters where existing communications infrastructure (e.g., absence of fiber optic cable networks) may be insufficient or unreliable. Overall, space based capabilities are critical enablers for implementation of the fundamental principles of the operational maneuver concept, particularly with respect to achieving IS, enhancing situational awareness, and operating within the high tempo, non-contiguous, simultaneous framework of distributed operations.

f. Superior knowledge will enable all phases of the land campaign, beginning with the reliable identification of key enemy forces and capabilities, and permit formations and their subordinate elements to:

- Differentiate and prioritize enemy forces, capabilities, and targets for attack, enabling higher echelon commanders to orchestrate precision maneuver against those objectives that will have the most overpowering effects on the enemy's forces, capabilities, and integrity, and lead more rapidly to his disintegration and defeat.

- Conduct precise, continuous battle damage assessment.

- Sequence, weight, and apportion supporting assets more effectively.

- Conduct highly synchronized, precise sustaining operations.

- Identify threats and means that must be neutralized to support operational maneuver by ground or air.

- Fully synchronize operational maneuver with organic and external precision fires.

- Enhance force protection at all levels.

g. At the same time, the C4ISR network will sharply enhance the lethality, survivability, agility, and versatility of the force, enabling more effective and timely application of the

elements of combat power. Improved organic and joint sensor-shooter linkages will reduce latency and expand the means and rapidity within which targets can be engaged. Higher levels of SA also strengthen survivability and force protection, allowing the force to preserve combat power and maintain freedom of action. Extended range, redundant communications networks will expand the commander's reach and ensure continuous connectivity through multiple pathways. Further enhanced by advanced information processing, this integrated knowledge network will enable the higher order battlefield visualization needed for higher level commanders and staffs to more effectively and reliably anticipate the future, forestall enemy responses, and set conditions for future operations, optimizing all the elements of available combat power.

(1) *Information Operations*. In future conflicts, the theater army will be the locus for the integration of Army information operations within the joint, theater IO framework. Organizationally, actions to gain and maintain IS may best be organized through a functional theater command that can help synchronize ISR and information operations to better support campaign plan requirements. Information operations at both operational and higher tactical levels are key to situational understanding during all phases of a conflict and must be fully integrated with maneuver and fires. In addition, the corps and division will conduct counter-ISR operations throughout the conflict to hinder the enemy's ability to identify U.S. force patterns, plans, or intent. IO will further encompass military deception, psychological operations, and electronic warfare as integrated, constituent elements.

(2) *Information Assurance*. Future adversaries will recognize the importance of information and knowledge to Army (and joint) formations and actively seek to employ capabilities and methods to destroy capability to achieve IS at all levels. Degradation will undoubtedly occur. Army design, system architectures, and force tailoring must deliberately account for this threat through the combination of redundant and multi-layered C4ISR systems that do not present a single point of failure within the horizontally and vertically integrated network. "Self-healing" qualities that automatically adjust the network, re-route information flows, and execute immediate action measures to counter the enemy's actions will be required to ensure that degradation remains short-term and reversible. Defenses against computer-network attack, deception, electronic intrusion or monitoring, and electro-magnetic pulse must also be embedded within networks. Together, these measures and others must ensure that C4ISR degradation, when it occurs, can be immediately detected, managed, constrained well above the level of network collapse, and quickly reversed.

(3) *Information Management*. Finally, while it is true that information is good, knowledge is better, and understanding is best. Coping with the huge volume of information from civilian, IA, joint, combined, and organic elements that will concentrate in corps and division command centers may well prove to be the most significant information challenge.[21] Exploiting this information and maintaining IS will demand that corps and division organic bases have the inherent capability to precisely and automatically collect, process, store, display, and disseminate information in the form most appropriate to the user. Highly advanced information

[21] In addition to the enablers described in this paragraph, the future force will need to develop the means to control the volume of information introduced into the decision-making process to that level most optimal for effective C2. That level will vary over time and in concert with the nature and intensity of ongoing operations.

processing, employing automated filters, comparative analysis, and embedded modeling and simulation (M&S) capability, distributed over multiple, redundant communications pathways will be the means by which the corps and division quickly turn information into knowledge, create and maintain SU, and share a COP across the command (including coalition forces, as appropriate).

5-3. Strike.[22]

a. The corps will be the focal point for the continuous integration of networked fires in the land domain for future operations. Capabilities for fires at this level must extend seamlessly from tactical to operational distances with no gaps in coverage or loss of timeliness. To enhance its organizational and operational effectiveness, the corps and division must have a rapidly adaptable fires structure that is easily tailored for a wide range of requirements. The fundamental principles that will characterize this structure include the following:

- Networked fires: fully integrated joint fire control networks, characterized by centralized planning, with decentralized execution by highly dispersed, modular fires organizations.

- Routine integration of joint and MN fires in support of corps to battalion-level operations.

- Capability to mass fires without having to mass the units themselves. Advanced fire direction, extended ranges, and position locating capabilities will permit future firing systems to be highly dispersed, including the effective conduct of fire missions by single platforms, without forfeiting the ability of the force to mass fires and provide mutual support between echelons.

- Continuing relevance of both precision and high volume area fires.

- Continuous all-weather and all-terrain fires, enabled by pervasive, redundant target acquisition and ISR means.

- Implementation of an effects-based approach at operational level vice a pure "targeting" approach. The continued development of precision munitions and improved non-lethal capabilities, coupled with advances in range, communications, ISR, and routine employment of non-organic and joint service assets, are collectively leading to an orientation on effects achieved rather than the systems that deliver fires. Deliberate integration of lethal and non-lethal capabilities to meet the commander’s explicit intent within a cohesive plan of operations will generate a synergy of results that may greatly exceed the application of the parts in isolation.

- Routine integration of fires with IO and related PA, civil military operations (CMO), and Defense Support to Public Diplomacy (DSPD) capabilities.

[22] Strike consists of fires routinely integrated with Information Operations (IO) and the related capabilities of Public Affairs (PA), CMO, and Defense Support to Public Diplomacy (DSPD). IO has been discussed briefly in the previous section; this section, in turn, focuses heavily on fires.

- Highly integrated, highly automated fire planning systems and processes that: ensure continuous fire support; optimize the allocation of internal and external resources; automatically deconflict the targeting process; simplify clearance of fires; ensure mutual support between echelons; sharply reduce latency; and achieve maximum effects for resources expended. Effective planning and coordination require near-real time connectivity to organic and joint sensors.

b. Corps and divisions will provide fire support in accordance with three broad mission sets: close support to engaged forces; counterstrike; and shaping fires.

(1) *Close Support.* Modular BCTs will possess organic capability for indirect, precision fires to support tactical standoff engagements and close combat assault. That capability will necessarily be limited with respect to delivery systems, ranges, and munitions, and will be based primarily on cannon and advanced mortar systems plus a limited number of organic, longer range, robotic rocket/missile systems. This capability will be sufficient for the maneuver brigade to do some, but not always all, of the tactical fires required to obtain conclusive results in tactical engagements.

(a) The division will routinely provide fire support to tactical engagements, incorporating a wide variety of Army and joint capabilities, to ensure freedom of action for maneuver elements, conserve consumption of tactical on-board capabilities for use during follow-on actions, and help to accelerate tactical decision.

(b) Higher echelons normally will provide or coordinate fires against targets that extend beyond BCT capabilities in terms of range, desired effects, or volume of fires required. [For example, corps or division assets would normally conduct counterstrike, emplace large obstacles, or provide obscuration fires, all of which represent capabilities that will not likely be fully resident at BCT level.]

(c) However, corps and division fire support will not be artificially restricted. All fire support units must be available and responsive to provide whatever level and form are required to ensure tactical decision.

(d) Overall, close support fires will enable subordinate maneuver forces, through higher levels of standoff destruction, to finish engagements more rapidly without prolonged reliance on decisive close combat assault, and to transition to subsequent engagements without an operational pause.

(2) *Counterstrike*. Destruction of enemy capabilities for accurate long-range fires that could disrupt and hinder maneuver is absolutely critical to ensure freedom of action and high tempo operations for friendly forces.

(a) The division will retain core responsibility for tactical counterstrike in support of engagements and battles, seeking to deliver preemptive, vice reactive, counterstrike in most cases. Based on sharp improvements in SU, integrated fire planning, and advanced engagement capabilities, preemptive counterstrike will be far more effective than reactive counterstrike with respect to improving survivability and enabling freedom of action. Reactive counterstrike may

be handled best at the brigade level, employing organic capabilities for target acquisition and immediate response.

(b) In addition to augmenting division counterstrike capabilities as needed, the theater army or corps will function as the primary land integrator of the broader counter-precision operations required to eliminate an enemy's theater-wide capability for precision engagement. Both missions will require corps-tailored capabilities to identify and effectively target enemy firing systems of all types, as well as the sensors, target acquisition capabilities, munitions inventories, and battle command systems that support enemy precision engagement.

(c) The joint connectivity and planning assets at both corps and division levels will enable routine incorporation of joint assets (sensors, target acquisition systems, and shooters) for this critical activity.

(3) *Shaping Fires*. The corps and division will also conduct simultaneous shaping fires to destroy key enemy capabilities, isolate portions of the battlefield, deny the enemy the ability to reinforce or re-synchronize, support preemptive seizure of key terrain, and otherwise shape the AOR for future operations. They will also conduct shaping fires in support of operational maneuver, tactical vertical maneuver, and mobile strike operations. The modularity of subordinate fires organizations will further permit their combination into larger (tailored) formations subordinate to the corps and division and facilitate smooth re-tailoring during the course of operations, in accordance with the factors of METT-TC. Fires units will provide a broad array of lethal and non-lethal precision munitions with ranges extending from line-of-sight to hundreds of kilometers. Fires/effects cells at corps and division HQ will include organic joint staff elements and appropriate network linkages to facilitate routine employment of joint fires and other effects in support of ground operations.

Mobile Strike

The division and corps will conduct mobile strike operations at tactical and operational distances to achieve both shaping and decisive effects. Like operational maneuver, mobile strike is a joint-enabled operation focused on attack by fire of key objectives and mobile, high value targets such as enemy C2 elements, air defense systems, mobile long-range SSMs and artillery, and reinforcing ground forces. Mobile strike operations combine all-source fires, attack aviation, and ISR systems to mass effects to deny the enemy freedom of maneuver, prevent reinforcement, support friendly maneuver, and destroy key enemy forces and capabilities. Manned rotary wing and recon/attack UASs will improve SA and function as sensors for mutually supporting long-range (Army and joint) fires. Man-in-the-loop Army aviation provides advantages throughout the JOA for engaging fleeting targets, focusing terminal effects, directing attack UASs, assessing results, and controlling effects after munitions are in flight. Mobile strike can also include the employment of ground maneuver forces when the effects desired include control of the target area or when destruction outcomes can only be assured by the action of ground forces. [Recent operations in Afghanistan suggest conditions under which this caveat would apply.] The corps will employ mobile strike both in an independent variant and in support of ongoing maneuver operations.

5-4. Move. Combat support brigades[23] mission-tailored at theater and corps levels will provide vital capabilities to support the Move function of the future force for campaign execution in the following areas.

a. *Enable Theater Access*. To enable theater access, combat support formations enhance and protect theater entry points, including multiple aerial and sea points of departure, intermediate staging and forward operating bases, joint support areas, and theater LOCs. As forces continue to build during the deployment process, maneuver support forces assess and expand theater infrastructure through means such as rapid airfield construction, support deployment momentum and onward movement, detect and eliminate hazards, and help provide the SU to the deploying force needed to maintain force flow and sustainment.

b. *Provide Assured Mobility*. Assured mobility ensures high levels of force agility and flexibility in a dynamic, rapidly changing operational environment. Maneuver enhancement elements help to improve immature mobility infrastructure, enhance mobility within urban and complex terrain, and reduce hazards and obstacles, including those that hinder air operations. Simultaneously, maneuver enhancement forces take action to prevent the adversary from impeding mobility and prevent him from adversely shaping the terrain to create advantages. As recent operational experience demonstrates, the enemy will employ a variety of constantly evolving means to hinder movements and deny routes and areas to friendly forces. When such actions are successful on more than an infrequent basis, U.S. operational commanders will be compelled to devote significant resources to their neutralization and, potentially, to reduce the pace or simultaneity of operations until the enemy's capabilities to deny movement are substantially eliminated.

c. *Deny Enemy Freedom of Action*. Maneuver enhancement elements further reduce the enemy's home court advantage by shaping the terrain to degrade his freedom of action through activities that fix, canalize, constrain, and in some cases block his movement so that he no longer enjoys the agility and mobility of a native force. Critical capabilities to execute this imperative include: smart munitions; dynamic, rapidly emplaced, self-healing minefields; trafficability reducers; multi-spectral obscurants; and a variety of non-lethal inhibitors to enemy movement.

5-5. Protect.

a. The force protection challenge facing the future Modular Force is complex, multi-dimensional, conventional, and unconventional in nature, extending from home station, throughout the deployment and sustainment lifeline, to objective areas within the JOA. Future commanders must plan and carry out force protection requirements as an integral part of every operation from strategic to tactical level, integrating both active and passive measures, including deception operations and asymmetric responses to enemy threats. For the future, Army provided TPCs offer the potential of full dimensional protection across all of the protection functional areas. This multi-functional command would provide a single integrating HQs for mission-tailored force capabilities distributed within the JOA.

[23] "Combat support" and "maneuver enhancement" are two terms, one old and one new, that are being used more or less interchangeably in current Army documents concerned with force modularization.

b. Traditionally, ground forces have sought force protection primarily through better-protected fighting platforms, adroit use of terrain, and appropriate dispersion. Future units will possess robust, inherent force protection and survivability capabilities integrated holistically to provide an effective, layered solution set to the complex threat environment. Force protection will depend more heavily on system-of-systems advances in C4ISR, leader development, active and passive survivability, lethality, and tactical mobility. These advances will further enhance protection through cooperative target acquisition and engagement by tactical air-ground, combined arms teams of mounted and dismounted teams, based on multiple subunits and platforms (both manned and robotic), connected through robust, jam-resistant communications, making it more difficult for the enemy to identify either sensors or shooters.

c. Like today, additional unit-based force protection capabilities will be mission tailored into larger formations to enhance overall effectiveness, including air/missile defense, military police, CBRNE defense, early warning, and other combat support functionality (for example, survivability engineering in the defense). Critical tasks executed by these forces include:

- *Enable Force Protection and Security*. Future adversaries will present a wide range of conventional and unconventional, symmetric and asymmetric threats to forces and freedom of action. Employing combat support capabilities and forces on key deployment axes, in the non-contiguous battlefield, or in direct support of decisive operations will shape the operating environment to the advantage of maneuver commanders and mitigate the effects of enemy threats.

- *Engage and Control Populations*. How the future force interacts with indigenous and refugee populations will have a significant bearing on mission success. The likelihood for uncontrolled populations to adversely affect operations from tactical to operational level is high within the future OE. The population groups that must be placed under control or influenced may include prisoners of war, criminal detainees, displaced persons, insurgents, local police, and other local officials. Maneuver enhancement forces will act in concert with local authorities, MN, and IA partners, and private/non-governmental organizations to mitigate potential non-combatant interference in operations and act, when and where appropriate, to meet the legitimate needs of the civilian populace.

- *Neutralize Hazards and Restore the Environment*. Many military tasks are connected to this imperative, ranging from military construction and repair, to clearing mines and other obstacles, to decontaminating forces, equipment, and infrastructure. Critical capabilities required to accomplish these tasks include: new, less dangerous decontaminants; medical countermeasures against chemical, biological, radiological, nuclear, and explosive (CBRNE) hazards; explosive ordnance disposal; improved detection and neutralization (including unmanned systems); and lightweight construction equipment.

d. Air and Missile Defense. The threat from ballistic and cruise missiles has grown steadily as sophisticated missile technology becomes available on a wider scale. The proliferation of weapons of mass destruction and the ballistic and cruise missiles that could deliver them pose a direct and immediate threat to the security of U.S. military forces and assets in overseas theaters of operation. A service-provided interdependent JTAMD “system of systems” must be capable

of providing very high confidence protection that extends beyond the JOA and includes regional coalition partners, their forces, and other agencies.

(1) Campaign execution requires joint force protection capabilities to be fully integrated and *interdependent* prior to deployment. The theater commander must deploy and employ a multi-layered integrated AMD capability that enables seamless protection of the joint force from points of embarkation to the tactical area of responsibility (AOR). Long-range engagement by the JTAMD system is particularly important to defeating or destroying enemy anti-access, area denial, and WMD capabilities that might limit force projection, forcible entry, and operational maneuver within the JOA throughout the course of the campaign. Joint air and missile defense operations also contribute to battlespace awareness and C2 functions, including airspace management.

(2) With respect to missile defense, the future JTAMD architecture will need to include: a boost defense system to intercept ascending ballistic missiles by airborne- and space-based high power laser weapons or land- and sea-based kinetic energy interceptors (KEI); a mid-course defense system to intercept the missiles at high altitude that avoided a boost-phase intercept; and a terminal defense segment that provides two tiers (upper- and lower-tiers) of protection by lower altitude terminal interceptors above the JOA. Similarly, cruise missiles detected by the surveillance sensors could be intercepted first by longer range sea- and land-based surface-to-air and air-to-air missiles and then by the shorter range terminal defense missiles.

(3) The Army land-based components of this architecture are critical to its effectiveness. Medium Extended Air Defense System Joint Operating Environment, Patriot Advanced Capability - Phase 3, and Theater High Altitude Area Defense (upper tier) capabilities, plus a future capability for KEI will enable the joint system overall to achieve desired levels of coverage, depth, and redundancy. In turn, failure to continue progress toward the achievement of a seamless capability to provide extended, high confidence protection throughout the JOA will introduce risk to the ability of the future Modular Force to conduct widely distributed operations and fully execute this operational maneuver concept.[24]

e. Knowledge. Finally, the protection advantages provided through superior knowledge cannot be overemphasized within the future joint operational environment (JOE). For example, improvement in blue force tracking will reduce air-ground and ground-ground fratricide while revisions to tactics, techniques, and procedures (TTP) for airspace C2 and advanced recognition technologies will constrain aerial fratricide between manned and unmanned aircraft within an increasingly crowded common airspace. The future Modular Force will routinely dedicate ISR resources to define its force protection challenge, moving beyond a force-on-force focus to one that seeks detailed understanding of the overall operating environment. Like IS, maintaining the required level of force protection will be a continuous struggle against an adaptive, capable adversary that, when thwarted in one approach, devises new plans and threats.

f. Several new features of future operations present significant force protection challenges that will require further in-depth investigation and analysis to resolve. Among these are:

[24] With respect to joint enablers, the development of space-based and airborne lasers also represent especially valuable protection capabilities for future land operations.

- Information assurance to protect force battle command and the joint network of networks on which operational effectiveness depends.

- The threats presented to the discontinuous lines of communications that will often characterize future operations; the "rear area" kinds of concerns that will exist within the non-contiguous operational framework.

- Prolific use of mines that demand improved capabilities for mine detection, identification, countermine, and stand-off neutralization; and the multi-dimensional threats that will exist to vertical maneuver, during both flight and load/off-load phases.

- Force protection in urban and other restricted terrain will present a greater challenge than in more open ground.

g. Assuring force protection in the face of these challenges will require new technologies, as well as focused, limited-scope operations under corps and division direction to set and maintain appropriate force protection conditions.

5-6. Sustain.

a. The theater army will normally be the C2 echelon responsible for linking the strategic logistical base with in-theater sustainment of corps, divisions, and subordinate organizations.[25] As such, it must integrate seamlessly within the joint theater logistics structure and balance requirements to support the theater with orchestration of sustaining operations to support committed forces. Future theater support commands (TSC) play a critical role in this framework and further provide capability to function as a joint functional command when appropriate.

b. At the operational level, distribution-based sustainment operations (figure 5-1) must be continuous, but distributed through often shifting lines of communications and inherently capable to adapt rapidly to changing conditions within the operating environment. Like the operational paradigm described in this concept, the sustainment time/distance paradigm will also change significantly in response to a number of operational factors: force dispersion, high operational tempo, non-contiguous operations, and expanding operational radii. Sustainment commands within the future Modular Force must share the same quality of SU as that achieved by operational HQ, insuring that the logistical COP is fully harmonized and supportive of commander priorities to optimize the efficiency of sustaining operations. More than ever before, operational and sustainment planning must be closely integrated, with battle and logistics rhythms executed in close harmony.

c. Aerial sustainment will be required in greater degree to support the air-ground mobility and agility needed to meet joint force requirements. Advanced SSTOL and heavy lift vertical take-off and land (HLVTOL) aircraft will be particularly critical to sustaining operations distributed throughout the entire JOA. Current fixed wing air platforms are insufficient for this

[25] For smaller scale contingencies, the division may assume broader logistical and sustainment functions.

role because of their inherent limitations on employment via improved aerial ports of debarkation.

d. Enhanced SU, plus innovative techniques and tactics, will also enable the force to deal with the force protection challenges that will arise due to the unsecured spaces that must be transited to support forces in non-contiguous operations. The future Modular Force will also exploit new technologies to reduce sustainment demand, which will be absolutely critical to a reduced logistics footprint and more efficient operations in the JOA. New maintenance concepts based on improved reliability, diagnostics, and prognostics will further reduce demand for commodities and requirements for sustainment organizational structures. Even with these improvements, a more stringent management approach based on centralized logistics is also essential to avoid diffused effort and wasted materiel.

e. Tailorable logistic support commands of varying size and capabilities, similar to current area support groups and support commands, coupled with a tailorable (joint) theater support command, may provide an organizational solution to these challenges. Other enablers that will be required for effective operational sustainment include:

- Strategic base configured to support deployed forces with expeditionary support packages to tactical (unit of action) level.

- Reduced sustainment demands and stockages for all consumers across the entire force.

- Weight and cube reduction across all classes of supply and with respect to the systems and platforms that comprise the future Army.

- Simplified (common) packaging and materiel handling, with reduced requirements for inter-nodal or inter-modal re-packaging or handling

- Multifunctional, modular sustainment units.
- Forward area refueling points.

- Increasing levels of commonality and interoperability.

- More effective and efficient reliance on other-than-military support.

- Improvements in joint theater support operations.

- “Right-sizing” the sustainment footprint.

- CSS nodes within home station operations centers.

- Very high, continuously maintained levels of CSS SU through automated, joint-interoperable CSS battle command systems.

f. In summary, the operational concept of simultaneous, high-tempo, non-contiguous operations distributed widely throughout the JOA presents significant challenges to sustainability of the deployed force. Continuing progress in the revolution in military logistics is critical to achieve the CSS transformation needed to sustain the continuous, large-scale operations described in this concept and the Army capstone concept.

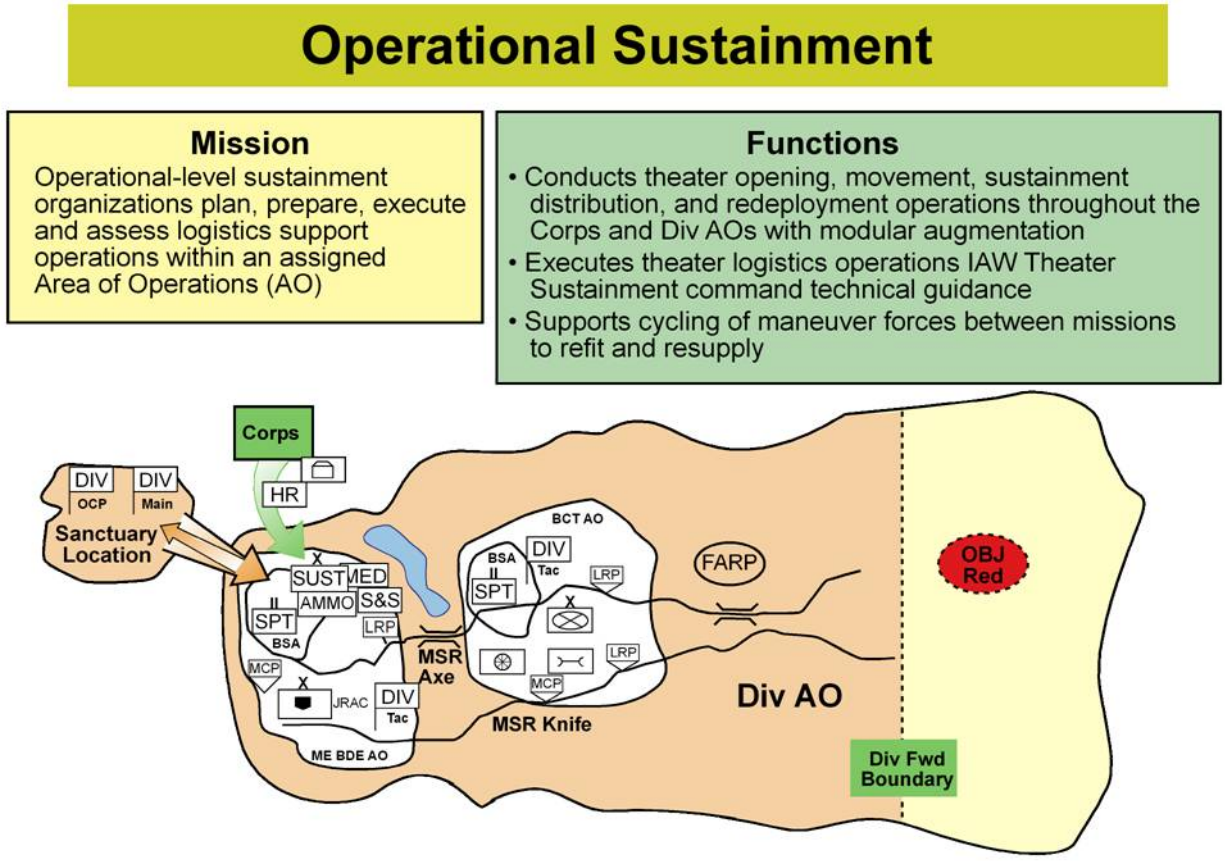


Figure 5-1. Operational Sustainment

Chapter 6
Required Capabilities

a. Because the scope of this concept covers such a broad array of military activity, a detailed listing of capabilities would not only be exhaustive, it would also be redundant with capabilities that are enumerated in detail within Army functional concepts. The capabilities cited below roughly correspond to the core set of capabilities cited within the Future Capstone Concept, TP 525-3-0, *The Army in Joint Operations,* which are directly relevant in their entirety to the Operational Maneuver concept.

b. However, a number of other critical capabilities that fall outside the core set in TP 525-3-0 are also cited. Readers will also note that many of the capabilities cited below are

joint enablers that must be developed by sister services and/or the larger joint community and reflect the higher level of joint integration encompassed within the idea of joint interdependence.

6-1. The Network—Command and See Capabilities. The capabilities required to establish the knowledge-based network described within this concept underpin all other capabilities and enable a significantly higher level of quality with respect to battle command of land operations. The items noted below are a short list of the many battle command, ISR, and communications requirements that will be cited in more detail in functional concepts.

- As noted in the capstone concept, the future Modular Force will rely on a knowledge-based C4ISR network of networks, vertically and horizontally integrated from strategic to tactical level and drawing information, updated in near real time, from a wide variety of automated and manual sources—on-board sensors, unmanned air and ground vehicles, traditional and new ISR means, space platforms, and an assortment of correlated databases.

- At heart of the network of networks, the Army must develop a single, integrated battle command system of systems, fully integrated within the joint network at the appropriate levels and capable of:

    - providing the collaborative information environment required to improve and accelerate the decision-action cycle.

    - distributing common operating pictures tailored to force, function, and level.

    - supporting higher levels of situational awareness.

- Extended range, redundant communications networks are required to expand the commander's reach with more capable forces and ensure continuous connectivity through multiple pathways to support the conduct of simultaneous, distributed operations. Space-based capabilities in this area are particularly important for austere theaters characterized by undeveloped communications infrastructure.

- Information Management. Highly advanced information processing, employing automated filters, decision support aids, comparative analysis, and embedded M&S capability are required to enable corps and divisions to quickly turn information into knowledge.

- Information Assurance. Army (and joint) network design and system architectures must deliberately account for enemy threats through the combination of redundant and multi-layered C4ISR systems that do not present a single point of failure within the horizontally and vertically integrated network. "Self-healing" qualities that automatically adjust the network, re-route information flows, and execute immediate action measures to counter the enemy's actions will be required to ensure that degradation remains short-term and reversible. Defenses against computer-network attack, deception, electronic intrusion or monitoring, and electro-magnetic pulse must also be embedded within networks.

- Naturally, joint-capable theater army, corps, division, and theater enabling commands HQs, as described in the text above, also comprises a future organizational capability necessary to execute the Operational Maneuver concept.

6-2. Advanced Lift—Move. Intratheater lift capabilities are also cited within the Move concept. Noteworthy capabilities required for operational maneuver include the following:

- Advanced intratheater airlift is required to support operational maneuver over extended ranges through the simultaneous employment of multiple unimproved pickup and landing areas by means of SSTOL and/or VTOL profiles. Aircraft will be required to move light to medium armor forces, with one or more fully combat capable vehicles or fighting platforms (including crews, fuel, and munitions) loaded internally in a single aircraft. Aircraft must also be capable of sustaining forces by air via discontinuous air lines of communications (ALOCs) within a non-contiguous and non-linear battlefield framework. Survivability against an array of air and ground-based threats will require a combination of on-board active and passive protection systems as well as on-board capability to identify alternate landing sites in flight.

- Improved means for securing air corridors used for operational maneuver by air must be developed through a system-of-systems approach that combines on-board active and passive protection systems with the employment of advanced capabilities for joint suppression of enemy air defenses (JSEAD), early warning, joint fires, reduced time on ground, ISR, deception, and escort aircraft. Particular attention is required to develop capabilities to neutralize the MANPADs threat which represents one of the more complex challenges to operational maneuver by air.

- Advanced intratheater sealift capable of simultaneously exploiting multiple unimproved ports is required for maneuver and/or sustainment of any component of the future force along the littoral.

- Improved capabilities are needed to enable maritime access and more pervasive use of the littoral, such as mine counter-measures, port characterization tools, modular causeways, and rapid port enhancement. Similar measures to expand airfield capabilities within the JOA for use during operational maneuver and sustainment by air is also desirable.

- Capability to maintain situational awareness and continuous C2 while forces are en route to objective areas via either air or sealift is also required. For longer-duration movement, an embedded capability within transport for planning updates and mission rehearsal is also required.

- Improved obstacle detection and counter-measures are required to support force mobility.

- Denial of enemy freedom of action. Critical capabilities to execute this imperative include: smart munitions; dynamic, rapidly emplaced, self-healing minefields; trafficability reducers; multi-spectral obscurants; and a variety of non-lethal inhibitors to enemy movement.

- Improved ISR and database capabilities are needed to more fully represent the physical environment in which the Army will operate, with particular emphasis on urban and other complex terrain.

6-3. Logistics Transformation—Sustain. Key required capabilities include:

- Establishment of joint theater logistics C2 structures or an Army provided theater sustainment command that can also function as a joint C2 structure.

- Substantive improvement in logistics situational awareness and C2 through the fielding of more capable logistics C2 systems and automated tools to support database and materiel management.

- Continuing improvement in capabilities that enable in-transit visibility.

- Advanced intratheater and tactical lift capabilities to support distribution and backhaul via discontinuous LOCs.

- Continuing improvements in palletization and mode transfer technologies to enable more rapid transport of expeditionary support packages.

- Reduction of sustainment demand and logistics infrastructure reduction through:

    - higher fuel efficiencies.

    - new power sources.

    - higher levels of reliability.

    - improvements in maintainability.

    - technical advances in diagnostics and prognostics to preempt mechanical breakdowns.

    - innovative solutions to water supply and generation.

    - smaller, more effective munitions.

    - cube and weight reduction in all classes of supply.

6-4. Strike. First and foremost, the future Modular Force requires the development of integrated joint fire control networks that provide more effective application of all source fires from theater to tactical levels. Other required capabilities:

- Improved organic and joint sensor-shooter linkages are needed to reduce latency and expand the means and rapidity with which targets can be engaged.

- Improved capabilities for fire direction, autonomous position location, and extended range fires are required to permit future firing systems to be highly dispersed, including the effective conduct of fire missions by single platforms, without forfeiting the ability of the force to mass fires and provide mutual support between echelons.

- Advanced manned Army aviation aircraft capable of operating at extended ranges and exercising C2 of recon/attack unmanned aerial systems (UAS), joint fires, other joint ISR are required for the conduct of mobile strike operations.

- Improved target acquisition and ISR capabilities are needed to enable preemptive counterstrike.

- Advanced munitions. Continuing progress in the development of both precision munitions and non-lethal capabilities are essential to provide expanded options to commanders operating in areas where civilian casualties and collateral damage present major challenges. In addition, the proliferation of precision munitions, when coupled with more precise targeting information, is expected to reduce the sustainment burden in that area, while optimizing the effects achieved. Other advanced munitions required include: loitering munitions for use against fleeting targets and targets of opportunity; tuneable munitions for which terminal effects can be altered once in flight; air to surface munitions for Unmanned Combat Air Vehicle; munitions that are effective against hardened (underground) targets.

- Non-lethal capabilities. Non-lethal technologies will provide the ability to generate wide area, suppressive effects against unlocatable targets and dispersed targets within cities. Acoustics, foams, optics, sleep- or nausea-inducing agents, millimeter wave, and radio frequency propagation all promise high utility in the future and deserve priority development.

- Directed Energy Weapons (DEW). Prospects for technological break-throughs in this area appear promising over the next decade. DEW capabilities embodied within ground, air, and space-based systems would have broad application across the ROMO for both Strike and Protect functions.

- IO Strike. Improved capabilities for EW, computer network attack, localized electronic magnetic pulse, and physical attack are required to improve capability to degrade or destroy the enemy's information, communications, and C2 capabilities.

6-5. Protection. Force protection will be enhanced by the following kinds of capabilities:

- An Army provided, joint-capable, multifunctional theater protection command.

- Air and missile defense. At the operational level, AMD will be centered around joint attack operations within a joint, layered active defense network. Future higher-level AMD engagement systems will extend well beyond current systems in terms of range, lethality, and probability of kill ratios, including the possibility in the longer term of directed energy weapons to defend against rockets, artillery, and mortar fires. Attack operations will also seek quantum improvement over current capability to acquire and destroy ground launchers before they can be

employed. The projected, broad proliferation of MANPADS capability also demands a holistic solution set to enable the frequent use of vertical maneuver anticipated within this concept.

- Develop effective active protection systems that respond to virtually all incoming munitions above the size of small arms.

- Develop light composite armors.

- Expanded use of robotic (unmanned) systems to perform selected high risk tasks.

- Improved counter-recon capabilities to deny the enemy's ability to collect on U.S. dispositions.

- Broad, expanded suite of preventive and reactive health measures.

- Mitigation of CBRNE hazards. Critical capabilities in this area include: new, less dangerous decontaminants; medical countermeasures; and improved detection and neutralization (including unmanned systems).

- Survivability engineering that requires less time, infrastructure, and materiel to emplace.

Chapter 7
Conclusion

Earlier, this concept asserted that the fundamental tenets of campaign planning and design in current joint and Army doctrine remained highly relevant to operations in the 2015-2024, but that it is possible to foresee substantial change to campaign execution. Many of those changes have been described above; they are summarized below as a means of concluding the presentation of the concept by highlighting what is new.

- More rapid build-up of landpower in the JOA, to enable faster transition to decisive operations, through the combined use of advanced and legacy lift platforms that close the gap between early entry and campaign forces and generate deployment momentum that translates seamlessly to operational momentum.

- Establishment of a battlefield framework not constrained by linearity, but supportive of distributed operations that can be both non-linear and non-contiguous as required by the conditions of each campaign.

- Higher levels of simultaneity with respect to both maneuver and precision engagement.

- Capability to execute maneuver and fires throughout the depth and breadth of the JOA through operational maneuver by land, air, and sea, complemented by the integrated employment of improved organic and joint long-range fires.

- These capabilities, in turn, enable direct attack of enemy decisive points and centers of gravity, in contrast to past practice that normally required formations to fight their way through the depth of the JOA to engage those critical elements of the enemy's operational integrity.

- Capability to maintain continuous operations and avoid the operational pauses that in the past introduced vulnerability and enabled the enemy to reconstitute and regroup.

- Improved capability through mission-tailoring of modular forces to adapt more rapidly and effectively to changing battle conditions and enemy actions.

- Deeper planning horizons and expanded operational reach that enable anticipatory operations and fuller control of the operational environment.

- Higher levels of SU that permit the force to operate non-linearly and apply combat power more effectively against critical enemy capabilities.

- Routine, deliberate employment of a broad variety of joint capabilities at lower levels in support of land operations, in contrast to primary reliance in the past on organic forces and capabilities.

- Accelerated, collaborative military decision-making and execution processes, with incremental changes to operations while in progress, through self-synchronization.

- More effective conduct of full spectrum operations, with forces capable of balancing and conducting rapid transitions between offensive, defensive, and stability operations.

Appendix A
References

Required Publications

The ARMY Vision 2010, Department of the Army, http://www.army.mil/2010/.

Joint Vision 2020, Director for Strategic Plans and Policy, J5; Strategy Division, June 2000.

Capstone Concept for Joint Operations, (CCJO), Version 2.0 Department of Defense, July 2000.

Seabasing Joint Integrating Concept, JCS Tank Copy, Version 1.0, 1 AUG 05.

TRADOC Pamphlet (TP) 525-3-0, The Army in Joint Operations: The Army's Capstone Concept 2015-2024, v 2.0 7 April 2005.

JP 1-02, Department of Defense Dictionary of Military and Associated Terms

Related Publications

FM 1, The Army, 14 June 2005.

FM 3-0, Operations, 14 June 2001.

Field Manual (FM) 4-0, Combat Service Support, 29 September 2003.

TRADOC Pamphlet 525-4-0, Maneuver Sustainment Operations for the Future Force, 31 January 2003.

Joint Deployment Employment Sustainment: Force Projection and Support Operations Draft Working Paper, Joint Integrating Concept, Version 0.41, 7 April 2004.

2003 United States Army Transformation Roadmap, The Department of Defense (DOD), http://www.army.mil/2003TransformationRoadmap/

Operational Sense and Respond Logistics: Co-Evolution of an Adaptive Enterprise Capability, Concept Document Office of Force Transformation, 17 November 03.

Transformation Planning Guidance (TPG), Department of Defense, April 2003.

Serving a Nation at War, United States Army White Paper.

2004 Army Transformation Roadmap, Department of the Army, 2004.

The Joint Operational Environment—Into the Future, United States Joint Forces Command, Draft, 16 August 2004.

Appendix B
Assumptions and Alternative Concepts

B-1. Assumptions. The following assumptions underpin the Operational Maneuver Concept.[26]

- Army force transformation campaign objectives will be achieved and will constitute a baseline with respect to basic force structure from 2015-2024.

- Army will remain a hybrid force of light, medium, heavy, and special purpose forces through the 2015-2024 period.

- Modularization of combat, combat support, and combat service support units will be completed, but will extend beyond current planning as new capabilities are fielded and operational experience informs organizational designs.

- Joint transformation will succeed in achieving its fundamental objectives and lead to the development of the suite of required joint capabilities and enablers highlighted in the main text and Chapter 5.

- Advances in C4ISR capabilities will enable higher levels of SU in operations.

- Adversaries will not employ large-scale use of WMD.

- U.S. global stationing policy will include a combination of CONUS, forward deployed, and forward presence forces.

- U.S. will maintain capability to achieve air and maritime superiority in any theater.

B-2. Change. Significant change to these assumptions would drive a similar level of change to the operational movement concept and, in fact, require the consideration of fundamentally different alternative concepts. The Capstone Concept presents three alternative futures in which the assumptions above are set aside:

- Global proliferation of irregular warfare as the fundamental security challenge of the future.

- Widespread use of weapons of mass destruction.

- Failure to achieve projected advances in U.S. military capabilities.

[26] Assumptions are not a prediction of the future operational environment. Instead, they represent the fundamental boundary conditions that define the context in which this concept has been developed. For example, while recognizing that future adversaries may well use WMD capabilities, the concept assumes no large-scale use of WMD in order to bound its relevance. If an opposite assumption were made, this concept would require significant alteration, as explicitly stated in para B-2 above.

B-3. Conceptual Implications. The detailed discussion, in the capstone concept, of the conceptual implications of these alternative futures, are directly relevant to the operational maneuver concept. Readers are referred to that text for review rather than repeat the text in this appendix.

Appendix C
DOTMLPF Implications.

Army concepts normally include a discussion of the implications of the concept for doctrine, organization, training, materiel, leader development, personnel, and facilities (DOTMLPF). Those implications should be explicit enough to generate some action for change within the DOTMLPF domains by responsible offices. The primary implications arising from the Operational Maneuver concept, vice an exhaustive list, are described below. However, many of the items cited below will require additional analysis before comprehensive actionable recommendations emerge.[27]

C-1. Doctrine.

a. Key doctrinal implications include the following:

- Consideration of the broader capability differentials that may exist in the future hybrid force and how those differences are operationally managed for greatest effectiveness.

- Connecting operational forces more closely into the concept development and experimentation process in order to more quickly validate emerging doctrinal principles.

- Similarly, connecting forces engaged in training to facilitate two-way interactions on doctrinal requirements and inputs for changes in doctrine.

- Accommodating the rapidly changing, highly complex elements of battle command.

- Addressing urban operations more thoroughly, moving beyond the current, tactical perspective, to one that incorporates strategic and operational concerns. A similar emphasis on operations in a contaminated environment would be prudent and timely, given the growing concerns regarding the uncontrolled proliferation of WMD capabilities.

- Fuller incorporation of joint capabilities and joint implications.

- Continued simplification of the joint/Army doctrine review and approval process and reconsideration of how authority to prescribe doctrine is distributed.

---

[27] The discussion of the DOTMLPF implications for the operational maneuver concept is drawn from a similar discussion within the Future Force capstone concept, with minor clarifications and revisions.

b. Army and joint doctrine must keep pace with the new operational methods validated and introduced into the force in the form of organizational changes and new capabilities. In the past, Army doctrine reinvented itself roughly on a six year cycle. However, the pace of change anticipated in the future is such that the Army's current doctrinal process must be revamped in many ways to keep pace. While much progress has been made with respect to the use of information technology to facilitate the rapid incorporation of doctrinal changes and operational lessons learned, the doctrinal review process remains too slow and the means of supporting field forces is not fully meeting needs. As the Army fully implements a lifetime training and education paradigm, the doctrinal process must adapt to support it. In addition, it must better accommodate the full spectrum of conflict and the rising emphasis on mission areas such as homeland security, nation-building, and irregular warfare.

C-2. Organization.

a. The organizational implications for the Army derived from this operational concept are profound, calling for pervasive organizational innovation. Among other desirable ends, the organizational concept must account for: scaleable C2; frequent mission tailoring; force responsiveness and agility; ability to change missions without exchanging forces; deliberate, routine employment of joint resources; and general adaptiveness to changing battlefield conditions. Major organizational change is forecasted in the following three areas

(1) *Modular, Brigade-based Force Structure.* First, the Army is already moving to a brigade-focused force construct as the principle foundation for conducting tactical operations. This change constitutes a deliberate shift from the long-standing division focus to the BCT as the primary basis for more effective mission tailoring and a means to resolve the readiness challenges that arose in the past when the Army task organized and deployed forces for contingency operations, often leaving behind division-based organizational remnants.

(2) Maneuver BCTs will reflect a combined arms organization to battalion level, reducing the need to cross attach, and strengthening their ability to fight with cohesive teams. Maneuver BCTs identified for prompt expeditionary response will be expected to operate initially under direct C2 of the Joint Force HQ in early entry operations.

(3) The brigade-based approach will improve strategic responsiveness, increase the number of maneuver formations available for future operations, and provide greater flexibility to the JFC across the spectrum of conflict. Increasing the number of maneuver BCTs requires reducing them in size, although they are expected to be equally effective in combat through the incorporation of other enablers and improved capability to employ joint resources routinely.

b. In parallel with the emphasis on maneuver brigades, combat service and combat support units are also being reorganized into battalion and brigade-sized units to facilitate mission tailoring and flexibility. Modularization of these forces will further support improved responsiveness, standardization of capabilities, ease of mission tailoring, and scalability to the scope and duration of the operation.

(1) *Theater Army, Corps, and Division Evolution*. Although the Army is retaining three headquarters above brigade level, considerable change is forecasted with respect to the purview, functions and joint capability embedded within these headquarters. At the operational level, the theater-army will most often provide operational level direction to Army forces within an AOR, and assume joint roles as the JFLCC or JTF when appropriate. The corps will also be an operational level HQs and will be the Army's premier HQs for contingency operations as a JTF or JFLCC. The division, in turn, will function as the principal C2 echelon for higher tactical operations, combining the functions and capabilities of Army of Excellence corps and division at that level. Theater armies, corps, and divisions will be capable of C2 of Army, joint, and MN forces and be organized, designed, and equipped to fulfill C2 functions as the Army Forces (ARFOR) Component, JFLCC, or the Joint Force. They will also be designed with the inherent capacity to interact effectively with MN forces as well as with IA, non-governmental organizations, and private volunteer organizations.

(2) *Force Pooling***.** The concept of force pooling is a component of the force tailoring process. Force pooling depends on the creation of pools of standing organizations—modular BCTs and support units—that can be combined into the temporarily established large formations described above. Simultaneously, it establishes an organizational paradigm that will enable the corps and division to rapidly tailor the precise capabilities needed for each operating environment. The concept presents significant challenges with respect to readiness, training, assignment of mission essential task list tasks, geographic distribution, force stabilization, differing levels of modernization within the pool, and the organizational trust and cohesion required for effective operations. While considerable analysis and experimentation are required to resolve the challenges of force pooling, some likely features of this organizational innovation may be projected.

- The Army force pools must be large enough to provide the flexibility needed for strategic responsiveness and small enough to distribute the management challenge of force pooling across the Army overall.

- Pooling must permit RC organizations to be committed in the same fashion as Army Component organizations.

- Habitual associations will be created within each force pool to establish a basis for more effective training, leader development, and readiness, without, however, constraining their operational employment.

- Training programs must be developed to permits those units considered most likely to fight together to train together, based on contingency planning.

- A force stabilization framework will be established to balance readiness across force pools with standing commitments to ongoing operations. Army Force Generation planning in 2005 represents the first steps in meeting this requirement.

(3) *Hybrid Force Implications*. The complexity of future operations requires a careful look at the continuing hybrid nature of the future Army to determine how its diverse elements are

best applied for maximum effectiveness within the operational concept. Several initial observations set the stage.

(a) As they have in the past, the Army's doctrinal focus and strong emphasis on training and leader development provide the common bond for forces of diverse capabilities to operate effectively together in a rapidly changing operating environment, with variable operational requirements.

(b) The Army's current emphasis on the rapid establishment of a single battle command system will and must provide a common knowledge and communications backbone for full interoperability between differently modernized forces, without the application of extensive work-arounds. Failure to achieve this central goal will inevitably compel a sharper differentiation of roles and missions on the battlefield, reducing the overall flexibility and versatility of the force and, potentially, requiring commanders to exchange forces when missions, enemy, terrain and weather, troops available, time available, and civilian considerations (METT-TC) conditions change.

(c) The development of medium weight forces, beginning with Stryker BCTs and continuing with FCS brigades, will address part of the gap that currently exists between heavy and light forces in terms of responsiveness, lethality, mobility, and staying power. These developing force elements, in fact, are expected to provide the highest degree of versatility across the spectrum of conflict.

(d) The development of the joint enablers highlighted in this concept, particularly the advanced lift capabilities, will close the gap in responsiveness between heavy, light, and medium forces and increase the overall operational agility of the force.

(e) The Army's adoption of a brigade-based force structure, with formations grouped in force pools for mission-tailoring under corps and division HQ, will provide an organizational means for devising the best combinations of mixed forces for each set of operational conditions.

(f) The most problematic area in employing a hybrid force in future operations is likely to occur in the area of sustainment where current platforms will continue to present heavy sustainment demands, while future formations may well evolve more rapidly to a different sustaining paradigm involving a reduced infrastructure and higher reliance on distribution rather than inventories. Thus, reconciling sustainment requirements between current and future organizations will require considerable effort in the future.

C-3 Training.

The Army training community has devoted significant effort to distill the main training implications to support evolution to the future Modular Force. The adoption of a lifetime training paradigm that effectively integrates institutional, unit, and individual training and education is the first step in that process and one that deliberately acknowledges the effect of the

dynamic nature of the current and future security environment. Major implications can be summarized in the following categories:

a. *Training Strategy*

- Implementation of a lifelong training paradigm for individual personnel.

- Continued refinement of the train-alert-deploy approach to training readiness.

- Linking training strategies to force stabilization and readiness within the evolving "managed readiness" (tiered) system based on force availability.

- Adaptation of training strategies for force pooling units.

- Accommodation of an increasingly broad array of training tasks emerging from expanding missions for Army forces in the future JOE, without a corresponding increase in time available for training.

- Implementation of new training supervisory relationships within which all brigades (combat and support) have a general officer (division, corps, theater enabling command, theater army, or combat training center commander) designated with responsibility for training and readiness oversight.

b. *Integrated Training Environment*

- Creation of a global, on-demand capability for individual training and education, more widely employing embedded training, simulations, and distributed learning.

- Networked institutional education system that provides training capabilities to individuals and units . . . "beyond the walls" institutional training.

- Prioritized access for units that are deployed or alerted to deploy.

- Expansion of capabilities for mission planning, rehearsal, and automated after action reviews (AARs) that reduces the burden of planning, execution, and assessment in training events.

- Home station training environments that approach the quality and standards of the combat training centers, using organic battle command systems and increasingly useful simulation capabilities.

- Within the combat training centers (CTC), expansion of capabilities for embedding joint/IA/MN tasks and considerations.

- Increasing integration of Army CTCs into the Joint National Training Capability.

- Shift in CTC focus from planning-centric to execution-centric events to optimize the use of training time by deploying forces and development of a deployable CTC capability to support deployed forces.

- Accommodation of an expanding number of BCTs within CTC cycles.

- Incorporation of sustainment training within CTCs as a rule, not as an exception.

c. *Training Support*

- Development of a more effective, automated unit training management tool.

- Continued evolution of constructive simulations away from attrition-based models and platform-to-platform engagements to include focus on the Military Decision-Making Process (MDMP), changing behaviors, and non-physical/lethal interactions in the operating environment.

- Development of training support functions within home station operations centers suitable for supporting deployed forces and individuals.

C-4 Materiel.

The execution of the Operational Maneuver concept is fully dependent on the development and incorporation of a large variety of advanced capabilities, which will be distilled, clarified, and validated during subordinate concept development and experimentation. A short list of those capabilities is provided in Chapter 6 in the main text.

C-5 Leader Development.[28]

The demands of future conflict will continue to place great responsibility on future Army leaders at all levels, requiring mature judgment even while they are still gaining experience. Future battle will also require leaders who can operate with mission command in an environment of rapidly changing operational conditions, confronting a wide variety of threats and variable risk. Future leaders must possess a "joint and expeditionary mindset", accept change as a routine condition, and acquire proficiency in the use of a wide range of new technologies, particularly within the information arena. Army leaders will also need joint/interagency/multinational (JIM) education and experience earlier in their careers than has been the norm in the past. On that note, the scope of joint professional military education (PME) must expand to encompass more

[28] The importance of the human dimension and the roles of leaders and soldiers in future conflict cannot be over-emphasized. In recognition of that fact, the Army Training and Doctrine Command initiated an effort in Sep 2006 to develop a Human Dimension Concept to establish a conceptual foundation for force improvements in this critical area.

officers from each of the Services, expand IA and MN participation, and address the entire spectrum of conflict. Similarly, recent operational experience and the future environment clearly point to the need to instill much higher levels of cultural expertise within future cadres. Other major implications include the following:

- The adoption of a lifetime education paradigm has already been cited in the section above on training. That system must include an effective feedback and assessment mechanism to ensure that the distributed elements within it provide maximum value and help identify leader developmental needs.

- The growing sophistication of operations, the rising technical complexity of many functions, and the multiplication of new skills will likely create a challenge in terms of officer specialization and increase the time required to prepare leaders.

- Networking institutional sites with each other and with CTCs will more robustly link academic and operational environments.

- Creation of knowledge centers configured to support professional education of leaders both at home stations and with deployed forces.

C-6 Personnel.

Significant personnel implications have been cited above in the discussion of training and leader development. It will also be important to implement force stabilization policies in order to generate a level of personnel stabilization that reduces personnel turbulence, better supports a lifetime training and education paradigm, and reduces the redundancy that occurs in some training cycles. The personnel management system must also adapt to force stabilization and undergo further analysis regarding its continuing relevance in its current form to ensure that it provides the career paths needed to provide fully prepared leaders for the future.

C-7 Facilities.

Like the capstone concept, this concept reinforces the need for continuing examination and potential establishment of home station operations centers in selected installations. The HSOC would support deployment, reduce footprint in theater, and provide 24-hour/day reach-back capability for information and analytical support to deployed forces.

Appendix D
Operations in Special Environments

Two special environments present notable challenges to the execution of this operational concept: *urban operations* and *operations in contaminated terrain*.

D-1. Operations in Urban Terrain.

a. Operational-level wargaming suggests that, in response to superior U.S. conventional capabilities, future adversaries will avoid maneuver and direct confrontation in favor of urban-based defenses. Large urban complexes present a unique challenge. From an operational

standpoint, the longer their clearing can safely be deferred the better. Even in the best of circumstances, clearing them will be difficult and time-consuming, and the likelihood of collateral civil damage makes the process politically sensitive. At the same time, cities are vital national resources and their prompt liberation or seizure can easily become a political imperative. Moreover, to the extent such areas provide sanctuary for enemy combat forces, precision strike capability, and C2 systems, clearing them may become an operational as well as political necessity.

b. Shelter provided by urban terrain will minimize enemy vulnerability to U.S. precision engagement, potentially draw out the conflict temporally, and expose U.S. forces to higher casualties. Simultaneously, effective urban defenses will reduce U.S. advantages in speed, mobility, and SU, placing a higher premium on dismounted maneuver, direct fires, and decentralized, but tightly integrated, tactical operations. The urban setting also gives the adversary an opportunity, via global news, to directly affect U.S. will on themes such as collateral damage, civilian losses, and the costs of protracted conflict. Preparing to meet these challenges effectively in future operations will require concerted, synchronized efforts across the DOTMLPF domains. Failing to meet them, in turn, could well lead to either operational or strategic failure in future conflict.

c. At the operational level, commanders will likely have several broad methods of dealing with this central challenge, each dependent on the specific operational and political conditions of the conflict:

- U.S. forces could exploit superior mobility to preempt or deny enemy occupation of population centers.

- If neither the city itself nor the enemy force is particularly valuable, the city can be bypassed.

- U.S. forces could choose to contain but not destroy the enemy forces within the city, judging that patience combined with success elsewhere on the battlefield might lead the enemy to capitulate. Where popular support of the defenders is low, instigating the population to rebel from inside may be a desirable course of action for this option and the previous one.

- Commanders could employ stand-off strike to reduce enemy forces, although the inevitable collateral damage and loss of civilian life will often be unacceptable.

- Finally, U.S. or coalition forces could seize the city, a decision that may have a high cost in time, property, and lives against a resolute, well-prepared enemy.

d. When seizure of urban areas is required, the central operational challenge will be to prevent it from distorting the overall pattern of the campaign and diverting resources from other operational priorities at the risk of furnishing the enemy an opportunity to regroup and reconstitute. Instead, whenever possible, urban clearing should be treated as an independent operational task, assigned to forces designated, prepared, and resourced specifically for the clearing mission under separate C2. With respect to resources, commanders will risk distortion

of the overall campaign plan if sufficient ground forces are not earmarked early for these manpower-intensive operations, with simultaneous regard for maintaining the force levels to prosecute other simultaneous LOCs.

e. Already difficult today, the urban problem will likely become even more difficult in the 2015-2024 timeframe because of the proliferation of advanced defensive capabilities. Investigations into possible technological solutions provide no easy answers, although the development of a broad suite of non-lethal technologies will provide the ability to generate wide area, suppressive effects against unlocatable and dispersed targets within cities. Acoustics, foams, optics, sleep- or nausea-inducing agents, millimeter wave, and radio frequency propagation all promise high utility in the future as a means of neutralizing enemy advantages and limiting collateral damage. In addition, employment of small UASs, unmanned ground vehicles, and other robotics will support higher levels of survivability and situational awareness. Structure-penetrating[29] and mobile sensors will be needed to see through, under, and around urban structures. Small-yield, maneuverable precision munitions will provide focused effects and reduce collateral damage, while urban-tailored communications networks and highly maneuverable air and ground assault vehicles will be required to deal with urban clutter and restricted pathways.

f. Clearly, urban operations represent an area that will benefit from experimentation, imagination, and creativity that moves beyond narrow technological solutions. The Army must explore an entirely new paradigm for urban warfare to enable it to supersede the traditional, manpower-intensive, time-consuming operational framework that currently exists. To date, neither Army nor joint experimentation has provided an adequate foundation to develop such a paradigm.

D-2. Operations in Contaminated Terrain.

a. Wargaming and experimentation support the contention that the capability to employ WMD will continue to proliferate globally, while the threshold for the use of such capabilities will fall. The result is an environment in which both state and non-state adversaries may choose to employ WMD capabilities to deter/deny U.S. intervention, negate U.S. military advantages, restrict U.S. freedom of maneuver through the creation of buffer zones, and impose a requirement on U.S. forces to operate within contaminated environments to achieve decisive results.

b. Limited use of WMD capabilities would induce manageable levels of operational adaptation, but would almost certainly lead to a more deliberate tempo of operations and require considerable commitment of time and resources to protection and elimination of the effects of contamination on forces and soldiers. Similar support to friendly local populations exposed to contamination would increase the burden of those efforts. The expectation of higher levels of casualties is a reasonable assumption that would affect planning estimates of force requirements.

[29] The need for structure-penetrating sensors has long been identified in analyses regarding urban operations, but little progress was achieved in their development until requirements in OIF illuminated the significance of this capability. Defense Advanced Research Projects Agency (DARPA) has recently announced the development of a hand-held device suitable for this purpose.

Options for maneuver would likely be restricted and operational pauses arising from diversion of force resources and sustainment challenges may be unavoidable in such conditions.

c. However, extensive use or even the credible threat of such use would impose significant change on campaign design and execution. In those instances in which large land operations occurred, commanders would likely consider:

- Conducting strategic and operational maneuver of U.S. land formations from sanctuaries outside the JOA directly into objective areas within the adversary's territory, avoiding transit of staging bases and points of debarkation vulnerable to attack by WMD.

- Closing immediately with enemy forces, raising the exposure level of the adversary's own forces to use of WMD, combined with complementary capabilities to engage with fires from long range. The complexity and difficulty of integrating these two engagement options is obvious and not easily resolved.[30]

- Employing highly mobile formations in distributed operations with decentralized forces, thereby presenting targeting challenges and reducing the risk of catastrophic loss.

- Reducing exposure to contaminants by rapid withdrawal of forces once objectives are achieved. Of course, if prolonged control of territory is essential to strategic objectives, this option is not viable.

d. Future formations would necessarily shift to battle command on the move as the standard C2 operational paradigm and require development of a suite of capabilities and TTP that would enable the force to operate deliberately within and through contaminated areas when necessary, effectively neutralizing the enemy's use of such areas as a buffer zone. It is also reasonable to expect a higher frequency of operations within urban areas, assuming a reluctance of the adversary to employ WMD in that environment (that assumption could prove false)

e. With respect to force design and DOTMLPF considerations, the higher durability of heavy armor forces in proximity to tactical nuclear explosions would reinforce their continuing utility for future operations. The future Modular Force would need to make a large shift in investment in both science and technology and acquisition to CBRNE defense capabilities. Fighting platforms would require over-pressure systems, electromagnetic pulse protection, and, possibly, organic self-decontamination capability. Both leaders and Soldiers will necessarily execute a rigorous regime of monitoring to identify and respond immediately to excessive exposure. Training programs would necessarily treat readiness for operations in contaminated areas as a routine condition. The psychological impact of operations in contaminated terrain on leaders and soldiers will also require a major effort to anticipate and prepare for its challenges.

---

[30] The success of this approach is also hostage to the enemy’s concern for his own troops and population.

Appendix E
Interagency and Multinational Considerations

Much has been written in a variety of seminal defense documents in the recent past regarding the need for better harmonization of military operations with IA and MN partners (see for example, the current National Security Strategy, draft NMS, and Defense Planning Guidance (DPG). Military commanders and senior civilian agency officials have for some time recognized persistent shortfalls in synchronizing JIM activities and have described the adverse consequences attributed to these shortfalls with respect to the effectiveness of military operations. This annex provides an overview of the challenges and proposes some potential means to achieve improvement at the level of the corps and division.

E-1. Interagency Interoperability.

a. At the heart of the requirement for improved interoperability with civilian agencies is the rising frequency of complex, smaller scale contingency operations, which require much greater involvement by a wider number of agencies during all phases of a contingency: crisis response, crisis management, and crisis resolution. Presidential Decision Directive 56 ("Managing Complex Contingency Operations") during the first Clinton administration was intended, in part, to improve IA planning and readiness. In 1997, then-Chairman of the Joint Chiefs of Staff General John Shalikashvili stated that the next big step for the Joint Training System (JTS) should be its extension to the IA. However, despite numerous studies and efforts, significant progress has not been achieved for a simple reason: instituting the changes required to improve JIM interoperability faces challenges in the four major areas described below.

(1) Diversity.

(a) "Interagency" is a term that has been in use within the Pentagon and national security circles for years. Until recently, however, it was generally understood to encompass a relatively small group of governmental organizations that fall under the general purview of the National Security Council: the Department of Defense, Joint Staff, Defense Intelligence Agency, Department of State, Arms Control and Disarmament Agency, CIA, and National Security Council itself. However, the term has lately been extended to include a bewildering diversity of governmental, private volunteer organizations and non-governmental organizations (PVO/NGO), and international organizations. Within the U.S. Government, IA deliberations now often include the departments of Justice, Energy, and Treasury, and their subsidiaries; the Drug Enforcement Agency; the National Reconnaissance Office; the Federal Emergency Management Agency; Border Patrol; and others, depending on the nature of the crisis or contingency. Outside the U.S. Government, an effective coordinated response to a security crisis must also include NGOs and PVOs such as the Red Cross, Cooperative for Assistance and Relief Everywhere (CARE), Project Hope, as well as international organizations such the United Nations (UN) and its derivatives (e.g., UN High Commissioner for Relief), NATO, and Organization of American States.

(b) The absence of a unifying authority to which all these agencies must submit virtually guarantees that the level of unity of effort achieved in military operations will be

sharply limited, particularly when compared to U.S. joint force practices. Each participant within the IA has its own institutional culture, presenting barriers to understanding and obstacles to effective cooperation. Mutual awareness of roles and missions is often rudimentary. Misconceptions may abound, sometimes leading to institutional hostility or lack of respect of the roles played by others. Joint and Army military planners may not even know, for example, how many other potentially important players are "in the game" until operations are already underway. NGOs and PVOs typically resist close association with governmental bodies, particularly the military, in order to preserve their image of neutral service and they may often compete for the same resources in certain kinds of contingencies (e.g., humanitarian/disaster relief operations).

b. Overall, incentives to improve mutual understanding between diverse organizations within the IA have been weak, even within the U.S. Government. Typically, agencies have been reluctant to commit the time and resources required to breach the gap. Moreover, agencies tend to guard their independence, prefer to operate within their own hierarchies, and submit only partially to outside authority. It is difficult to measure, at this point in time, to what degree the U.S. conduct of the global war on terrorism has substantively affected incentive for greater cooperation within the U.S. Government and with others.

(2) Doctrine.

(a) Given the diverse nature of the IA, the deficiencies in mutual awareness, and the fact that the current national security structure encompasses only a portion of the agencies involved in contingencies, it is not surprising that "there is no overarching IA doctrine that delineates or dictates the relationships and procedures governing all agencies, departments, and organizations in an IA operation." (Joint Pamphlet (JP) 3-08, *IA Cooperation During Joint Operations*, Vol. 1, 10/9/96, p. I-4.) As a result, IA operations typically are conducted on an ad-hoc basis with limited planning, preparation, or training. In many cases, joint forces and agencies do not determine how they will operate together until just before, or more often, after the operation has begun. In fact, there is no common language (agreed terms and definitions) by which to define basic relationships, procedures, and collective activity.

(b) Certainly, U.S. joint publications prescribe the sense of the U.S. Armed Forces regarding how such operations should be conducted, but the authority of that doctrine does not extend to nor circumscribe the activities of IA partners. However, developing IA doctrinal publications similar to joint and service publications simply may not be feasible even in the long term, although reliance on handbooks and memoranda of agreement may provide some basis for effective cooperation.

(3) Integrated Training.

(a) Naturally, the absence of shared doctrine as a basis for IA operations also serves as an obstacle to effective integrated training. If there is no doctrine to help define training objectives, then how can training be properly focused? But the challenge here is larger than that. DOD devotes an enormous budget to training in order to maintain readiness for actual operations, where lives and the nation's security are at stake. Thus, each service has developed

its own rigorous training program and the joint community has adopted the joint training system (JTS)—a complex, sophisticated, requirements-based system with many moving parts.

(b) In contrast, agencies are generally involved in their "actual operations" every day. Each non-DOD agency has its unique training perspective that seldom, if ever, will approach the significance of the JTS and Service training programs. The infrastructure for integrated IA training, beyond such national-level venues as the National Defense University and the Center for Strategic Leadership also does not exist. Thus, it is unlikely that agencies will be able or willing to match DOD in terms of resources and commitment, nor will they intuitively appreciate the value of becoming embedded within an extensive integrated training program. The JTS may well be the best model on which to base an IA training system, but given its complexity and resourcing requirements, its ready acceptance by other agencies will probably not be forthcoming except on the small scale that currently exists. Extending IA training below the level of the JTS, to service programs, is even more challenging.

(4) Interoperability Enablers.

(a) In addition to the absence of IA doctrine, JP 3-08 also notes that no oversight or directing organization exists "to ensure that the myriad agencies, departments, and organizations have the capability and tools to work together." (p. I-5). The first deficiency in this area concerns the planning realm. At the national level, the NSC-based IA working group (IWG) structure through the Deputies Committee provides a minimal structure for IA planning, but only with respect to a small number of agencies. The use of Executive Committees to supervise day-to-day management of U.S. participation in a SSC has served well to clarify responsibilities, strengthen accountability, and develop policy options. Even so, this approach remains largely ad-hoc and does not necessarily extend to the JTF/component level.

(b) Deficiencies in interoperability with respect to communications and information sharing are also serious. Stove-piped information systems, agency unique software and databases, institutional cultures, bureaucratically insulated procedures, or proprietary sensitivities understandably hinder horizontal information sharing. In many past contingencies, communications interoperability has been achieved only through equipment loans, emergency purchases, establishment of ad-hoc liaison cells, and other work-a-rounds. The same is true for the electronic connectivity needed to share information through computer based nets. Once work arounds are established, training must still be carried out to master new equipment and procedures. Thus, an entire network of extraordinary efforts will be required in the future to achieve effective IA interoperability with respect to materiel, procedures, protocols, formats, standards, computers, electronic connectivity, databases, simulations, and software applications.

E-2. Multinational Considerations.

a. Achieving higher levels of interoperability and cooperative activity with MN partners is as challenging—in some ways more challenging—than doing so with the IA.[31] Many of the same

[31] This generalization is particularly relevant to ad hoc coalitions. In contrast, multiple decades of allied integration and cooperation within NATO and selected additional allies (e.g., Australia) have resolved many interoperability and integration issues and present less severe challenges than those characterizing operations with the interagency.

obstacles described above apply equally to MN interoperability with respect to *diversity*, the absence of common *doctrine*, limited opportunities for *integrated training*, and the lack of adequate *interoperability enablers*, plus the added challenge of national prerogatives that hinder effective cooperation.

b. With respect to diversity, for example, U.S. joint forces are most often forced to conduct combined training on a bilateral, vice multilateral basis, a factor that increases training tempo for U.S. joint forces and requires more resources and time with respect to engaging a larger spectrum of potential partners. On the other hand, where broad multilateralism is possible, such as the Partnership for Peace program, the diversity of participants and the disparities in capabilities drive the training to an extremely low level; the benefits achieved are primarily political in nature.

c. Turning to interoperability gaps, the growing technological lead of U.S. forces over its potential partners threatens to expand the gap further, a fact about which even our most technologically advanced partners—our NATO allies—have expressed concern.

d. Overall, there appear to be clear upper limits to the degree to which these challenges to IA and MN interoperability can be overcome. Systemic, institutionalized solutions have largely not been achieved. Nevertheless, new ways and means to achieve progress must continue to be investigated. Some potential approaches are described below.

E-3. Solutions.

a. First, the core issue for U.S. forces in the future may NOT be how potential coalitions of IA and MN partners can be integrated better *within U.S. training and operational paradigms.* As suggested just above, incorporating such diverse organizations into U.S. military paradigms simply may not be achievable. Instead, the most successful approach may be to focus on how U.S. joint forces and components can be organized, trained, and equipped independently to incorporate IA and MN elements more effectively. In other words, given the obstacles and limits to achieving true IA and MN interoperability on an institutional basis, focusing U.S. efforts on unilateral efforts that improve the capability of U.S. forces to adapt effectively to the IA and MN environment may be the most effective means of achieving improvement. In addition, these efforts will necessarily begin at the level of joint commands and over time move to the operational level.

b. USJFCOM has developed two excellent examples of this approach:

- The command has developed a concept for establishing a Joint Interagency Control Group (JIACG) for at each combatant command. The JIACG is intended to provide a tailored, but integrated advisory body for the commander with special emphasis on improving comprehensive SA across all the elements of national power, with a corresponding increase in synergy between the activities of U.S. military forces and their IA partners. The JIACG concept was validated during the capstone Millennium Challenge 02 joint experiment; it has now moved forward in the joint requirements process for implementation and should be monitored carefully to determine its applicability to future U.S. corps. Certainly, in those contingencies where the

corps is charged as the JTF or JFLCC, this kind of body would provide significant additional capability to corps HQ across key areas. Unified Quest 05 further suggested that IA advisory elements at division levels are particularly valuable in irregular warfare.

- JFCOM is the proponent for the DOD-approved development of a Joint National Training Capability, in accordance with DPG FY 04-09, to provide additional capability to improve full spectrum joint training at the strategic, operational, and tactical levels of war, based on the coordinated mix of live, virtual, and constructive training enablers to ensure a seamless and realistic joint training environment worldwide. The establishment of the Joint National Training Center (JNTC) will also provide additional opportunities to improve IA training with U.S. joint forces worldwide.

c. Army development must monitor the establishment of the JIACG and JNTC and draw appropriate lessons for incorporation within theater army, corps, and division organizational design, training, and education programs. In addition, the Army must dedicate an independent effort across the force to further determine the impact of the growing challenges of IA and MN interoperability on ground operations and devise the best unilateral means, across the DOTMLPF domains, to improve capabilities in this area in parallel with simultaneous developments at joint level. In most cases, however, the joint community will lead in terms of DOTMLPF changes. Some of the more obvious developments could include:

- Development of multi-level security protocols within the collaborative information environment to permit automated parsing and filtering of information to IA and MN partners at differing security levels during training and operations.

- M&S programs, collaborative planning tools, and decision support tools that can incorporate IA and MN participation without elaborate work-a-rounds and extended train-up.

- Earlier and more comprehensive introduction of IA and MN considerations into PME in both joint and Army systems.

- Development of in-house IA and MN organizations within joint and Army experimentation structure (similar to the "world-class OPFOR").

- Establishment of memoranda of agreement with regional agencies for periodic or permanent staffing within corps and division HQ.

- Development and distribution of handbooks, vice doctrinal publications, that provide a basis for mutual understanding and initial operating procedures during contingency operations.

- Development of liaison structures at corps and division level capable of supporting either IA or MN collaboration.

Appendix F
Operational Visualization

F-1. This annex briefly compares how the major combat phase of Operation Iraqi Freedom (OIF) was carried out in 2003 with how it might be conducted by a future force enabled with the operational tenets and capabilities described in this concept.

F-2. Figure F-1 above depicts the general thrust of operations during the major combat operations of the campaign. The campaign conformed to current doctrine with some elements, most notably the distributed nature of operations in the north and west, pointing toward future concepts.

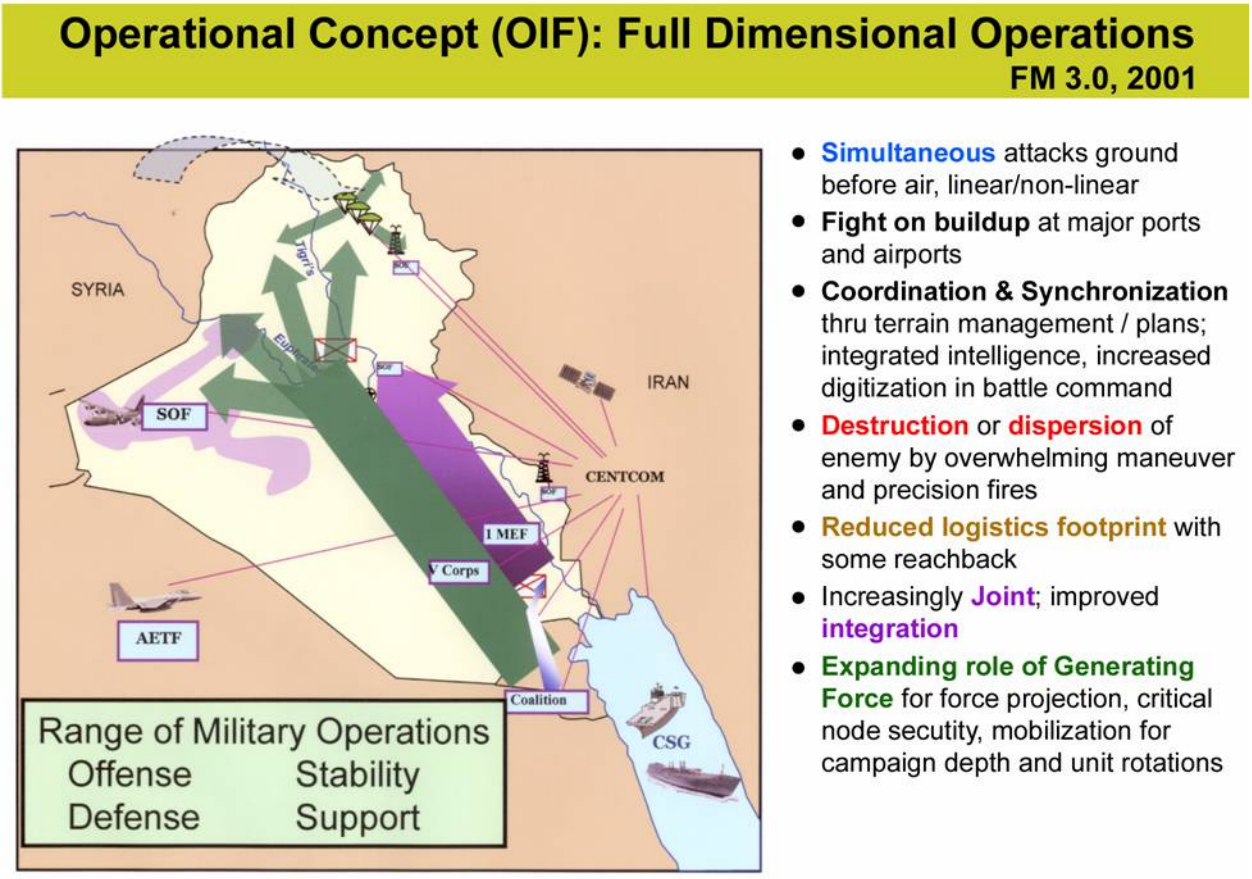


Figure F-1. OIF Operations

The main thrust involved simultaneous operations by V Corps and I Marine Expeditionary Force moving in parallel and largely (but not wholly) within a linear framework toward the political center of gravity—Baghdad. Operations began much earlier than in Desert Storm, but still required significant time to build combat power through force projection into major sea and airports. Integration of joint components and capabilities showed marked improvement over the Gulf War. Destruction of opposing military forces was the primary defeat mechanism, although the pace of the advance and simultaneous attack from the air of critical enemy targets and capabilities—C2, communications, air/missile defense—also generated disintegrative effects.

Although the airborne insertion in the north initially did not achieve the dislocating effects desired, those effects appeared when the dismounted force was augmented by mounted elements.

F-3. In contrast, Figure F-2 depicts how a campaign of this nature could be conducted in the future in accordance with this concept.

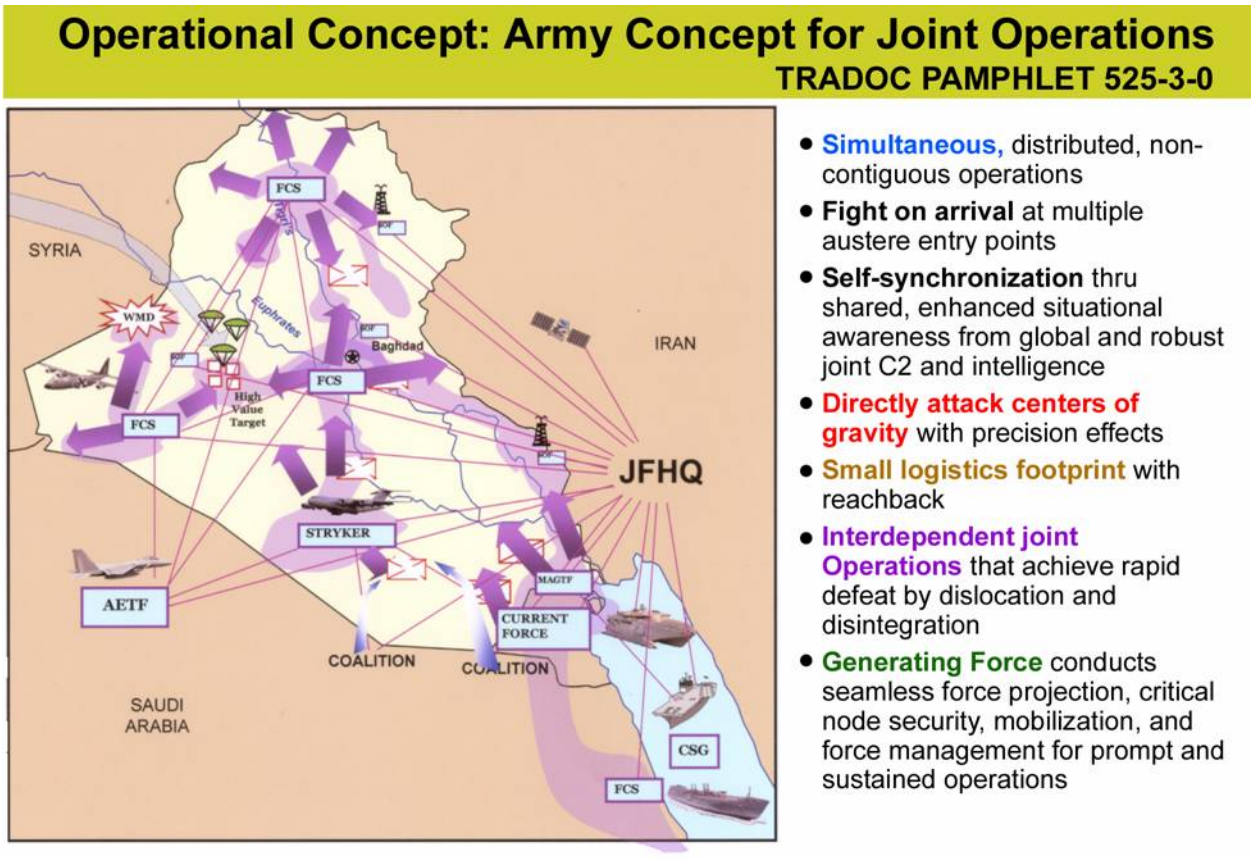


Figure F-2. Operational Maneuver

F-4. Here we see a similarly-sized, hybrid mix of U.S. ground forces as envisioned in current planning for the future Army. As the operational graphic illustrates, ground forces are introduced by air and sea into the most critical objective areas distributed throughout the JOA. These simultaneous, distributed operations present the enemy with a multiplicity of challenges to which it is difficult to respond effectively, while threatening the overall integrity of his defensive posture. The joint force carries out deliberate shaping operations to degrade and destroy Red capabilities for ISR, long-range fires, C2, and air defense, thereby expanding U.S. freedom of action and freedom of maneuver for U.S. forces while reducing that of the enemy. Forces ***deliberately bypass*** selected enemy strong points, choosing instead to leave them in place, but isolated and threatened by engagement by U.S. precision strike capabilities should those forces choose to expose themselves through maneuver. ***Operational maneuver by air*** to the rear and flanks of primary enemy dispositions based ***dislocate*** those forces and compel them to alter their dispositions in order to reset defenses. Deep operations against critical enemy objectives, coupled with the continuing degradation of enemy ISR and C2 capabilities contribute to a loss of

enemy capability to synchronize their own operations and lead rapidly toward the ***disintegration*** of defensive integrity at the strategic and operational levels.

F-5. U.S. ground commanders conduct operational maneuver by air with light and medium-weight (FCS, STRYKER) formations and focus heavier forces on ***complementary maneuver by ground*** and reduction of enemy strong points. In both instances, improved fires and combat support capabilities within the force facilitate maneuver and enable more rapid maneuver and seizure of objectives. Ground forces routinely employ joint enablers for lift, ISR, JSEAD, air/missile defense, and fires, including close air support. The use of SSTOL and HLVTOL extended the reach of ground formations for direct attack, enabling a ***higher degree of simultaneity***, and, by virtue of their ability to lift mounted forces, project strong (immediately employable) combined arms formations into a variety of landing areas in proximity to their objectives, presenting mobile, lethal threats which the enemy can by no means ignore. Yet, as the enemy conducts maneuver from defensive positions in response to U.S. operational maneuver, they also expose themselves to violent destruction by the array of advanced precision strike capabilities distributed within ground forces and other components of the joint force.

F-6. In this campaign, U.S. ground forces would rely much more heavily on ALOCs for sustainment, although significant distribution flows would continue to depend on ground LOCs. Recognizing the vulnerability of those ground LOCs, the enemy can be expected to threaten ground distribution with both fires and small scale maneuver, while avoiding doing so within a discernible pattern or abandoning their overall defensive posture. As a result, U.S. commanders may be compelled to re-mission tailor and dedicate sufficient ISR, security, and offensive capability to ground LOCs to ensure supply flows. Moreover, U.S. offensive operations in urban complexes will inevitably extend major operations in time because of the complexity and volume of resources required to secure those objectives. Although the graphic depicts an overwhelming application of simultaneous force, the creativity and resoluteness of the adversary will present constant challenges that require similar creativity and agility on the U.S. side.

Glossary of Acronyms

AO	area of operations
AOR	area of responsibility
AMD	air and missile defense
ALOC	air lines of communications
ARFOR	Army Forces
BCT	brigade combat teams
C2	command and control
C4ISR	command, control, communications, computers, intelligence, surveillance, and reconnaissance
C/JFLCC	Commander/Joint Force Land Component Commander
C/JTF	Commander/Joint Tactical Force
CBRNE	Chemical biological, radiological, nuclear and high-yield explosive
CCJO	Capstone Concept for Joint Operations

COA	course of action
CONUS	continental United States
COP	common operational picture
CORPS	an organizational unit size
CP	command post
CTC	combat training centers
DA	Department of the Army
DEW	directed energy weapons
DOD	Department of Defense
DOTMLPF	doctrine, organizations, training, materiel, leadership and education, personnel, and facilities
DPG	Defense Planning Guidance
DSPD	Defense Support to Public Diplomacy
EECP	early entry command posts
EW	electronic warfare
FCS	Future Combat Systems
FM	field manual
HLVTOL	heavy lift vertical take-off and landing
HQ	headquarters
HSOC	home station operations center
IO	information operations
IA	inter-agency
IS	information superiority
ISR	intelligence, surveillance, and reconnaissance
IWG	interagency working group
JFC	Joint Force Commander
JFLCC	Joint Force Land Component Command
JIACG	Joint Interagency Control Group/
JIACG	Joint Interagency Coordination Group
JIM	joint/interagency/multinational
JOA	joint operations area
JOE	Joint Operational Environment
JNTC	Joint National Training Capability
JP	joint publication
JSEAD	Joint Suppression of Enemy Air Defense
JTF	Joint Task Force
JTS	Joint Training System
KEI	kinetic energy interceptors
LO	lines of operations
LOC	line of communication
M&S	models and simulations
MANPADS	man-portable air defense systems
MCO	Major Combat Operations
MDMP	Military Decision-Making Process
METT-TC	Mission, Enemy, Terrain and weather, Troops available, Time available and Civil considerations

MN	multinational
NATO	North Atlantic Treaty Organization
NDS	National Defense Strategy
NGO	Non-Governmental Organizations
NMS	National Military Strategy
OCP	operational command posts
OEF	Operation Enduring Freedom
OIF	Operation Iraqi Freedom
PME	professional military education
PVO	Private Volunteer Organizations
RC	Reserve Component
ROMO	range of military operations
S&T	science and technology
SA	situational awareness
SSC	smaller scale contingency
SSTR	Stability, Security, Transition, and Reconstruction
SSTOL	super short take-off and landing
SU	situational understanding
TP	TRADOC pamphlet
TSC	Theater Sustainment Command
TPC	Theater Protection Command
TTP	Tactics, Techniques, and Procedures
TRADOC	U.S. Army Training and Doctrine Command
UAS	unmanned aerial systems
VTOL	vertical take-off and landing
WMD	weapons of mass destruction

FOR THE COMMANDER:

OFFICIAL

THOMAS F. METZ
Lieutenant General, U.S. Army
Deputy Commanding General/
Chief of Staff

RANDALL L. MACKEY
Colonel, GS
Chief Information Officer