



The United States Army  
Concept for

# Tactical Maneuver

2015 – 2024

Version 1.0

2 October 2006





## Foreword

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

In April 2005, this command 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.

This pamphlet addresses the tactical level of war within the family of Army concepts. As such, it examines future tactical operations conducted at division level and below and identifies the future capabilities needed to succeed at that level. The concept is full spectrum in scope, focusing primarily on offensive operations, but also addressing defensive and stability operations in its course. It validates the historical tenet that tactical operations are ultimately based on success in close combat—the capability to seize and control key terrain and to close with and destroy enemy forces—and constitutes the fundamental building blocks for operational success.

The body of knowledge that forms the foundation for the *Tactical Maneuver* concept is the result of years of wargaming and experimentation in joint, other service, and Army fora. It benefits from having been tested in those events against creative Red Team players. The concept also draws from the extensive analysis informing the development of the Future Combat Systems but extends beyond that developmental horizon into a deeper future. I strongly encourage the use of the *Tactical 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 influence combat developments, research and development, and future investment strategies.

As with all concepts, we do not presume the *Tactical Maneuver* concept to be wholly correct in its description of future operations. In continuous evolution, it will be refined and updated as new learning emerges from research, operational experience, and the results of continuing investigations into the nature of future conflict.



**William S. Wallace**  
**General, United States Army**  
**Commanding**



## Executive Summary

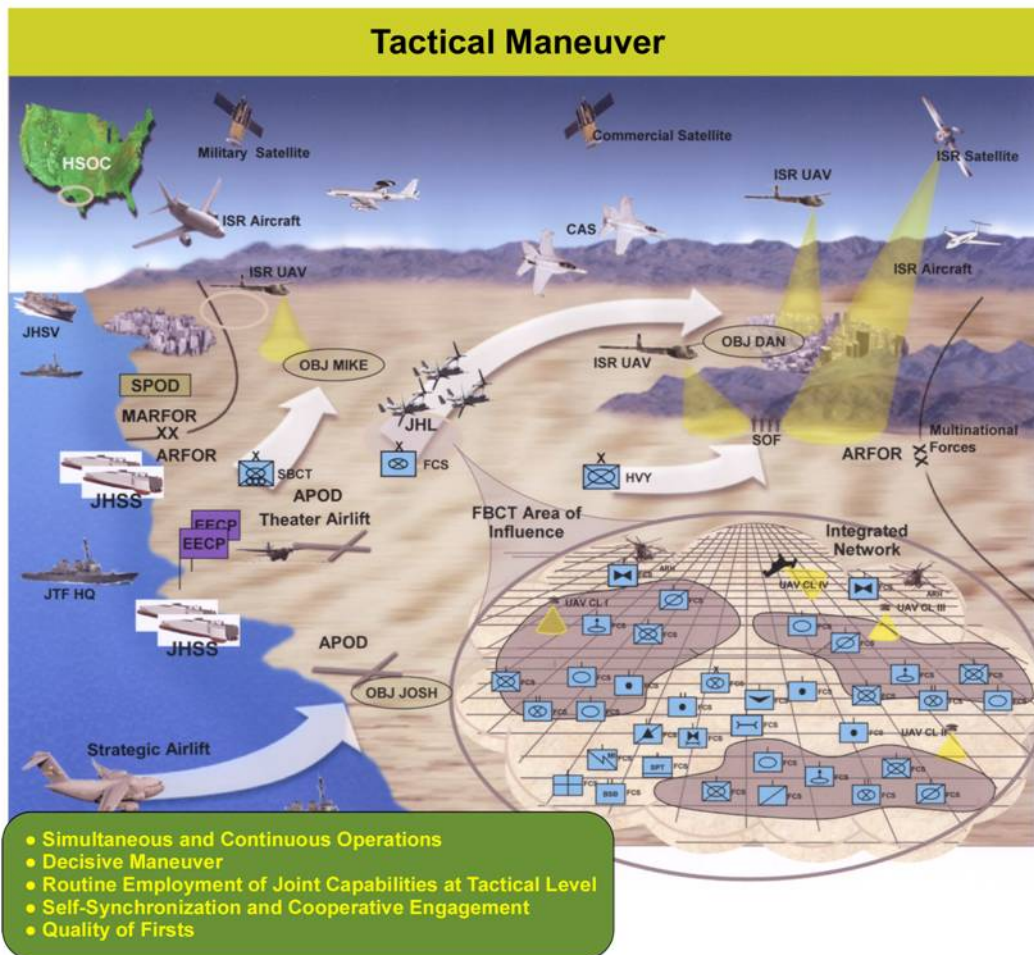
**The Tactical Maneuver operating concept is divided into seven chapters:**

- Chapter 1 introduces the concept and defines its purpose and scope.
- Chapter 2 describes the tactical operational environment and the fundamental elements of the Army capstone concept.
- 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 tactical operations.
- Chapter 6 describes the fundamental capabilities required to execute this concept.
- Chapter 7 summarizes those operational features of the concept that distinguish it from past practice.

**Operational Problem.** The future tactical operational environment will become increasingly complex into the 2015-2024 timeframe and pose a dynamic and volatile set of challenges for the future Modular Force. Determined adversaries will present combinations of threats that avoid easily identifiable patterns and take full advantage of physical, human, and informational complexities in the environment. Enemy goals will range from efforts to achieve regional ambitions very quickly (to preempt external intervention) to strategies that seek to protract conflict as a means of exhausting their opponents. Interested third parties either within or outside the theater of operations will vie for advantages, offer or withhold support from active combatants, and impose limitations on the freedom of action of friendly commanders. Simultaneously, technological advances will offer opportunities for adversaries to acquire new capabilities that either counter or threaten United States (U.S.) core capabilities, while also posing substantially new kinds of threats. Tactical units, even at the lowest levels, will continue to experience challenges as they interact closely with populations while conducting full spectrum operations.

**Solution Synopsis.** In these circumstances, the Army's future Modular Force must be able to conduct decisive tactical operations in complex environments to directly support the achievement of campaign objectives across the spectrum of conflict. As a maneuver element of the joint land component, tactical formations will exploit higher levels of situational understanding, networked command and control, and improved mobility to: defeat the enemy in close combat; maneuver throughout the depth and breadth of the area of operations; transition rapidly from one engagement to the next; and combine offensive, defensive, and stability operations in changing combinations to accomplish assigned missions in any conflict environment. Future forces will further integrate joint, multinational, interagency, and non-governmental organizations and capabilities at the tactical level.

**Key Ideas.** To meet these operational requirements, the future Modular Force will conduct *simultaneous and continuous operations*, creating and controlling a relentless tempo that overwhelms the enemy's ability to respond effectively. Improved situational understanding will enable forces to conduct *decisive maneuver* with greater precision by: developing the situation largely out of contact; maneuvering rapidly by ground and air to positions of advantage; engaging key enemy elements at the time and place of commander's choosing; and combining speed, simultaneity, surprise, fires, and shock to achieve decisive results. Tactical commanders will further exploit the *routine employment of an expanding set of joint capabilities* to strengthen the speed, power, and effectiveness of tactical operations. Network-enabled, commander-centric battle command within a collaborative information environment further enables commanders to adjust operations in progress when necessary through *self-synchronization* and to execute *cooperative engagement* between elements of engaged forces to improve effectiveness. Throughout the course of tactical actions, engagements, and battles, commanders and leaders further seek to exploit the Quality of Firsts, for example, to *see first, understand first, act first, finish decisively, and re-engage at will*. Improved abilities to integrate air/ground maneuver and fires, rapidly assume positions of advantage, engage the enemy in depth, set the terms of battle, and smoothly transition to the next fight will distinguish future division, brigades, and battalions from today's formations.



2 October 2006

Military Operations  
**THE ARMY TACTICAL MANEUVER CONCEPT**

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**Summary.** United States Army Training and Doctrine Command (TRADOC) Pamphlet (TP) 525-3-2 is the Army Tactical Maneuver Concept for the future Modular Force. In concert with the Army capstone concept (TP 525-3-0) and the Operational Maneuver Concept (TP 525-3-1), 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, specifically how those broad functional capabilities are applied at the tactical 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 joint framework. They have emerged as a result of 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 supporting concept capability plans and conduct of experimentation described within the Army Concept and Capabilities Development Plan. It also functions as a conceptual basis for developing required solutions sets related to the future Modular Force within 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 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 (ARCIC), U.S. Army TRADOC. Send comments and suggested improvements 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 (AIEP) Proposal).

**Availability.** This publication is only available on the TRADOC Homepage at <http://www.tradoc.army>.

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\*This pamphlet supersedes TRADOC Pamphlet 525-3-90, dated 1 November 2002.

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## Chapter 1. Introduction

### 1-1. Purpose.

a. This concept describes future Modular Force tactical operations. Tactical maneuver is the employment of combined arms forces through movement, in combination with fires and information, to achieve positional and informational advantage with respect to the adversary in order to accomplish the mission. The employment of future Modular Force tactical units will be the most credible statement of national will to deter aggression or fight to impose U.S. strategic will. At the tactical level of operations, tactical maneuver is the unique contribution of landpower to achieving decision. It is applicable to every domain of the operational environment and an integral component of joint synergy in full spectrum operations.

b. Although the content of this concept extends well beyond the literal definition of maneuver, the choice of title—*Tactical Maneuver*—is intentional, for several reasons. First, it explicitly points to maneuver as the preeminent warfighting function. It emphasizes the principle that all future commanders need to think in terms of the maneuver challenge that they will face across the spectrum of conflict. It is also intended to stretch the concept of maneuver beyond its current limits. If the central function of military operations is to present the right force, with the right capabilities, to the right place, at the right time, then it is useful to think of maneuver as the means by which that function is conceptualized and executed. Examples of this thought process include maneuvering resources for humanitarian relief and conducting *tactical maneuver* to dominate a situation within a stability operation.

c. Ultimately, tactical operations are based on success in close combat—the capability to seize and control key terrain and to close with and destroy enemy forces. Tactical actions are the fundamental building blocks for operational success and strategic victory in unified action.

### 1-2. Scope.

a. In April 2005, the Army published TRADOC Pamphlet 525-3-0, *The Army in Joint Operations*, the Army's capstone concept. The capstone concept and two subordinate operating concepts form a triad of concepts that provides a visualization of how the future Modular Force is envisioned to operate at all three levels of war. While the capstone concept serves as an overarching document, *Operational Maneuver* addresses the operational level and articulates 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 campaign objectives.

b. In turn, the *Tactical Maneuver* concept examines future tactical operations primarily conducted at division and below and identifies capabilities needed to succeed at that level. The concept is also full spectrum in scope, focusing primarily on offensive operations, but also addressing defensive and stability operations in its course. It further addresses the application of the six conceptual warfighting functions at the tactical level and identifies a comprehensive set of future capabilities required for its operationalization.

**1-3. References.** Appendix A identifies source documents and related publications.

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

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## **Chapter 2.** **The Joint Operational Environment**

### **2-1. General.**

a. The operational environment continues to evolve and poses complex challenges that are difficult to anticipate. However, some clear trends have emerged from recent studies and joint/service wargames. The anticipated future will be a volatile, uncertain, complex, ambiguous environment. The future joint force can expect to encounter a combination of threats in virtually any region of the world.

b. Globalization will result in increasing friction as cultures, religions, governments, and economies compete in a global setting for dwindling resources, presenting a wide range of problem sets occurring unpredictably in time and space. Within this context, this concept will focus on the complexity of the future tactical operational environment (see Figure 2-1), the adversary's likely actions and adaptation, and the challenges of full spectrum operations.

### **2-2. Complex Tactical Operational Environments.**

a. Given the pace and relatively unpredictable nature of change in the future security environment, complexity is probably the single-most useful term to describe the future tactical operational environment.<sup>1</sup> The idea of complexity generally encompasses two types of complex systems—structurally complex (integrated air defense systems or power grids) and interactively complex (economic and social leadership systems). While structurally complex systems may be understood well enough to destroy or disintegrate them, interactive systems will be more difficult to assess and affect. In the latter case, future tactical commanders will have to anticipate second and third-order consequences of military action, as they plan and conduct operations. The discussion below addresses complexity in three domains: physical, human, and informational.

b. *Physical Complexity—Terrain.* Physical operating environments feature a variety of terrain sets—from open rolling (flat desert and vegetated plains) to complex (jungle, dense forest, mountainous, and urban). As populations continue to concentrate globally in complex urban environments, ranging from modern skyscraper jungles to huge shantytowns, will be an increasingly predominant feature of the environment. Clutter—rubble, wires, overhead cables, towers, and other obstructions—will characterize these urban environments and complicate employment of military capabilities. Adversaries will use subways, sewers, and tunnels in cities for concealment, protection, and movement of forces and capabilities. Maneuver planning will have to ensure minimal collateral damage, avoid civilian casualties, while simultaneously

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<sup>1</sup> Although this section is focused on changes to the future operational environment, other enduring conditions of battle—danger, violence, physical exertion, uncertainty, and friction—will continue to contribute to "complexity."

mitigating risk to tactical forces. More often than not, these three goals will contradict rather than complement each other.

(1) Austere, often deteriorating, infrastructures such as ports, airfields, road networks, and communications networks in undeveloped areas will introduce additional challenges.



**Figure 2-1. Joint Operating Environment**

Potential adversaries will take action to leverage the existing infrastructure to their advantage, while denying access to facilities and areas where military forces normally operate.

(2) The adversary will also exploit adverse weather within his "home field" environment, whenever possible, to reposition forces, conduct attacks, and re-supply.

c. *Human Complexity* involves the coexistence of numerous population groups in the same physical space, often a city or an urbanized area. These mixed groups might include different ethno-linguistic groups, political factions, tribes, clans, religious sects, or ideological movements. In these conditions, identification of combatants and influencing attitudes and

behaviors are extraordinarily difficult. Applying force in such an environment imposes a high risk of counterproductive or unintended consequences (see Figure 2-2).

(1) As a result, acquiring a better understanding of culture and societal dynamics will be critical and require a higher level of effort. Understanding how adversaries think, their decision-making process, culture, values, relationship to the populace, and the rules by which they conduct operations are fundamental to operating successfully.

(2) Human factors may often constitute the adversary’s primary motivating force that gives him coherence, drives him into action, and sustains his will to fight. As much as the future Modular Force will seek to impose its will on the adversary, the enemy will often be as resolute and intent on countering any actions toward that goal. In this contest of wills, support of indigenous populations will be critical, but difficult to achieve, especially when dealing with an amoral and completely unconstrained enemy.

d. *Informational Complexity.* As recent operations have demonstrated, rapid advances in communications and information technology are producing multiple sources or transmission paths for communications, data, or information—including ubiquitous news media. The information-rich terrain will create opportunities as well as problems in tactical operations.



Figure 2-2. Joint Operational Environment—The Enemy

e. Neither the adversary nor the future Modular Force will be able to exercise the desired level of control of information flow. Events will be interpreted differently by different population groups and information of different types will be assigned varying values. Thus, efforts to influence both adversaries and local populations through information operations may achieve desired effects with some populations while alienating or confusing others. Finally, the persistent eye of global media organizations will often complicate or compromise operational security and present the threat of investing tactical actions with strategic consequences that would otherwise not occur.

### **2-3. Threats.**

#### a. Complex Tactics.

(1) To deny tactical success to the future Modular Force, adversaries will employ complex tactics involving dynamic combinations of heavy, medium, light, special operations, and unconventional forces. By varying the combinations and methods of employment, they will avoid presenting predictable patterns.

(2) The adversary will employ cover, concealment, dispersion, and deception to reinforce defenses, create opportunity for attack, conceal positions, and frustrate U.S. efforts to gather required information.

#### b. Tactical Methods.

(1) Faced with tactical overmatch in force-on-force actions, future adversaries will seek to avoid tactical engagements that will favor the future Modular Force and attempt to create conditions that provide temporary tactical advantage. In some cases, the enemy may establish strong defenses aimed at denying access by U.S. forces to theater entry points.<sup>2</sup> In a further effort to achieve tactical denial, the enemy will disperse within complex terrain, forcing the U.S. to give battle in conditions that partly negate future Modular Force advantages.

(2) Urban terrain further enables the enemy to reduce the effects of long-range precision fires and to mask and protect his own high value capabilities by locating them within inaccessible terrain, urban structures, hospitals, schools, and the like. He will deliberately mix with local populations to avoid identification, exploit civilians as "human shields", and facilitate close-in attacks and ambushes. Potential target sets will be fleeting; movement may be executed as a series of short mounted or dismounted dashes. Finally, the enemy may employ "hugging tactics" to reduce the effectiveness of friendly fires and increase the risk of civilian casualties.<sup>3</sup>

#### c. Enemy adaptability.

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<sup>2</sup> Gaining access to predictable entry points will become increasingly contested due to the proliferation of low cost, highly lethal weapons that can be employed in a decentralized fashion and are difficult to detect and engage.

<sup>3</sup> The recent conflict in Lebanon (Aug 06) between Israel and Hezbollah validates many of these suppositions. "Hugging tactics" involve enemy forces operating as close to U.S. forces as possible in order to complicate the targeting process and use of precision munitions against them.

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(1) The enemy will seek to adapt continuously to U.S. tactics and employ unexpected means and methods for which U.S. forces are not prepared. Decentralized action by local enemy commanders will permit them to quickly adjust to the tactics employed by future Modular Force units in each tactical area.

(2) Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF) demonstrate the enemy's innovation and resolve to counter tactics and techniques used against him—succeeding in a matter of days or weeks to devise solutions.

### d. How the enemy will fight.

(1) The U.S. must continue to be well prepared to face enemy forces that will employ significant conventional capabilities in armed conflict. These adversaries will invest to improve their capabilities and operational proficiency. Facing U.S. forces, these adversaries will adopt an increasingly sophisticated operational style, balancing offense and defense, with investment in the command, control, communications, computers, intelligence, surveillance, and reconnaissance (C4ISR) systems necessary to support complex operations. They will rely increasingly on decentralized maneuver—avoiding patterns and templates—coupled with the conduct of coordinated indirect fire strikes, employing advanced niche capabilities that may include long-range precision fires, wide-area munitions, redundant communications, improved target acquisition, and first-generation unmanned aerial systems (UAS).

(2) When assuming the defensive posture, the enemy will disperse his forces and occupy mutually supporting networked defensive positions and strong-points, many based within the sanctuary of urbanized areas and complex terrain. He will build redundant, resilient communications networks and employ deception widely. Through well-considered disposition of forces, especially of dismounted infantry, anti-armor, and man-portable air defense systems (MANPADS), he will further seek to deny use of the best air and ground avenues of approach.

(3) When strategic objectives are unattainable through employment of conventional forces, the enemy will likely resort to irregular warfare to deny the future Modular Force quick tactical decision, thereby prolonging the conflict in areas where he enjoys an advantage in local knowledge to frustrate U.S./coalition ability to achieve stability. In such circumstances, tactical success may not be as important to the enemy as avoiding defeat or destruction. Various methods from terrorism to opportunistic ambushes against military and civilian targets will threaten to erode the combat power of the future Modular Force and hinder the support of the indigenous population. However, when combined with conventional capabilities, the enemy will be able to pose even more complex problems for the future Modular Force.

## **2-4. Joint, Interagency, Multinational, Non-governmental Entities.**

a. In the recent past, the joint force has been successful in integrating joint assets at strategic and operational levels of operations. However, future operations will increasingly require routine integration of joint capabilities at the tactical level (described further in Chapter 4). Moreover, in complex conflicts involving ethnic, religious, or ideological hostilities, combat operations alone may not achieve strategic resolution. In such contests, victory may prove



elusive regardless of how effectively combat forces perform. Military operations will be essential to produce conditions permitting resolution, but, to ensure success, the U.S. must integrate all elements of national power—diplomatic, military, economic, and informational—to resolve the conflict.

b. Although many institutional, organizational, and hierarchical obstacles hinder integration, there is broad recognition that fundamental changes must be undertaken to better align U.S. interagency capabilities, planning procedures, and responsiveness; some needed steps are already underway. In like manner, future operations also require better cooperation with international, private, and non-governmental organizations (NGOs). Progress in these areas will substantively improve the effectiveness of future tactical operations and reduce the burden of military forces having to assume critical tasks in the absence of sufficient interagency presence in the area of operations.

## **2-5. Full Spectrum Operations.**

a. In the same way that U.S. Armed Forces will be engaged simultaneously in multiple points of the spectrum of conflict, tactical units will simultaneously conduct three fundamental types of operations—offense, defense, and stability—during the course of future campaigns and major operations. Full spectrum operations (see Figure 2-3) involve more than simultaneously executing all types of operations; commanders must also consider the capabilities that support current operations and how their use can affect future operations.<sup>4</sup>

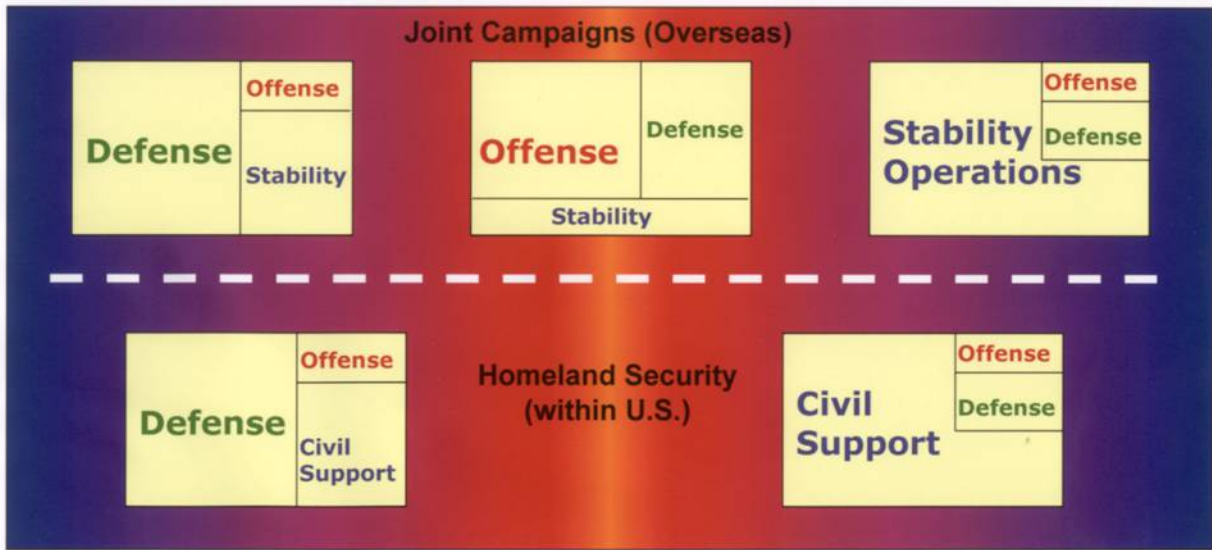
b. Although campaigns or major operations may be broadly characterized as offensive, defensive, or stability operations, future commanders will combine the three types of operations simultaneously at the tactical level, altering the internal balance as necessary to achieve desired outcomes in the most effective and efficient manner. These requirements pose difficult challenges for leaders and demand new ways of thinking about and planning for future conflict.

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<sup>4</sup> From FM 3-0 Content Summary, 27 January 2006, p. 4-1.

# Full Spectrum Operations

Army forces conduct simultaneous offensive, defensive, and stability operations as part of major operations and campaigns overseas. Army forces conduct civil support, offensive, and defensive operations in support of homeland security.



**Mission dictates what type of operation predominates**

**Figure 2-3. Full Spectrum Operations.**

**2-6. Capstone Concept Key Ideas.**

a. As described in *The Army in Joint Operations*, the future Modular Force will be a strategically responsive, campaign quality force, dominant across the range of military operations (ROMO) and fully integrated within the joint, interagency, and multinational (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.

b. The full spectrum quality of the future Modular Force will address the diverse threats and the volatile conditions expected to characterize the future operating environment through the adaptive combination of seven key operational ideas (see Figure 2-4):

(1) *Shaping and Entry Operations* shape regional security conditions, and—if forces are committed—shape the operational environment, help seize the initiative, and set conditions for decisive maneuver throughout the campaign. 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. Tactical maneuver affects the forms of shaping and entry operations undertaken by the land component and assures their success by gaining control of key areas or terrain features.



Figure 2-4. Key Operational Ideas.

(2) *Operational Maneuver from Strategic Distances* to a crisis theater will enable the deploying 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 future Modular Force 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. Ideally, the operational positioning of arriving maneuver forces will set the terms of tactical battle earlier and more favorably than in the past and will support continuation of maneuver toward the campaign's deep or final objectives.

(3) *Intratheater Operational Maneuver* by ground, sea, and air will extend the reach of the joint force commander, expand capability to exploit opportunities, and generate dislocating and disintegrating effects. Tactical maneuver realizes the potential of operational maneuver and creates the conditions that allow its continuation.

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

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- *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.

- *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.

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

(5) The future Modular Force also conducts *Concurrent and Subsequent Stability Operations*, the former to secure and perpetuate the results of decisive maneuver *during* the 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. For tactical commanders, the requirement to set or preserve conditions for effective stability operations will affect force mix and tailoring, the forms of maneuver they adopt, the areas in which they choose to operate, and the forms of support they use. The necessity of dominating or avoiding sensitive areas to support stability operations may affect the way a force maneuvers in any given operation.

(6) *Distributed Support and Sustainment* will maintain freedom of action and provide continuous sustainment of committed forces in all phases of operations, throughout the operational environment, with the smallest feasible deployed logistical footprint. At the tactical level, the principle challenge is synchronized distribution of unit-configured sustainment into forward operating areas to maintain tactical momentum.

(7) Throughout the future campaign, *Network-Enabled Battle Command* will facilitate the level of situational understanding (SU) needed for mission command and effective application of joint and Army combat capabilities in any form of operation. At the tactical level, these capabilities are vital to synchronization, high tempo, and continuous operations.

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## Chapter 3.

### The Central Idea: Tactical Maneuver

#### 3-1. Operational Problem.

a. The future tactical operational environment will become increasingly complex into the 2015-2024 timeframe and pose a dynamic and volatile set of challenges for the future Modular Force. Determined adversaries will present combinations of threats that avoid easily identifiable patterns and take full advantage of physical, human, and informational complexities in the environment.

b. Enemy goals will range from efforts to achieve regional ambitions very quickly (to preempt external intervention) to strategies that seek to protract conflict as a means of exhausting their opponents. Interested third parties either within or outside the theater of operations will vie for advantages, offer or withhold support from active combatants, and impose limitations on the freedom of action of friendly commanders.

c. Simultaneously, technological advances will offer opportunities for adversaries to acquire new capabilities that either counter or threaten U.S. core capabilities, while also posing substantially new kinds of threats.

#### 3-2. Solution Synopsis.

a. In these circumstances, the Army's future Modular Force must be able to conduct decisive tactical operations in complex environments to directly support the achievement of campaign objectives across the spectrum of conflict. As a maneuver element of the joint land component, tactical formations will exploit higher levels of SU, networked command and control (C2), and improved mobility to: defeat the enemy in close combat; maneuver throughout the depth and breadth of the area of operations; transition rapidly from one engagement to the next; and combine offensive, defensive, and stability operations in changing combinations to accomplish assigned missions in any conflict environment.

b. Future forces will further integrate joint, MN, interagency, and NGOs capabilities at the tactical level (see Figure 3-1).

#### 3-3. Key Ideas.

a. To meet these operational requirements, the future Modular Force will conduct *simultaneous and continuous operations*, creating and controlling a relentless tempo that overwhelms the enemy's ability to respond effectively.

b. Improved SU will enable forces to conduct *decisive maneuver* with greater precision by: developing the situation largely out of contact; maneuvering rapidly by ground and air to positions of advantage; engaging key enemy elements at the time and place of commander's choosing; and combining speed, simultaneity, surprise, fires, and shock to achieve decisive results.

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c. Tactical commanders will further exploit the *routine employment of an expanding set of joint capabilities* to strengthen the speed, power, and effectiveness of tactical operations. Network-enabled, commander-centric battle command within a collaborative information environment further enables commanders to adjust operations in progress when necessary through *self-synchronization* and to execute *cooperative engagement* between elements of engaged forces to improve effectiveness.

d. Throughout the course of tactical actions, engagements, and battles, commanders and leaders further seek to exploit the Quality of Firsts, for example, to *see first, understand first, act first, finish decisively, and re-engage at will*. Improved abilities to integrate air/ground maneuver and fires, rapidly assume positions of advantage, engage the enemy in depth, set the terms of battle, and smoothly transition to the next fight will distinguish future division, brigades, and battalions from today's formations.

e. When stability operations are the dominant form of operations, the future Modular Force will control assigned areas of operations, providing security for the population or in support of host nation forces and/or enforcing international mandates. Combat capabilities will be employed to: deter aggression; defend key areas; and destroy and defeat enemy force remnants or insurgents.

f. Tactical commands from division to battalion will further employ mission-tailored combat support (CS) and combat service support (CSS) capabilities, in coordination with U.S. agencies, host nation organizations, and other non-U.S. organizations, to establish essential services, promote governance, support economic stability, and train and interoperate with host nation military and security forces. Force combinations will often comprise heavier than normal CS and CSS components (compared to major combat operation (MCO)) to accomplish these kinds of functions.

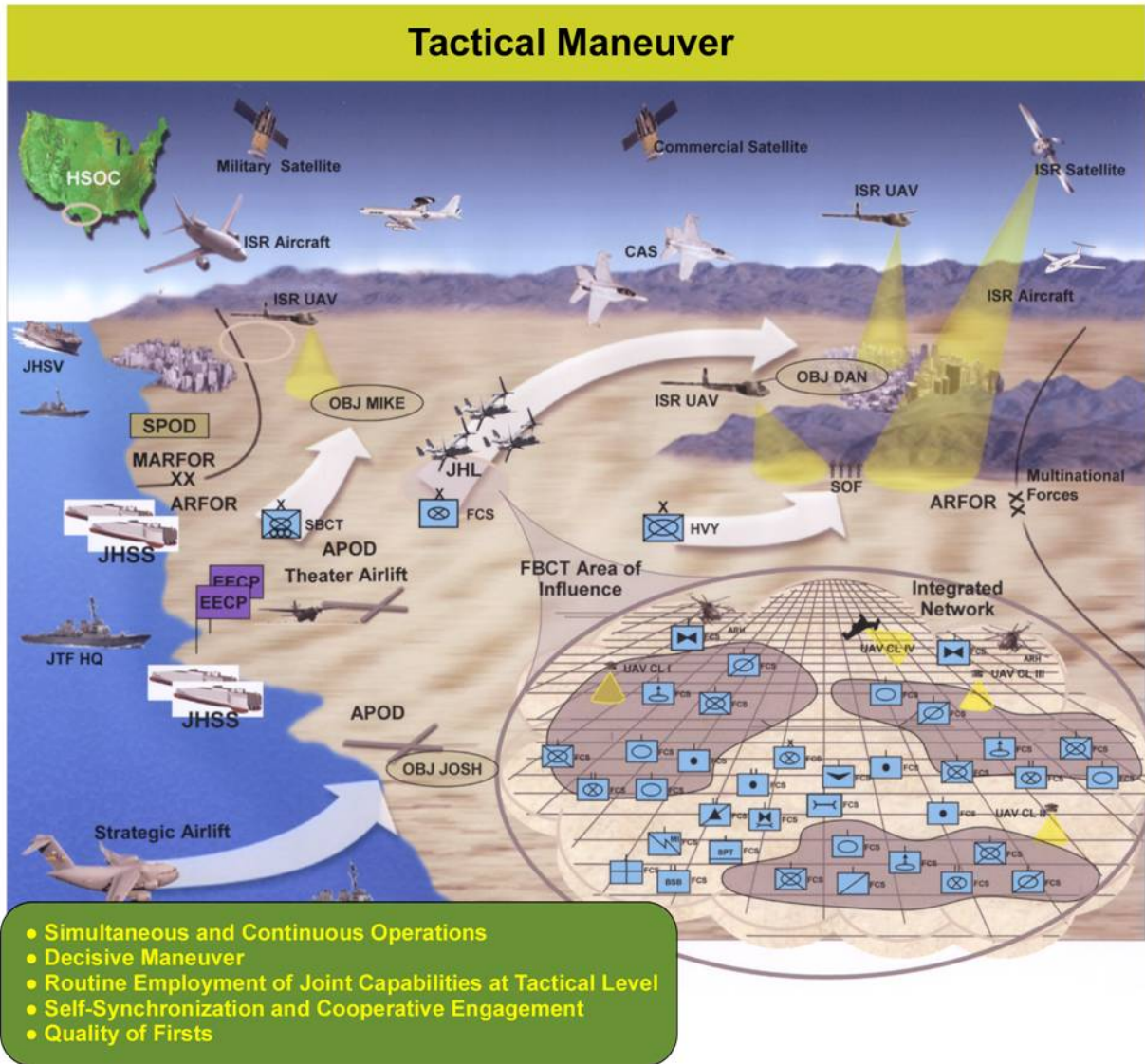


Figure 3-1. Operational Overview

## Chapter 4.

### Future Modular Force Tactical Maneuver in the Joint Campaign

#### 4-1. General.

a. This chapter provides the detailed exposition of the future Modular Force tactical maneuver concept. In order to set the context for understanding the nature and context of change embodied with the concept, the chapter begins with a brief summary of how tactical operations have evolved over time and identifies both the primary catalysts for those changes and the continuities that persist through cycles of change.

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b. Next, it summarizes the status of the current force and describes how current initiatives, notably modularization and the development of the Future Combat Systems (FCS), constitute initial steps toward the future Modular Force as described in the Army capstone concept. Subsequently, the bulk of the chapter identifies and describes five key ideas that represent the core elements of the tactical concept, followed then by a focused discussion of the full spectrum quality of the force to conduct defensive and stability operations. The chapter then concludes with a short description of those aspects of the concept that distinguish it most significantly from current tactical doctrine.

### 4-2. Evolution of Tactical Operations.

a. Maneuver is defined as the employment of forces, through movement combined with fire (or fire potential) and information, to achieve a position of advantage with respect to the enemy to accomplish the mission. Maneuver is the means by which commanders concentrate combat power to achieve surprise, shock, momentum, and dominance.<sup>5</sup> Naturally, the manner in which military forces have conducted maneuver over the past millennia has slowly evolved as technology and operational experience introduced change to tactical operations. For many centuries, direct line-of-sight engagements at close range characterized tactical combat, with maneuver constrained largely to foot-speed. Over time, the development of weapons with longer ranges and the linkage of those weapons with observer/sensors and a C2 function enabled military forces to engage the enemy at longer ranges, extending to beyond-line-of-sight distances. The horse, railroads, and automotive capabilities gradually introduced higher levels of mobility that freed armies from the pace of the foot and profoundly increased the speed and distances over which forces could effectively operate and engage the enemy.

b. Similarly, improvement in lethality, often countered quickly by improvement in means and methods of protection, introduced concomitant cycles of change in tactical combat. Over time, the competition between offensive and defensive capability largely characterized the cycles of change, with the often daunting strength of the defense presenting the chief problem set that had to be resolved to defeat an adversary and avoid prolonged conflict or stalemate.

c. *Continuities.* In the midst of ongoing change, several major continuities will closely tie the future Modular Force with military forces of the past. In particular, the continuing brutal and deadly nature of combat, the unavoidable requirement to close with and destroy enemy forces under any conditions, the challenge of dealing with high levels of uncertainty on the battlefield, the critical contributions of the art of commanders and the courage and skill of leaders and Soldiers, and the ultimate goal of imposing one's will upon the enemy—these continuities represent some of the constants within the broad waves of change witnessed over time.

d. Thus, while recognizing that not all things change, it is possible to identify two *primary* catalysts for change that have been operative in the past and continue to drive change in the future, including for the future Modular Force. The first is the constant contest between offense and defense that manifests itself in conceptual, doctrinal, materiel, and organizational changes aimed at creating or upsetting tactical stability. The second is the need to reduce uncertainty in battle to enable more effective application of offensive and defensive capabilities. With these

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<sup>5</sup> Definition of maneuver from FM 3-0 serves as the start point for the discussion.



two primary catalysts in mind, three enduring requirements exist that succinctly summarize the critical tasks that tactical commanders of past, present, and future must effectively balance in order to achieve tactical success:

- (1) The need to *sustain combat power over time*.
- (2) The *competition for knowledge* and exploitation of the advantages offered by superior knowledge and reduced uncertainty, vis-à-vis the enemy.
- (3) The retention of *freedom of action* to impose one's will over the enemy through offensive action.

e. Although the discussion of the Future Tactical Maneuver Concept in this chapter is not organized to directly address these three enduring requirements, the main ideas presented below and in Chapter 5 (Supporting Functions) address all of them.

#### **4-3. The Modular Force: Ongoing Initiatives.**

a. Today, the Army is already engaged in a number of important initiatives that presage substantial changes in the conduct of tactical operations in the future. In 2004, the Army initiated an effort to reorganize operating forces into the Modular Force, an organizational innovation long identified through Army wargaming and concept development as a desirable end for multiple reasons. The Modular Force enables more rapid formation of capabilities-based force packages, tailored and scalable to the specific mission and conditions of each future contingency, as well as the re-tailoring of forces during the course of a conflict. Modularizing the force also produces an increased number of maneuver brigades available to combatant commanders for both contingency operations and rotational deployments, while maintaining a level of combat effectiveness that is equal that of divisional brigades of the past.

b. The 2006 Modular Force includes three types of brigade combat teams (BCT)—Infantry, Heavy, Stryker—and five types of multi-functional support brigades: Combat Aviation, Battlefield Surveillance, Sustainment, Combat Support (Maneuver Enhancement), and Fires. It also retains a large number of functional support and theater brigades (e.g. theater air defense) and independent battalions. BCTs are organic combined arms organizations, reducing the need for reinforcement and cross-attachment and strengthening their ability to fight as cohesive teams.

c. While all BCTs will eventually receive select FCS capabilities, a fourth BCT type, FCS BCT, with the complete set of FCS systems, will join the operating force in the next ten years. When fielded, the system of systems that comprise the FCS BCT will represent the most advanced combination of capabilities within the force for tactical maneuver. Simultaneously, the Army is reorganizing division and corps organizations as highly tailorable and flexible C2 headquarters, capable of integrating any mix of Modular Forces enumerated above while conducting operations across the full spectrum of operations.

d. With these changes, the Army is moving to a brigade-focused force construct as the principle foundation for conducting tactical operations. This change constitutes a deliberate shift

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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. Modular reorganization of combat support and combat service support forces will further support improved responsiveness, standardization of capabilities, ease of mission tailoring, and scalability to the scope and duration of the operation.

e. The Army's experiences in OIF and OEF are also generating significant organizational changes in the current Modular Force aimed at improving overall readiness and effectiveness for the conduct of irregular warfare and stability operations. For example, reductions in field artillery and air defense force structure are underway with the deliberate intent to increase reliance in the future on joint capabilities to provide more of these functions in support of ground forces. Other changes include: improving understanding of foreign cultures and non-traditional adversaries; expanding Human Intelligence (HUMINT) capabilities; and improving tactical capabilities to interact effectively with local populations and governmental/non-governmental entities.

f. The reorganization of the operating force represents a strong step toward the future Modular Force from an organizational and leadership development perspective. However, to fully realize the ultimate vision of the future Modular Force as described within the Army capstone concept, FCS capabilities and transformational joint capabilities are also needed. In addition, it is reasonable to expect the Modular Force to evolve further over time as technologies mature and additional capabilities are developed and spiraled into the force. Thus, the discussions in this section account for the goal of a brigade-focused tactical framework as currently planned, but extend beyond those boundaries into a deeper future.

### **4-4. Key Ideas for Future Tactical Maneuver.**

a. Wargaming, experimentation, and tactical analyses of future battle over the past several years have distilled many desirable future changes to the manner in which the future Modular Force will conduct tactical operations. Some of these changes are in the initial, developmental steps of being implemented in conjunction with the FCS and modularization of the current force.

b. Five ideas stand out as defining the most important vectors of change in tactical operations. These five key ideas are presented primarily from the standpoint of offensive operations, but they are also significant and relevant for defensive and stability operations as well as across the ROMO.

- (1) Simultaneous and Continuous Operations.
- (2) Decisive Maneuver—New Tactical Paradigm.
- (3) Routine Employment of Joint Capabilities at Tactical Level.
- (4) Self-Synchronization and Cooperative Engagement.

## (5) The Quality of Firsts.

c. See Appendix B, “How the Future Modular Force Fights,” to obtain a full operational visualization of how these ideas are applied in tactical operations.

d. Prior to discussing these five key ideas, it is prudent to note an overarching condition that underpins each of them—the need to maintain a deep understanding of the increasingly complex tactical environment in which Army tactical forces will operate in the future.<sup>6</sup> The future Modular Force must steadily continue its march from *estimate*-based operations, what commanders estimate to be reality, to operations that are based on a higher level of knowledge and shared SU. As estimate-based decision-making gives way to knowledge-based decisions, commanders are empowered and will be expected to act with higher confidence and greater precision.

e. Conversely, when high levels of uncertainty continue to exist, future Modular Force tactical operations will have to conform to the deliberate, sequential, linear framework that has characterized the past and to expend considerable operational resources to obtain the intelligence required to achieve a satisfactory level of SU. Thus, achieving substantial progress in this area in the future is an unavoidable prerequisite to the actualization of the following five key conceptual foundations.<sup>7</sup>

## f. Key Idea. Simultaneous and Continuous Operations.

(1) Continuing improvement in the mobility of all elements of the future Modular Force and the introduction of advanced vertical movement assets located at higher echelons will enable tactical forces to be employed by ground and air at *extended tactical and operational distances*. These improvements will enable higher Army and joint commanders to employ maneuver forces in simultaneous operations at virtually any point within the area of operations, within either a *contiguous* or *non-contiguous* framework. Parallel improvements in supporting functions must be accomplished to ensure that forces so distributed are properly networked, protected, and supported with fires, information, and sustainment.

(2) Future Modular Force commanders will also seek to conduct *continuous* operations (see Figure 4-1), creating and controlling a relentless tempo that overwhelms the enemy's capability to respond effectively. Unavoidable in the past, tactical pauses during the course of battles and major operations give the enemy time to reorganize, reconstitute, and preserve his cohesion, inevitably extending the duration of operations. High operational tempo and continuous pressure will seriously hinder the enemy's ability to reconstitute capabilities or reconfigure forces to prepare for subsequent operations. In addition, simultaneous and continuous operations provide commanders the opportunity to combine the defeat mechanisms

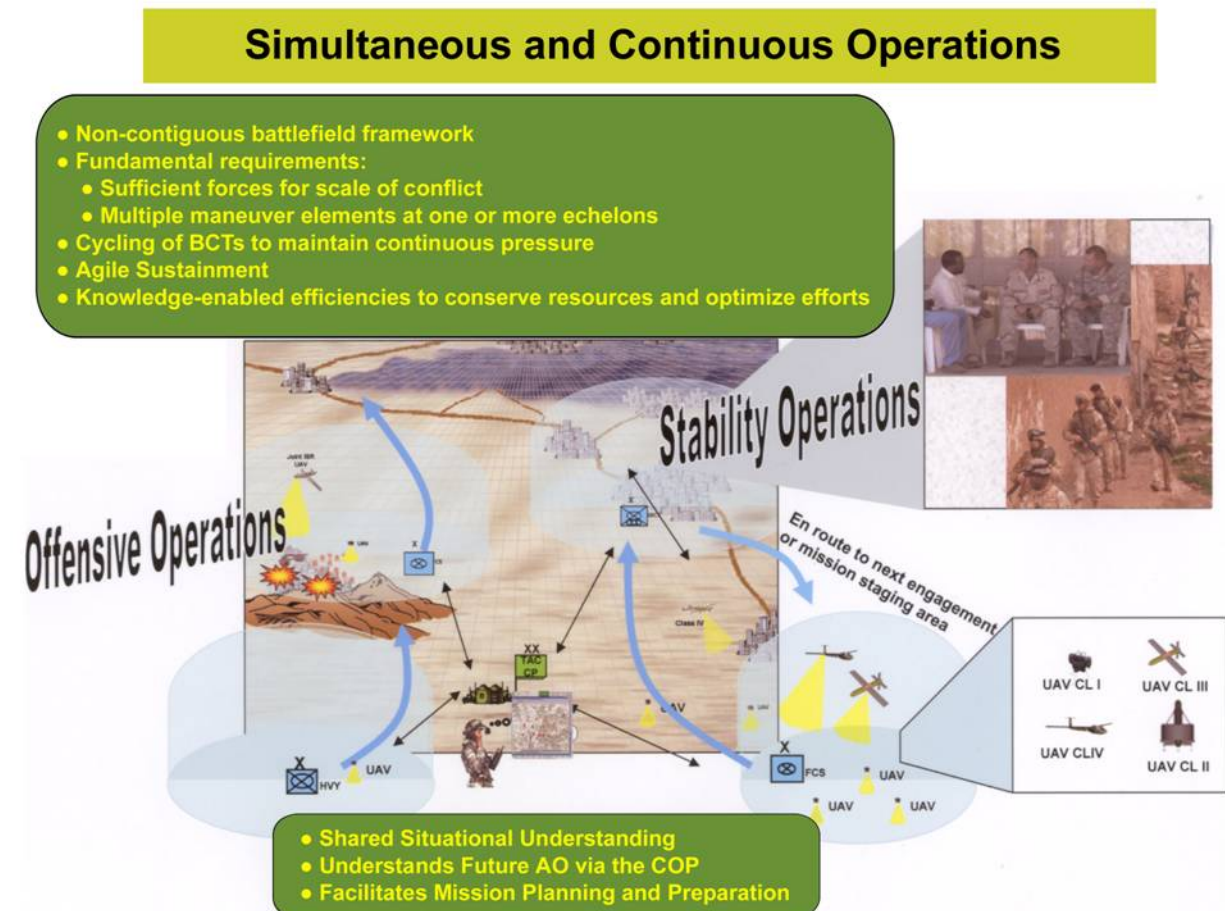
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<sup>6</sup> The importance of understanding the complex tactical environment and the means by which it may be achieved is discussed in more detail in Chapter 5. Chapter 2 laid the foundation for understanding the significant implications inherent within the complex tactical environment.

<sup>7</sup> The addition of information to the combat power model of fires, movement, and protection is an appropriate recognition of the rise in importance of information and intelligence to a level co-equal to that of the traditional elements.

of destruction, dislocation, and disintegration to achieve more rapid defeat of enemy forces at the tactical level.

(3) However, commanders may deliberately choose to take an operational pause under certain battle conditions. In addition, continuous pressure can be maintained without continuous maneuver through inter-component cooperation. 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 ceaseless pressure.



**Figure 4-1. Simultaneous and Continuous Operations**

(4) Recent studies as well as historical analyses point to four important ideas that underpin the capability to conduct simultaneous and continuous operations. The first is the simple consideration of scale, a force to space calculation that ensures commanders have sufficient forces to employ simultaneously at high tempo. Failure to scale force size properly normally will induce a higher degree of sequentiality and hinder continuous operations. The second idea is operational flexibility, which is best generated by the tailoring of multiple maneuver elements at one or more tactical echelons, which provides increased options for positioning and movement.<sup>8</sup> Third, the capability to sustain continuous operations over more extended distances than has been the norm in the past is required. Fourth is the achievement of a

<sup>8</sup> Military history and recent operational history confirm the difficulty of maintaining high optempo in maneuver warfare when forces are organized with three or fewer maneuver units.

level of SU that frees commanders from having to over-allocate forces to compensate for the unknown, i.e., the challenge of uncertainty and the risk it presents.

(5) Informed by the above ideas and the current focus on the BCT as the principal tactical fighting echelon, *the primary means of maintaining continuous pressure in the future Modular Force will be division-directed commitment of maneuver BCTs in combined arms actions, while integrating near and deep fires with ground and air maneuver.* Division commanders will sustain the continuity of their operations by cycling BCTs in and out of action and synchronizing logistical operations to that battle rhythm. Should the composition of BCTs continue to evolve in the future as expected, it is also possible to foresee extending the cycling mechanism to battalion level, as advanced capabilities are introduced into the force and sustainment demands are reduced through technological breakthroughs.

(6) Continuous operations will require innovative sustainment concepts and capabilities (see Chap 5 below), based on sharp reductions in sustainment demand, significant improvements in reliability, and refined procedures for accelerated throughput, battlefield distribution, and mission staging. Commanders may also avoid undesirable pauses through inter-component cooperation, most notably the employment of the air and special operations forces (SOF) components to keep pressure on the enemy and preserve the conditions that will allow maneuver to begin again, while commanders change the direction or organization of their attacks.

g. Key Idea. Decisive Maneuver.

(1) In past times, the absence of accurate knowledge often restricted effective tactical maneuver. More often than not, commanders had to expend considerable time, effort, and resources in developing the situation with maneuver and in applying forces to guard against surprises and reduce the risk inherent in uncertainty (see Figure 4-2). In the future Modular Force timeframe, superior SU will normally provide better understanding of enemy dispositions, objectives, timing, routes, and protection. When these advanced capabilities are operative and effective, they will also permit the execution of a new tactical paradigm. Instead of the former pattern of developing the tactical situation in contact, followed by maneuver, often under fire and/or observation, to enable decisive engagement, the future Modular Force will:<sup>9</sup>

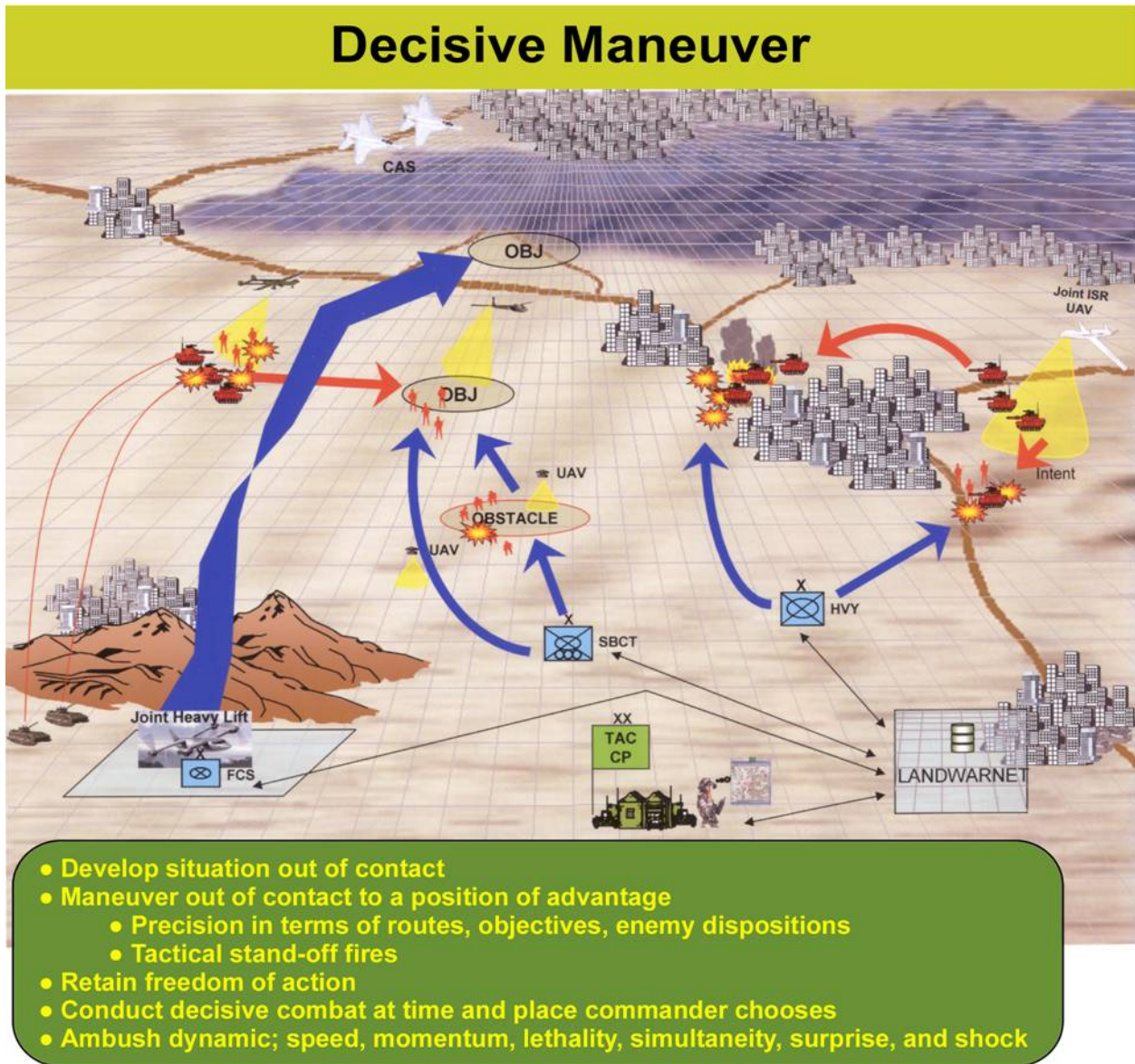
- Develop the situation largely out of contact.
- Maneuver out of contact to positions of advantage, while retaining freedom of action.
- Isolate, immobilize and disorganize enemy forces, denying them the ability to coordinate or cooperate effectively.
- Conduct decisive combat at the time and place of the commander's choosing.

(2) ***Precision decision-making.*** Improved SU further promotes *precision decision-making*. In executing this new tactical paradigm, commanders will combine and balance the application of the defeat mechanisms of destruction, dislocation, and disintegration. SU will enable commanders to identify objectives which, when destroyed, will have the most disabling effects on the enemy's forces, capabilities, and integrity and will lead more rapidly to his tactical

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<sup>9</sup> These elements are described in more detail in Appendix B, How the Future Modular Force Fights.

*disintegration* and defeat. Situational understanding will reduce wasted motion, mitigate risk, and enable forces to move faster and more boldly, but with proper appreciation for the unknown.



**Figure 4-2. Decisive Maneuver**

(3) In addition, tactical units will be able to more effectively identify available flanks and secure positions of advantage vis-à-vis the enemy's dispositions and posture (*dislocating* effects). Similarly, commanders will have greater insight into and control over the most effective time to conduct maneuver. Digitized terrain updates will enable commanders to avoid chokepoints and obstacles (three-dimensional within cities), while space-based capabilities support precision with position, navigation, and timing data.

(4) Better knowledge further enables commanders to choose the best routes to the objective area with respect to stealth, speed, and momentum. Typically, divisions and brigades

will synchronize maneuver of powerful sub-units along multiple, dispersed axes, retaining freedom of action until converging upon key points within the objective area with a shock effect that generates *disintegration* of the enemy force and expedites decision. Stand-off detection and neutralization of obstacles will further contribute to the retention of momentum. Higher echelons support this movement with shaping fires that neutralize the enemy's ability to detect or interfere with maneuver and/or conduct counter-maneuver. Simultaneously, stealth, speed, and dispersion will enable higher levels of protection during maneuver.

(5) In summary, while maintaining *freedom of action* during each engagement, future Modular Force tactical units conduct precision maneuver along multiple axes to *close with and destroy* the enemy through a combination of *tactical stand-off* fires and *close assault*, in mounted and dismounted operations. Overall, the speed, momentum, lethality, and simultaneity of precision maneuver confuses and overwhelms the enemy, creating the effects of surprise and shock similar to that of an ambush, or a combination of ambushes.

Maneuver to Develop the Situation When Sufficient SU Has Not Been Achieved

The tactical paradigm described above will not always be feasible in the future. In circumstances where a sufficient level of SU has not been achieved by other means, commanders will still need to employ maneuver to ascertain enemy dispositions and capabilities, provoke an enemy reaction, and otherwise develop the situation further. The two *Thunder Run* operations conducted by the 2d Brigade, Third Infantry Division in Baghdad, from 5-6 April 2006, present a good example of the use of bold maneuver in such a role. Driving through the exterior defenses of the city, the attacking battalions exposed the enemy's strongpoints, destroyed many of them, and determined that Baghdad was not defended in depth and that the population posed no significant challenge to friendly operations.

h. Key Idea. Routine Employment of Joint Capabilities at Tactical Level.

(1) Over the past 25 years, the U.S. military has achieved considerable progress in moving from deconfliction of joint component operations to higher levels of joint integration, enabled by advances in joint interoperability (see Figure 4-3). Current Department of Defense (DOD) policy demands that major new capabilities be inherently joint from inception will further strengthen this trend and support movement toward the higher goal of *joint interdependence*.<sup>10</sup> Joint interdependence encompasses the central idea of deliberate dependence by ground forces on the employment of joint capabilities, in lieu of organic capabilities, to help accomplish tactical and operational objectives. This approach actualizes the parallel idea that Army commanders do not have to *own* all required capabilities in order to *employ* them reliably and effectively.

(2) Although the most significant advances to date in this area have occurred at the operational and higher tactical levels, employment of joint capabilities can and will occur more

<sup>10</sup> See the Army Capstone Concept, TP 525-3-0, April 2005, and the draft Operational Maneuver Concept, TP 525-3-92, for additional discussion of the concept of joint interdependence.

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frequently at lower tactical levels in the future.<sup>11</sup> The most promising joint capabilities for employment in routine support of tactical operations include:

- Joint fires (long-range fires to shape the operational environment and close support to forces engaged in close combat).
- Joint intelligence, surveillance, and reconnaissance (ISR) (layered array of sensors and sources to provide near real-time intelligence updates, enabling tactical commanders to focus organic ISR in those areas for which they are most effective, most timely, and only accessible by tactical means).
- Air and Missile Defense (trend leading toward much higher reliance of ground forces on higher echelons and joint capabilities for all other than point air defense).
- Communications (extending the distance at which tactical forces can operate while maintaining uninterrupted communications).
- Sustainment (employment of joint assets for tactical distribution and increasing commonality in stocks and supplies across components).

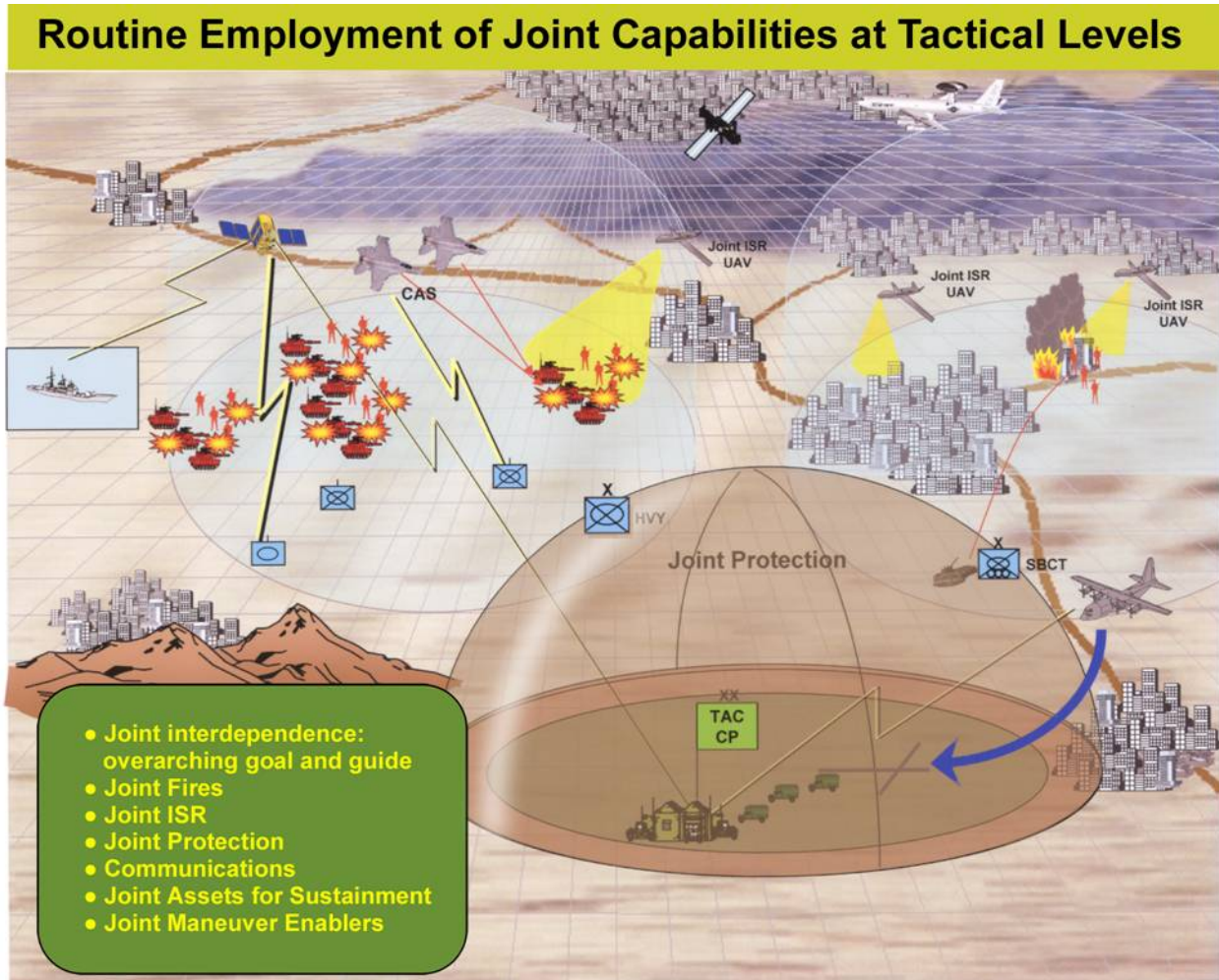
(3) In addition to the benefits cited above, it is probable that the routine employment of these kinds of capabilities will enable future tactical commanders to complete actions and engagements more quickly, while preserving sufficient organic resources to move from one objective to the next without pause. Overall, while the routine incorporation of joint assets to support the tactical fight may increase the complexity of planning and execution in the future, it will provide highly desirable payoffs with respect to the speed, power, and effectiveness of tactical maneuver.

(4) *Increased Cooperation with SOF.* Operational experience and conceptual investigations both point toward an increasing level of cooperation between future Modular Force tactical formations and SOF as they share the same tactical space across the spectrum of conflict. In many situations, SOF will precede the arrival of Army forces in operational areas and constitute an unusually valuable source of intelligence and networking, particularly within the context of irregular warfare. Many of the changes described thus far in this concept will introduce SOF-like qualities within the future Army and inherently improve fungibility between Army and SOF forces to share operational tasks or mutually support each other in many conflict environments. Collaboration and synchronization between conventional and SOF forces will grow to become easier and more routine, with each element acting as a force multiplier for the other. Ongoing operations in southwest Asia provide numerous examples of this trend at the tactical level.

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<sup>11</sup> Operational experience in Operations Enduring Freedom and Iraqi Freedom is demonstrating numerous ways and means in which joint capabilities can routinely be applied to support small-scale tactical operations, such as the use of airborne platforms to locate IEDs and identify changes in patterns that may denote enemy intent.





**Figure 4-3. Routine Employment of Joint Capabilities at Tactical Level**

i. Key Idea. Self-Synchronization and Cooperative Engagement.

(1) This concept describes tactical maneuver as empowered by higher levels of SU and characterized by increasing simultaneity, high operational tempo, relentless pressure on the enemy, improved air and ground mobility, precision movements, expanding operational reach, routine application of joint capabilities, retention of freedom of action; and, the combination of precision, speed, and momentum to produce shock and disintegrating effects. The combination of these operational characteristics further contributes to self-synchronization and cooperative engagement at the tactical level.

(2) *Self-synchronization* is the ability of forces committed along different approaches to different objectives to maintain near-real time visibility of changes to dynamic battlefield conditions, including both enemy status and the simultaneous actions of adjacent or supporting friendly forces, and to act separately and effectively to maintain the continuity and coherence of their operations. Acting with full understanding of commander's intent, subordinate tactical commanders will be able to make incremental adjustments during the course of battle to exploit or adapt to new conditions, rather than strictly adhering to the original concept of operations.

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Higher commanders monitor and acknowledge self-synchronizing adjustments, while supporting commanders adapt accordingly. Improvements in the military decision-making process (MDMP) further enable this capability by providing better means to explore branches and sequels during that process. The ability to adjust or re-synchronize tactical activities dynamically while in-stride will improve economy of force and mission accomplishment by promoting the most effective employment of forces.

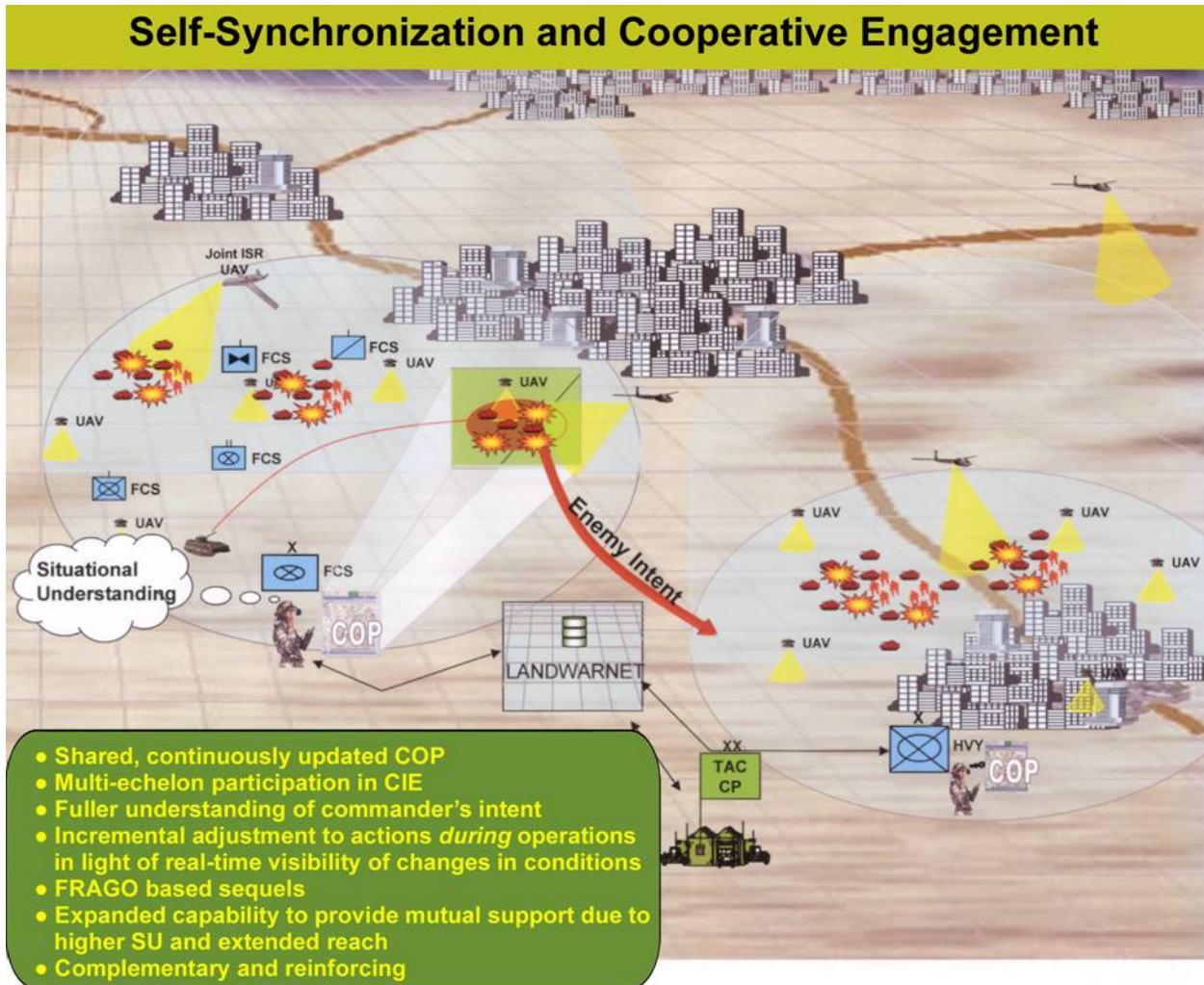
(3) Concurrently, self-synchronization enables more effective *cooperative engagement* between elements of the tactical force. Moving a step beyond combined arms synergy, cooperative engagement pertains to the collective capability of forces in combat to provide mutual support to other friendly units or to benefit reciprocally from receiving support from adjacent units and joint assets. In essence, cooperative engagement makes focusing combat power a matter of collaboration between committed commanders rather than a monopoly of the overall commander. It therefore magnifies combined arms synergy by making it faster and more spontaneous. Cooperative engagement allows maneuver commanders to alter the form and concept of maneuver by mutual agreement and also permits them to change priorities of supporting fires, ISR, sustainment, or even maneuver reserves. Expanding operational reach at the tactical level further enhances cooperative engagement by increasing the number of units within an area of operations able to provide mutual support. Shared SU, reliable communications, and interoperable battle command systems will greatly enhance cooperative engagement and enable adjacent unit leaders to act more decisively in pursuit of the commander's intent.<sup>12</sup>

### j. Key Idea. Quality of Firsts.

(1) Empowered by improved SU, knowledgeable leaders and Soldiers, and other supporting capabilities, the future Modular Force will execute tactical operations based on the "Quality of Firsts"—the capability of future Modular Force units to *see first, understand first, act first, finish decisively, and reengage at will*. The "firsts" apply to any form or phase of tactical operations, including sustainment and other activities across the battlefield functional areas in support of tactical maneuver. These qualities are intended to address the ability of the future Modular Force to operate inside the enemy's cycle of adaptation and to deny the enemy opportunities to initiate action. Moreover, to the extent that the enemy succeeds in achieving surprise or retaining initiative, they constitute an imperative for tactical commanders to take action to quickly regain the initiative. The "firsts" should also be perceived as both simultaneous and sequential in nature. Clearly, there is sequentiality in their application during discrete tactical actions.

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<sup>12</sup> The FCS developmental community uses the term *cooperative engagement* in a related but more focused manner to describe sensor-shooter cooperation. In essence, it describes how the FCS network enables linking any tactical sensor on the battlefield with any fires capability (shooter) in order to engage enemy targets by the most effective means.



**Figure 4-4. Self-Synchronization and Cooperative Engagement**

(2) However, even during action, commanders continue activities to see and know better in order to adjust actions in progress and prepare for actions to follow. Decisions to reengage or to transition to follow-on objectives are similarly based on a continuous process of assessment and supporting actions subject to the Quality of Firsts. Moreover, *this concept does not assume that Army tactical formations will always be able to operate in concert with the Quality of Firsts in the future.* There will many situations, some temporary and some longer term (e.g., during defensive operations or during initial operations in which the U.S. is building sufficient force to seize the initiative), in which the enemy will retain a significant degree of freedom of action, including the ability to see, know, and act first. Occasionally, commanders may even see merit in allowing the enemy to act first in order to expose his forces or reveal his intentions.<sup>13</sup> In essence, the "firsts" provide a methodology that, if achieved, will normally help optimize the

<sup>13</sup> The Battle of Kursk in World War II, is a good example at the operational level of this point. Despite its superior strength, the Soviet side ceded offensive initiative to the Axis, enticing the enemy to weaken his forces in fruitless offensive attacks before the Soviets initiated their long-prepared counter-offensive to achieve an operational breakthrough through the disintegration of the enemy forces opposing them.

employment of forces to achieve tactical success. Conversely, if the "firsts" cannot be achieved, tactical commanders must adjust organization and operations to compensate for advantages that the enemy may enjoy.

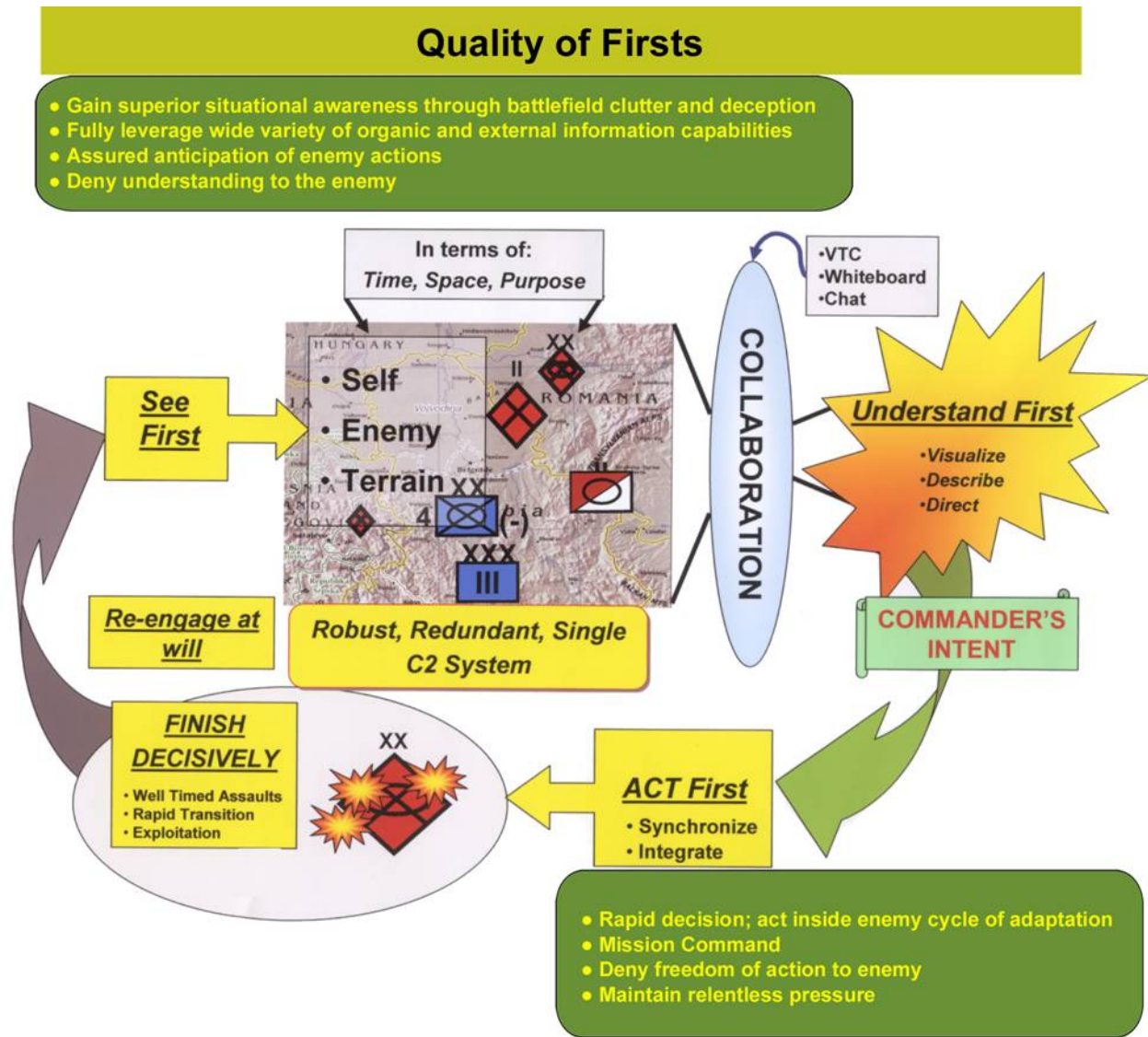


Figure 4-5. The Quality of Firsts

(a) To *see first*, leaders must see the battle space in all dimensions. First, they must understand its separate parts, detecting, identifying, and tracking enemy forces while maintaining awareness of friendly elements and other actors that may influence operations. *More importantly, they must understand what is important to see*, since capabilities to collect intelligence will always be limited and the value of different entities or activities within the operations area will vary significantly in terms of their relevance. Recent operational experience further suggests that it will often be difficult to assess relative importance, particularly in complex environments. Commanders must also see the whole, implying the capability to aggregate and fuse the parts and integrate the effects of other components of the tactical

environment, including the terrain, weather, and population implications. Simultaneously with seeing first, leaders must deny the enemy the capability to see, through deliberate actions to blind and deceive by means of obscurants, jamming/counter-sensor, signature reduction, pattern avoidance, and deliberate deception. Seeing first involves the exploitation and integration of a wide variety of organic and external information capabilities, the conduct of intelligence activities required to develop the situation in sufficient detail to support planning and decision-making, as well as the parallel activities just cited with respect to denying the enemy the ability to see.

(b) *Understanding first* essentially encompasses those processes needed to move from seeing to knowing—to create, maintain, and share SU. To understand first, commanders must be capable of recognizing patterns in the common operational picture (COP) that enable them to identify decisive points and vulnerabilities and to develop operational concepts and detailed plans. They must then anticipate the next steps, including likely enemy actions, reactions, and counteractions, as well as methods and intent. Situational understanding allows leaders to decide when and where to act to gain the best tactical advantages for starting and finishing those engagements that will have the greatest impact on the defeat of the enemy. Leaders must simultaneously force the enemy to understand slowly and poorly, using techniques such as surprise, pattern avoidance, irregular battlefield geometry, and destruction of enemy C4ISR capabilities.

(c) Seeing and understanding is a continuous, unending process that promotes precision decision-making and postures commanders to *act first*. Acting first works best in a C2 environment of mission command that enables rapid decision, initiative, and translation of intent into action. The increased capability in the future Modular Force for simultaneous collaboration and self-synchronization assists in executing mission command. Organic capabilities for extended range direct and indirect fires and reconnaissance expand the distances at which tactical forces can act first. Beyond acting first, leaders must also force the enemy into a reactive posture, denying initiative and freedom to act or inducing the enemy to act wrongly, using techniques such as remotely emplaced obstacles, preemptive and immediate counterfire, jamming of computers and fire control systems, and deception.

(d) When conditions are appropriate, tactical forces *finish decisively* in the close fight. They must control the tempo of operations, destroying the enemy's ability to synchronize its fight and leaving no effective combat capability intact for reconstitution. Finishing decisively normally involves simultaneous combinations of tactical stand-off engagement by fire and close combat assault, in all terrain and in all conditions. The assault will normally require some combination of mounted and dismounted action, combinations which may also change as the assault proceeds. As the tactical combat elements convert from mounted to dismounted modes, the enemy must still be held under constant observation and subjected to continuous pressure from direct and indirect fires.

(e) *Reengage At Will/Transition to Subsequent Engagements.*

(3) One of the most powerful aspects of this tactical concept is the projected capability of tactical forces to maintain relentless pressure on the enemy. Keeping the enemy continuously

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engaged deprives him of the opportunity to reconfigure effectively, conduct effective counter-attacks, or reconstitute forces. In addition, it is a critical means for thwarting the enemy's likely strategy of attrition to prolong battle, delay decision, and avoid disintegration. Each successful successive engagement can further serve to accelerate higher-level decision. The division maintains this kind of operational tempo through two primary means: first, by employing subordinate BCTs in a manner that continuously commits the majority of maneuver forces in battle, and second; by virtue of the capability of BCTs and battalions to move rapidly from one engagement to another without a significant tactical pause.

(4) With respect to the latter, several conditions must be met to permit the combat battalion to conduct sequential engagements without pause. First, the initial engagement must itself be completed rapidly, reinforcing the significance of the tactical disintegration possible through shock, surprise, and speed—the ambush dynamic. Second, through exploitation of higher echelon fires, maneuver forces may preserve sufficient combat power and on-board consumables to permit an immediate subsequent engagement.

(5) In addition, higher tactical commanders must already be shaping favorable conditions for subsequent engagements, including sharing the burden of planning and analysis and extending the tactical infosphere and SU required for BCTs and subordinate battalions to rapidly complete planning and execute immediate follow-on missions. With respect to supporting functions, commanders must also ensure that sustainment operations are fully synchronized in time and space to support this demanding battle rhythm and high operational tempo—as described in Chapter 5.

(6) Finally, it is important to reemphasize that tactical operations relying on the *quality of firsts* depend, in the first instance, on the reduction of uncertainty through superior SU and information superiority. Failure to achieve information superiority or suffering long-term degradation of information and intelligence capabilities with simultaneous shortfalls in SU, would force units back into a linear framework and compel them to act more slowly and less decisively.

### 4-5. Full Spectrum Operations.

a. The preceding discussion has discussed tactical maneuver primarily within the context of offensive operations. However, it is clear that the full spectrum requirements for simultaneous conduct of offensive, defensive, and stability operations within a single major operation, battle, or engagement will continue to be a feature of tactical maneuver in the more distant future.<sup>14</sup>

b. Thus, this section extends the discussion above to considerations of defensive and stability operations. Future commanders must be prepared to plan and direct all three types of operations simultaneously and future forces must be ably led, trained and equipped to transition effectively between them (see Figure 4-6).

c. *Defensive Operations.*

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<sup>14</sup> As specified within the 2006 FM 3-0 Content Summary.

(1) The future Modular Force will assume the defensive in a variety of battlefield situations. For example, as essential components of the early entry force, future Modular Force BCTs will be required to defend entry points to enable follow-on force flow and hold objectives critical as anchors or start-points for transition to offensive operations. In addition, future Modular Force combat forces may deploy *preemptively* to seize and defend lodgments in areas critical to the enemy's own offensive plan or as part of a defensive campaign to assist a friendly government. During this time in a campaign, higher echelon Army combat support structures may not be fully in place. As a result, committed BCTs must be able to draw on reinforcing and shaping support from air and naval forces, as well as from allies that may already be engaged. These defenses occur during a time when sustainment flow must compete with force flow, thus it will be important that forces be durable and place minimal demands on the logistical system.

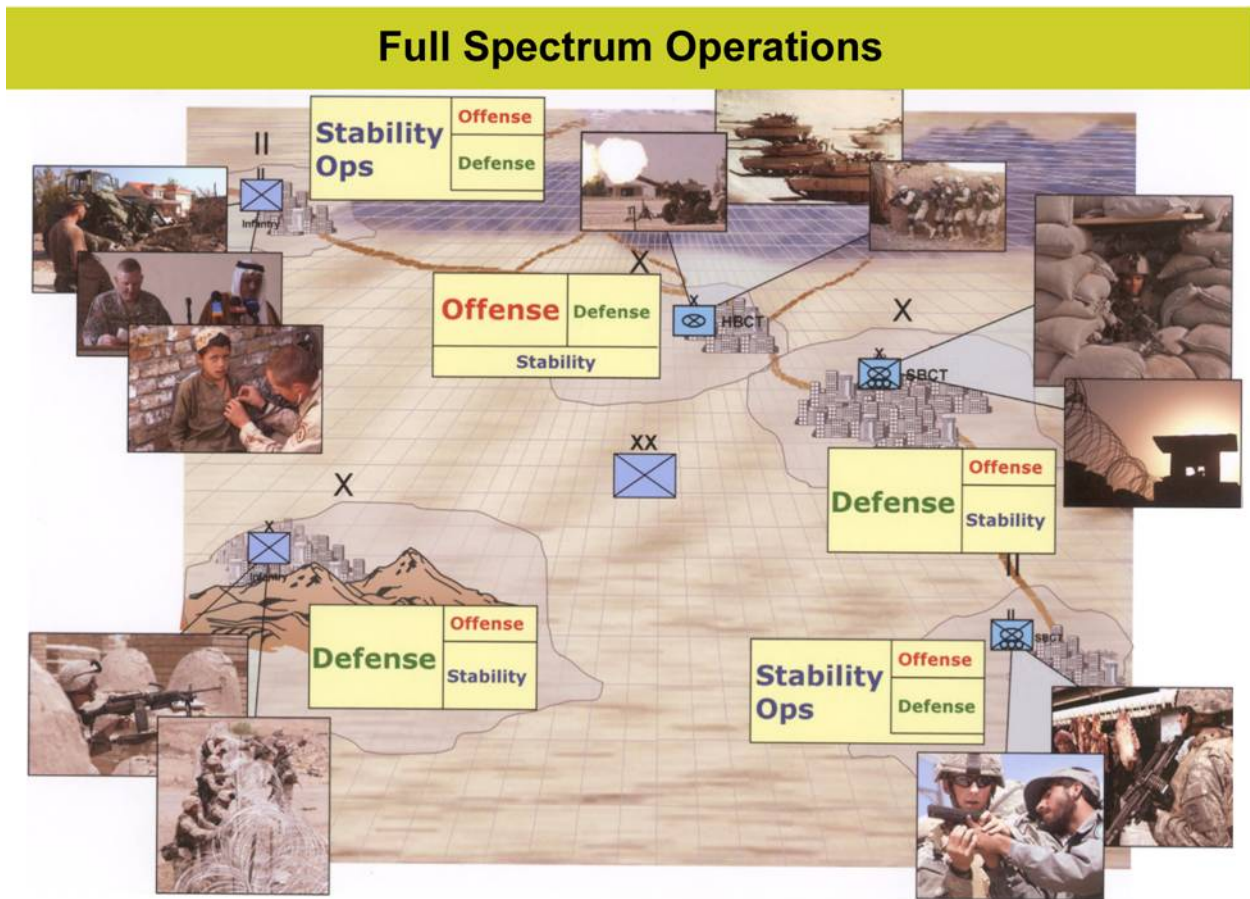


Figure 4-6. Full Spectrum Operations

(2) Tactical units must also be able to assume the defense temporarily when executing vertical maneuver. While tactical forces conducting vertical maneuver depend upon higher echelons to provide the air lift and create the conditions that make air assault possible, they must defend entry points and key terrain until sufficient force is assembled to permit offensive operations, or until link-up with other ground elements advancing on other axes is achieved. Again, minimizing sustainment demands can be critical if the defense lasts more than a few days.

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(3) 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. BCTs will be required to defend and protect critical support facilities and vital support operations such as logistical convoys. At the same time, the current doctrinal requirement for CS and CSS units to perform small unit maneuver and defend effectively will likely rise in importance for both MCO and irregular warfare for their own protection and as a means of avoiding over-allocating other forces to their security. These security requirements will demand new solutions that integrate air, electronic, and ground defenses of both stationary and moving islands within the battle space.

(4) Tactical maneuver in defensive operations consists of counterattacks within or forward of the defended area, positioning of forces in depth, reinforcement of committed units, delaying operations and reconnaissance operations. Large scale defensive operations may also require BCTs to conduct traditional security operations (screen, guard, cover), retrograde movements (withdrawals, retirements and retreats), and area and position defenses. Because the enemy holds the initiative, tactical maneuver as part of the defense usually requires concerted counterfire, intelligence collection, reconnaissance and mobility support (bridging, obstacle reduction, route repair) and air defense support. Maneuver in defense will often be reactive in nature until the friendly force can regain the initiative; as a result BCTs and their battalions will often have to initiate maneuver on short notice and withdraw, reposition or counterattack over unanticipated routes.

(5) Defensive success will depend on the same capabilities that are critical to offensive operations: high levels of SU; information superiority; employment of precision tactical stand-off fires to destroy attacking enemy formations; exploitation of higher echelon fires; use of deception and other integrated force protection means; and execution of spoiling attacks and counter-attacks at precisely the right time for the right purposes. Together, these elements constitute a mobile, fluid framework of multidimensional defensive operations.

### d. *Stability Operations.*

(1) As stated in the Army capstone concept, “The future Modular Force will be called upon to conduct stability operations throughout a campaign, either concurrent as an integral component of major combat operations, subsequent to such operations, or even independent of them. Stability operations assume a variety of forms in a variety of combinations, presenting a range of risk, intensity, tempo, and complexity that varies over time and by region.”<sup>15</sup>

(2) At this point in time, however, joint and Army wargaming and experimentation have only just begun to devote a significant effort to exploring to what extent that the conduct of stability operations in the 2015-2024 timeframe will vary significantly from current doctrine, from current operational experiences in OIF and OEF, or from the several forms of stability operations recently conducted in Europe, Africa, South America, and Asia by U.S. forces. Moreover, ongoing efforts to develop a joint stability operations concept do not appear to be

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<sup>15</sup> TRADOC Pamphlet 525-3-0, The Army in Joint Operations, 7 April 2005. To understand the extraordinary diversity inherent within stability operations, one need only consider the several different forms of stability operations carried out by US forces over the past 15 years on four continents.



leading toward *significant* departures from the basic tenets of current joint and service doctrine. In addition, no *major* new capabilities have yet been *uniquely* identified as having the potential to introduce significant change to the conduct of stability operations, although important progress has been achieved in equipping the deployed force with meaningful improvements in the areas of force protection and ISR.<sup>16</sup>

(3) Overall, therefore, it appears that the best guide at this point in time with respect to describing a concept for the conduct of tactical maneuver in future stability operations is recent operational experience. Thus, the discussion below first focuses on elements of stability operations that are likely to remain operative at the tactical level in the future and then examines the relevance of the five core ideas previously described to this operational environment.

(4) Operational experience indicates that operations by large formations in stability operations will be rare and, when conducted on a large scale, are often ineffective. Most military actions will occur at the tactical level, decentralized to battalion, company, platoon, and squad level, and distributed widely throughout the region. In most cases, operational commanders will explicitly link these highly distributed tactical actions directly to economic, political, or information objectives at the theater or operational level.<sup>17</sup> In turn, it will be imperative that tactical commanders understand and articulate these linkages to subordinates to provide focus to what might otherwise appear to be random, purposeless, or even merely routine activities. Absent a deliberate effort to articulate these linkages, military action in stability operations may prove successful at the tactical level, but ultimately ineffective in the long run.

(5) The indispensable foundation for success in stability operations is the maintenance of a suitably secure and stable environment. With the achievement of that goal, perhaps the three greatest challenges at the tactical level are: the achievement of the level of *SU* necessary for effective operations; *versatility*, i.e., the requirement to be effective across the extraordinarily broad variety of tactical actions carried out in stability operations, accompanied by the ability to execute effective transitions from combat to inherently non-combat activities; and *retention of the initiative*. The first challenge necessarily entails significant organizational adaptation at tactical levels, particularly to “*organize for intelligence*”, including employment of resources allocated from higher echelons, adapting organic assets to focus directly on knowledge-building, and exploiting local indigenous and non-military sources of information.

(6) The second challenge encompasses both combat, support, and security functions with an array of tactical actions that extend widely into many non-combat areas such as reconstruction, restoration of public services, creation of employment opportunities for local residents, control of funding provided to local organizations and officials, support to new political processes and structures, and conduct of interface and liaison between U.S. agencies, indigenous organizations, private and NGOs.

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<sup>16</sup> Other major initiatives to date have been in the area of leader development, adaptive organization, training, and examination of the process of interagency planning and cooperation.

<sup>17</sup> In conventional war, in contrast, major operations generally are the linking mechanism between tactical operations and operational objectives.

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(a) Although many of the functions enumerated above are best suited for execution by non-military organizations, future tactical (and operational) commanders should assume that those assets would not be readily available in the initial stages of a stability operation. In addition, the level of commitment of capabilities from the U.S. interagency may never rise, or be quite slow to rise, to the level required for optimal effectiveness. In those conditions, tactical commanders must consider how to apply their own forces to accomplish non-traditional tasks that are most critical to operational success.

(b) Subsequently, when U.S. interagency resources appear on the scene, tactical commanders must effectively integrate to support and exploit the capabilities that they provide and the ends that they seek to achieve.<sup>18</sup> Thus, in contrast to major combat operations, leaders in stability operations from squad to division level must expect to engage frequently and effectively with local officials and local populations, operate with (and train) indigenous police and military forces as a matter of routine, and cooperate with NGOs that may also be playing a contributing role toward the achievement of stability.

(c) Instead of avoiding contact with local populations inherent within major combat operations, stability operations demand a deliberate approach to establish and maintain such contact. In most situations, the historically-validated significance of winning the “hearts and minds” of local populations remains a central consideration, with predominant emphasis on influencing and controlling behaviors.

(7) The third challenge, retaining the initiative, is dependent on achieving success with the first two challenges. The retention of the initiative depends first and foremost on having sufficient force size properly distributed within the area of operations—a condition that begins with decisions made at the strategic and operational levels. Even small numbers of insurgents can require large numbers of stability forces because it is difficult to know where, when, and how insurgents might act.<sup>19</sup> Leaders must recognize that as long as the enemy is reacting to their actions, they control the environment. The opposite condition is also true. Moreover, if enemy retention of initiative is extended over time, it potentially represents ultimate failure of the stability operation. Retention of the initiative also applies to the steady achievement of progress with respect to non-combat tasks connected to economic, political, and informational objectives. Moreover, it is key to mobilizing indigenous support to achieve desired end-states.

(8) Tactical maneuver is a vital part of stability operations. Because unconventional enemy forces normally attack vulnerable targets and try to avoid contact, suppressing them depends on maintaining freedom of movement throughout the tactical area, maneuvering friendly elements through the area unpredictably to complicate insurgent planning and movements, attacking any grouping of insurgents promptly, and responding with air and ground maneuver to counter enemy actions. In the course of these kinds of operations, tactical flexibility and adaptiveness are critical to success. It will often be necessary for commands to: adjust staff organizations; direct unique task organizations; assume responsibility for functions that lie well

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<sup>18</sup> Some analyses of OIF cite a need for “unified action” at tactical levels in stability operations. While the use of that term may be an exaggeration, the basic idea of integrating military and interagency efforts is valid.

<sup>19</sup> Among many failures in their strategy, the failure of the USSR to devote sufficient force strength to their occupation of Afghanistan essentially doomed their chance to succeed.

outside traditional competencies; employ non-organic resources distributed to lower tactical levels; adapt to and accommodate frequent changes in rules of engagement; and develop unique measures of effectiveness to assess success. In most situations, leaders will face a need for substantial internal reorganization that includes the development of “home-grown” specializations well outside their doctrinal METL.<sup>20</sup> In addition, tactical leaders must also expect and be prepared to adapt to the inevitable setbacks that can potentially compel committed forces to restart or renew programs and activities.

(9) The scope and variety of responsibilities assumed by tactical leaders may often exceed that of combat operations, placing a high premium on the quality and maturity of leadership. At the same time, there is no substitute for small unit tactical excellence, which necessarily forms the base for flexibly adapting to a highly dynamic operational environment.

(10) Ultimately, the ability of tactical forces to act when necessary with precisely modulated violence will ensure the safety of the mission and underpin force credibility and authority. Thus, proficiency in close combat is indispensable, particularly within complex terrain where proximity to the population and the enemy elements embedded within will inevitably produce fleeting meeting engagements. Together, excellence in tactical leadership and proficiency in small unit operations, linked over time to support the achievement of clearly articulated objectives, provide the foundation for tactical success in stability operations.

*e. Applications of Key Ideas in Stability Operations.*

(1) Once again, the overarching significance of *understanding the complex tactical environment* bears reemphasis. In many situations, the complexity of the operating environment in stability operations exceeds that of conventional combat operations, for which commanders are primarily concerned about defeat of the opposing military force. In stability operations, commanders face a substantial increase in the number and complexity of actors and issues. In addition, the potential for second and third-order consequences to affect outcomes demands extraordinary anticipation, insight, and understanding of local conditions. Failure to achieve a full understanding of the tactical environment will virtually guarantee setbacks and missteps with major consequences.<sup>21</sup>

(2) Thus, the previously stated idea of *organizing for intelligence* necessarily pertains both to force organization and the deliberate conduct of tactical actions to produce actionable intelligence and elevate SU. At the same time, however, tactical leaders cannot expect to continuously maintain the level of SU that they would like to have. Hence, even when significant uncertainty exists, units must continue to operate, with due preparation to react effectively to surprise and fleeting engagements.

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<sup>20</sup> A frequently cited example of this requirement from OIF is the creation of S2 sections at company and even platoon level in order to improve the body of actionable intelligence immediately available at those echelons.

<sup>21</sup> Historically, forces initially committed to stability operations more often than not lack the level of understanding of the environment required for highly effective operations. In those situations, the speed at which committed forces acquire the requisite level of understanding can substantially reduce initial missteps and favorably influence the duration and outcome of the campaign.

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### f. *Simultaneous and Continuous Operations.*

(1) Whether concurrent or subsequent to combat operations, or as a separate and distinct campaign, stability operations will often be conducted in an operational area characterized by widely separated units and limited host nation capabilities. Thus, the capability of the future Modular Force to conduct simultaneous operations that are widely distributed, but integrated, throughout the affected region retains its significance. Similarly, the value of maintaining *continuous pressure* in counter-insurgency operations to keep the enemy in a defensive posture and deny freedom of action to act when and where he would like is critically important.

(2) Three key factors in this regard are the size of the friendly/coalition force committed to the conflict, the manpower strength of future Modular Force tactical formations, and the number of tactical (and supporting) operations that can be conducted simultaneously. All must be sufficient to achieve the visible mounted and dismounted presence required to apply pressure against recalcitrant factions as well as to assure local populations of the ability to provide a secure environment for daily life. In addition, promoting legitimacy of the host nation government will often require supporting indigenous units as they take the leading part in providing security and defeating insurgents, eventually reducing operational burdens on U.S. and coalition forces. The surveillance, communications and mobility capabilities of Modular Forces enhance their abilities and those of host nation security forces to act simultaneously and continually across broad areas.

### g. *Decisive Maneuver.*

(1) The principles encompassed within this key idea—high SU, maneuver out of contact, use of multiple axes, combination of tactical stand-off and close combat assault, acting with speed, power, surprise, and shock, and controlling the operational environment—remain operative at the small unit level for stability operations, particularly when the situation demands combat action or the threat thereof. On the other hand, as force-on-force combat becomes rare, the tactical paradigm described earlier in this chapter becomes less relevant.

(2) For example, stability operations will more often require tactical units to develop the situation in close contact with local populations rather than “out of contact” through technical means. Maneuver generally takes the form of persistent, visible presence, often under the observation of enemy elements, but conditioned by a lack of predictable patterns. Small units conducting “presence” or deterrent patrolling during daytime when being seen is important may transition to stealth, surprise, and objective-focused patrolling after night falls. Positions of advantage are achieved as often by virtue of creating supportive local populations than by assuming geographical position.

(3) Similarly, stand-off engagement will rarely be a desirable or feasible activity. Instead, forces will more often be drawn into close combat where brief actions are decided predominantly through direct fire. Employment of stand-off fires also entails higher risk if targets are not accurately identified, precisely located, and sufficiently exposed to be engaged confidently by that means. Stand-off fires that miss or engage a wrongly identified target will normally create highly unfavorable attitudes within local populations and endanger their support.

(4) Finally, tactical operations will be far more decentralized and distributed geographically at company level and below than in conventional combat, placing higher emphasis on the effectiveness of small, semi-autonomous teams at platoon and squad level. In fact, some maneuver operations in this environment will be initiated by squads and teams whose leaders must understand the means of bringing the full power of their parent organizations to bear quickly.

*h. Routine Employment of Joint Capabilities at Tactical Level.*

(1) One of the historically observable continuities in the conduct of stability operations is the deliberate employment of higher-level capabilities in direct support of tactical operations. In OIF and OEF, this trend is most evident with respect to fires and ISR. However, it is indisputable that there will be a continued need to improve our ability to provide actionable intelligence more quickly to meet the requirements of small units in tactical operations. Routine employment of joint capabilities at the tactical level can be expected to continue into the future, expand in scope, *extend to interagency activities*, and assume greater significance at the tactical level.

(2) Simultaneously, the decentralization of operations to company, platoon, and squad level will also create incentives to make those echelons more combined arms in nature through task organization that allocates small CS and CSS elements to those levels, along with improvements in communications and collaborative aids.

*i. Self-Synchronization and Cooperative Engagement.*

(1) The ability to adjust or re-synchronize tactical activities dynamically while in-stride, based on updates in the operational picture, manifestly is supportive of effectiveness in stability operations. Conversely, because the frequency, scale, intensity, and duration of combat actions in stability operations tend to fall well below that of major combat operations, the requirement for cooperative engagement between military elements may not be as acute (the exception, perhaps, being when U.S. forces operate with indigenous forces).

(2) Cooperation between conventional and special forces and between military units and civilian agencies will also benefit from in-progress changes that improve mutual support or take advantage of recent innovations. The need for cooperative engagement of a different character with local organizations, police and interior forces, local leaders, and other important entities in the stability environment will also rise to a high level of significance. Because cooperative engagement in the information domain will be a prerequisite for effective information operations, it must be pursued with extraordinary diligence and attention to detail.

*j. The Quality of Firsts.*

(1) The desirability of acting in accordance with the Quality of Firsts in stability operations is self-evident, although the unique attributes of stability operations may make it more difficult to do so in some respects. For example, to the extent that the enemy is a home-grown

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insurgent, he will typically have an advantage with respect to a deeper understanding of most aspects of the operational environment. In addition, adversaries who refuse to engage may not be fully susceptible to U.S. efforts to apply overwhelming pressure and they will retain some measure of tactical initiative even though remaining largely on the defensive. Typically, U.S. forces will be highly visible, presenting many opportunities for an adaptive, capable enemy to initiate fleeting actions, while the enemy, in contrast, is difficult to identify and act upon by virtue of being embedded within the local community.

(2) Similarly, capability to finish decisively or re-engaging, at will, may also be constrained by rules of engagement or by other higher-order political or even humanitarian considerations. Despite these constraints, successful application of the Quality of Firsts when possible will have undeniable tactical payoffs, the most important of which is retention of the initiative for friendly forces and denial of freedom of action of the enemy.

### 4-6. Multinational Considerations.

a. The capstone concept assumes that in any large scale operation, the U.S. will routinely operate with MN partners. Most of the significant implications associated with such coalitions exist at the operational level where U.S. commanders must overcome significant challenges in interoperability to effectively integrate MN forces within the campaign force structure and campaign design.<sup>22</sup> To the extent that MN forces are integrated with or complementary to tactical operations at the division level and below, tactical commanders must also actively work to ensure effective C2, communications, and information sharing.

b. However, MN partners may also possess unique strengths or capabilities of particular value in the operational environment. For example, in many regions of potential future conflict, regional MN partners will normally have an inherently fuller understanding than U.S. forces of the cultural, economic, religious, ethnic, and political factors that influence the operational environment. Some may have actual operational experience in the conflict region, or may be optimized from the point of view of organization and capability for the conduct of stability operations, irregular warfare, and nation-building. It is incumbent upon future tactical commanders to recognize and exploit such unique strengths while also developing solutions to ensure effective integration.

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## Chapter 5. Supporting Functional Concepts

This section describes how the six conceptual warfighting functions are applied at the tactical level and helps to identify the functional capabilities required for the future Modular Force to operate in accordance with this concept.<sup>23</sup>

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<sup>22</sup> Interoperability challenges with MN integration are addressed most comprehensively in the Operational Maneuver concept.

<sup>23</sup> FM 3-0 Revision provides six warfighting functions in its discussion of generating combat power. For conceptual work, the Functional Concepts will deviate from doctrine to explore the functions of Battle Command and See, rather than command and control and intelligence, as they may provide the next step in doctrinal evolution in functions.

## 5-1. Battle Command.

### a. *Commander-Centric Battle Command.*

(1) The Army Capstone Concept sums up the overarching challenge for future Modular Force battle command:

The conduct of simultaneous, high-tempo, non-contiguous operations executed by future Modular Force formations at varying levels of modernization and distributed broadly across the area of operations will place very high demands on future Modular Force leaders with respect to both the art and science of command. Commanding, controlling, and leading will require masterful commanders, staffs, and logisticians who fully understand the complexities of the emerging operating environment as well as the highly-integrated joint, MN, and interagency characteristics of future full spectrum operations.

(2) Commander-centric battle command is a term which has been used for a number of years to summarize future change that more effectively supports the commander and overcomes long-standing C2 challenges, such as:

- an overly deliberate planning process.
- an often time-consuming, staff-centric decision-action cycle.
- sequential vs. simultaneous planning.
- stove-piped information systems that do not adequately share information across functions.
- C2 processes that are not fully optimized to provide the commander answers to his critical commander information requirements (CCIR) in a timely fashion, nor to adjust rapidly to changing CCIR.

(3) However, the Army is moving forward aggressively to resolve these challenges, with particular emphasis on the eventual development of a single battle command system that effectively integrates and displays information across all battlefield functions. Current programs and initiatives such as LANDWARNET, command-post-of-the-future (CPOF), changes to staff structures, joint-interoperable communications, and emerging planning and decision aids either hold promise or are already proving to represent significant steps forward for the future Modular Force. Ultimately, these improvements and others will help the future Modular Force realize the following critical elements for tactical battle command in future full spectrum operations:

(a) *Mission Command.* Mission command, vice detailed command, is the natural command approach for future Modular Force tactical commanders given the expectation of higher levels of SU and the distribution of a COP (tailored to unit level and function).

(b) *Multi-echelon Collaboration.* The capability for commanders and staffs at multiple echelons to participate collaboratively and simultaneously in the planning process will reap extraordinary benefits with respect to fuller understanding of commander's intent, a deeper appreciation of the implications of planning decisions across units and formations, and a better-informed base of knowledge for the exercise of *initiative* during battle.

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(c) *Accelerated MDMP*. It is further reasonable to expect an acceleration of the MDMP in the future. This benefit should emerge as a product of multi-echelon collaboration and the exploitation of information systems and automated decision aids that maintain near real-time visibility of changing battle conditions and enable faster consideration and selection of courses of action (and branches and sequels). In turn, accelerated decision making underpins the ability to “act first” while forcing the enemy into a reactive posture.

(d) *Rapid Mission-Tailoring, Dynamic Task Organization, and Span of Control*. The requirement to conduct simultaneous full spectrum operations and the complexity of future threats will require future tactical commanders and their commands to be highly proficient in rapid mission-tailoring (division level) and dynamic task organization (brigade and battalion levels) in order to adjust rapidly to changing missions and environments. As advanced battle command capabilities appear in the force, the ability of commanders to exercise effective C2 of a larger number of maneuver forces at a single echelon will also emerge to introduce improvement in operational flexibility and greater potential to maintain continuous operations.

(e) *Battle Command on the Move*. The high tempo of operations and the expanding operational reach of tactical formations forecasted in this concept further demand continuing improvement in the ability to conduct battle command on the move, from both ground and air.

(f) *Staff Evolution*. Staffs will need to continue to evolve in response both to the technical improvements in battle command and the dynamic, complex nature of the future tactical environment.<sup>24</sup> At the higher tactical level, operational demands will likely generate more frequent use of deputy commanders and temporarily formed subordinate command posts to command and control supporting and/or geographically dispersed operations. The use of reach-back will further extend capability to include “virtual staff” support.

(g) *Reach-back*. The capability for tactical commanders and staffs to reach back to remote knowledge centers and home station operations centers for informational, analytical, and planning support is highly desirable. Although reach-back capability is currently emerging primarily at operational level commands, it can be expected to descend to lower tactical levels in the future to reduce the burden on tactical staffs and to expand and strengthen the knowledge base for operational decisions.

(h) *Precision Decision-Making*. The sum of these advances will enable commanders and logisticians to anticipate more reliably, make better and timelier decisions, and apply resources more precisely and effectively. Through access to the collaborative information environment, subordinate commanders will maintain situational awareness during operations, synchronize their actions with fellow commanders, and make incremental adjustments in response to changing conditions.

(i) *Force Quality and Decision Superiority*. Despite the significant advances projected above, sufficient variables exist to challenge their realization, not least of which are actions taken by a creative, adaptive enemy intent on denying U.S. forces effective C2. Military

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<sup>24</sup> The development of staff “Red Team” specialists is a good example of near-term staff evolution in response to the current operational environment.



history offers many examples where commanders, including the Great Captains, made wrong decisions even when well-informed and ably served by their staffs.

(4) Future tactical commanders cannot expect to be right all the time, “first” all the time, or in the right place all the time. However, many of the desired improvements discussed will serve well to mitigate and enable rapid recovery from errors in decision-making. Topping the list is the overall quality of the future Modular Force itself and the adaptive abilities of its leaders and Soldiers. Tactical excellence has long been a hallmark of the U.S. Army; this concept assumes it will continue to characterize the future Modular Force. Hence, the inherent quality of Army tactical formations will compensate for imperfect decisions through rapid recognition of the need to adjust operational execution, while remaining in tune with the commander's intent. Simultaneously, force quality increases the commander's confidence that even less than perfect plans can be adjusted in stride and still achieve assigned missions.

## 5-2. See.<sup>25</sup>

### a. *Understanding the Complex Tactical Environment.*

(1) It is difficult to overemphasize the significance of the advantage achieved by the fighting force that is able to maintain an information advantage over its adversaries. Thus, the need for future tactical commanders, staffs, and unit personnel to understand the complex tactical environment has received more emphasis in this concept than any other theme. Higher levels of SU and the reduction of uncertainty in future battle will enable commanders to act more decisively, precisely, and prudently while optimizing the application of all other tactical functions and capabilities. *The critical role of and need for improvements in intelligence capabilities and processes to achieve this goal are self-evident.*

(2) However, the ability to maintain such an advantage cannot be taken for granted, nor considered to be an absolute, a continuous condition, or just a product of technology. Future Modular Force tactical commanders will also need to fight for information in many situations as a prerequisite to informed decisions.<sup>26</sup> Moreover, future commanders must also have the capability to adjust their ability to *See* as conditions, missions, and environments change over time, particularly when transitioning between offensive, defensive, and stability operations. This capability is especially paramount because the kinds of information required for effectiveness may radically change during such transitions. Situational understanding may be even more significant for stability operations in order to overcome the advantage that an indigenous enemy will undoubtedly possess with respect to knowledge of the conflict environment.

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<sup>25</sup> The concept uses the definition of intelligence warfighting function - related tasks and systems that facilitate understanding of the enemy, terrain, weather, and civil considerations – as a start point for discussion.

<sup>26</sup> Chapter 4 cited the "Thunder Run" operations during OIF as an example of this continuing requirement.

(3) The idea of a tactical infosphere developed in the recent past and investigated by the Army Science Board continues to be a relevant framework for identifying some of the requirements for the *See* function at the tactical level.

**The Tactical Infosphere**

The tactical infosphere is the layered, integrated network of information and communications capabilities required to support effective tactical operations, as well as the information that is provided thereby. “Fully networked communications with access to the global information grid (GIG) at the lowest tactical levels that provide real-time situational awareness and targeting with connectivity to joint, theater, and national sources and reachback assets on the GIG are needed to assure “decision dominance” by tactical commanders. The tactical infosphere requires: wider bandwidth; robust, self-organizing, self-healing communication architecture; and an integrated, distributed, virtual database that is computer intensive, with smart routers and multi-level security protocols.” (ASB Summer Study 2000)

(4) Future Modular Force tactical formations will depend to a significant degree on division and corps capabilities to provide much of the basic information to populate the tactical infosphere in support of tactical operations (particularly that component of information that is least likely to change rapidly). However, tactical commanders will also need to employ substantial organic or mission-tailored assets to fill in the many gaps that will exist that can only be satisfied at the granular level achievable at the tactical level. For example, operational experience continues to stress the need for the development of well-focused, near real time, *actionable intelligence* required for effective tactical action. Until capabilities emerge to enable higher echelons to provide such intelligence to tactical units, tactical commanders will continue to have to rely largely on their own resources to obtain it. Alternatively, commanders at higher echelons may distribute ISR assets to lower levels in order to reinforce their capability to develop actionable intelligence. The need will also exist for robust horizontal dissemination of intelligence where units are routinely operating in dispersed locations.

(5) Other key developments required to support the *See* function at the tactical level include the following:

(a) *Information Management.* The volume of information available at the tactical level will continue to grow, increasing the existing challenge of information management and demanding advanced capabilities for information processing, automated updating and distribution, filtering, and fusion across functions and levels. Advanced technologies and effective processes must combine to simplify information management and ensure that the volume of information flowing into tactical headquarters does not overwhelm commanders and staffs.

(b) *Sensor Proliferation.* Tactical forces will benefit from the continued development of sensors operating in three dimensions that provide both temporary and persistent surveillance, without creating a management challenge or requiring a significant increase in

force structure to employ. Desirable qualities include multi-functionality, difficulty of detection, self-reporting only when triggered, pattern/change recognition capability, and disposability. Experience in OIF has also elevated the need to develop sensing capability to distinguish combatants from non-combatants to better inform tactical action and avoid non-combatant losses.

(c) *HUMINT*. Recent operational experience also highlights the unique and irreplaceable role of human intelligence, particularly as the emerging operational environment (and defense policy) shift emphasis from traditional conventional operations to irregular warfare. For future tactical commanders, exploitation of HUMINT goes beyond capabilities resident within ground forces to include SOF, an extensive variety of local sources, interagency organizations, and even civilian contractors in the operational area.

(d) *Counter-intelligence and Information Denial*. The unavoidable mingling of ground forces with civilian populations in stability operations and irregular warfare increases the need for effective counter-intelligence capabilities, both to reduce the vulnerability of deployed forces and to avoid loss of initiative or surprise. Moreover, in a world in which operationally relevant information is increasingly available through media and internet sources, future tactical commanders require means to enable them to deny information to the enemy. These means should extend beyond traditional operations security and other existing active measures that target conventional intelligence collection capabilities.

(e) *Networked Soldiers and Teams*. The discussion above describes the need for capabilities and improved processes that enable commanders, leaders, and staffs to see and know better. Simultaneous progress to improve the situational awareness of Soldiers and teams is also imperative. The primary means of doing so will be by linking Soldiers and teams into the tactical network and equipping them with a suite of light-weight devices and sensors that:

- Enhance communications at the lowest tactical level.
- Improve day/night visibility and ability to see in complex terrain (via advanced sensors).
- Provide a shared operating picture in the immediate tactical environment.
- Do not overwhelm Soldiers and teams with complexity or excessive information.
- Reduce Soldier vulnerability to enemy action.

(6) Finally, it is important to recognize the indispensable contribution of tactical forces to the capability of higher echelons to see the battlefield. Essentially, tactical ground forces provide a unique capability to provide "ground truth" by virtue of their close proximity to the enemy and their very presence on the ground.

### **5-3. Strike.<sup>27</sup>**

#### *a. Networked Massed Effects and Precision Engagement.*

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<sup>27</sup> The concept uses the fire support warfighting function - related tasks and systems that provide collective and coordinated use of Army indirect fires, joint fires, and information operations – as the start point for discussion.

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(1) *Strike* includes fires routinely integrated with information operations (IO) and the related capabilities of Public Affairs, Civil-Military Operations (CMO), and defense support to public diplomacy.<sup>28</sup> Three connected ideas comprise this fundamental change vector for employment of strike capabilities in future operations.

(2) The first is the requirement for a highly networked force that enables both *cooperative engagement* between elements of tactical ground forces committed in battle together and the *routine employment of joint strike capabilities* to support tactical action. With respect to the fires component of *Strike*, tactical maneuver will be supported in the future by a fully integrated joint fire control system of systems, characterized by centralized fires/effects planning, with decentralized execution by fire systems that are organic to maneuver brigades and battalions as well as by highly dispersed, modular fires organizations tailored at division level and above. The network must be able to: ensure continuous fire support; optimize the allocation of internal and external resources; automatically de-conflict the targeting process; simplify clearance of fires; support mutual support between adjacent units; sharply reduce latency; and achieve maximum effects for resources expended. Near-real time connectivity between organic and joint sensors and effects providers is also required if joint strike is going to effectively support tactical action.

(3) The network, in turn, will enable tactical formations to employ massed fires without having to mass delivery systems. Advanced fire control, 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. However, massing effects at tactical level will extend beyond just fires and include non-lethal capabilities that generate desired outcomes based on neutralization or establishment of *control*, rather than destruction. Information operations, psychological operations, and civil affairs activities are examples of other effects-providers that will be better integrated at tactical (and operational) levels in the future, particularly in stability operations and irregular warfare where kinetic responses may generate undesirable consequences.

(4) Third, the requirement for precision engagement with Strike capabilities will increase, not diminish, over time. Precision engagement refers first of all to the ability to engage the right targets at the right time, with the right munitions, to generate the precisely desired effects. With respect to fires, the long-sought goal remains one shot/one hit with potentially multiple kills. However, conditions will continue to arise in which area munitions remain the right choice for employment and for which the *precise employment of area munitions is an imperative*. Similarly, the idea precision engagement also applies to the employment of non-lethal capabilities to achieve well-defined, measurable, precise effects. In stability operations, the idea of precision also encompasses extraordinary care to ensure that the targets identified for engagement are indeed what they appear to be since errant fires in that environment will erode public support. In short, the focus on precision engagement is on precision in generating the effects desired, highlighting the art of employment and improved SU, rather than just on inherent precision qualities in the capabilities employed.

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<sup>28</sup> JP 3-13, Information Operations.

b. Future Modular Force BCTs and subordinate battalions 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/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.

c. The division will routinely provide continuous fire support to tactical engagements to ensure freedom of action for maneuver elements, conserve consumption of tactical on-board capabilities for use during follow-on objectives, and help to accelerate tactical decision. How target sets and fire missions will be apportioned from battalion to division (and corps) level will be determined through the integrated fire planning process, but it is reasonable to presume that the 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. The division will also carry out the majority of the shaping fires required to set conditions for both the current and future fight.

d. As noted just above, the employment of non-lethal and non-kinetic capabilities for *Strike* will also seek to produce the precise effects desired by the commander. The dual ideas of *control* and *setting conditions* are helpful in distinguishing both goals and actions for such employment. For example, tactical commanders may wish to control crossing points over a water obstacle rather than destroy them, or, to control movements of local populations or the enemy through setting conditions that constrain those movements. These effects may often be temporary in nature rather than permanent and they will normally involve the combination of capabilities rather than employment of a single capability. The idea of *cooperative engagement* further applies at this point to ensure that parallel actions by adjacent forces are mutually supportive of common goals and not counter-productive. Cooperative engagement between forces will increase the probability of tactical success.

#### **5-4. Move.**

##### *a. Exploitation of the Vertical Dimension.*

(1) Three changes in particular will distinguish future Modular Force tactical movement and maneuver from traditional practice. The first is the ability to develop and effectively act on information. The second is the capacity to execute actions in contact with significantly higher levels of tempo, lethality, survivability, and endurance. The third is an increase in speed, through improved off-road agility, improved fuel consumption for longer sustained movement, and greater exploitation of the vertical dimension. The first two changes have been discussed in Chapter 4. This section speaks directly to the third area.

(2) Future Modular Force improvements in speed and terrain negotiation will introduce significant advantages to tactical movement over a less tactically mobile enemy. Certainly, these improvements will constitute a distinct advantage in movement to contact and enable the future

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Modular Force to more easily seize positional advantage, achieve surprise, or win the race to occupy contested key terrain. Greater use of vertical movement and maneuver or improvement in the ability to identify and operate along the seams between enemy forces will compel the enemy to secure himself from a 360 degree perspective and limit his ability to concentrate. Superior speed and dispersed movement also constitute an inherent form of protection in that it complicates the enemy's ability to acquire, pattern, and effectively target U.S. tactical units. When coupled with other enablers, improved speed and agility will enable commanders to conclude tactical actions and engagements more rapidly and decisively than has been possible in the past. Overall, the paralyzing psychological effect that fast moving forces, operating with effective situational awareness, impose on slower forces may be its most important operational benefit—an effect certainly observed in OIF in 2003.

(3) Tactical vertical maneuver is critical to the operational disintegration and dislocation of the enemy force. Future Modular Force divisions will be mission-tailored with the capabilities required to conduct battalion-sized vertical maneuver operations, augmented by lift, dedicated ISR, attack aviation, and long-range fires. The division conducts vertical maneuver in independent actions or as complementary maneuver in support of committed mobile ground maneuver forces. Vertical maneuver enables tactical commanders to destroy key capabilities and forces, extend reach, achieve surprise and positional advantage, preemptively seize key terrain, overcome or avoid difficult terrain, accelerate maneuver of the overall force, and isolate or block enemy forces. Perhaps most importantly, vertical maneuver will often lead to more rapid tactical decision, shortening durations of battle and enabling higher operational tempo. Future Modular Force units will employ surprise, deception, detailed reconnaissance, suppression of enemy air and local ground defenses, and dispersed entry to mitigate risk.

(4) Future Modular Force commanders will continue to rely on combat support capabilities to support tactical movements in the future. The two primary functions carried out in this regard are providing assured mobility and denying the enemy capability to interfere with friend tactical movement. 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, tactical 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. Essential tasks performed by combat support (maneuver enhancement) forces include:

- Improving immature mobility infrastructure.
- Enhancing mobility within urban and complex terrain.
- Eliminating hazards and obstacles, including those that hinder air operations.
- Preventing the adversary from impeding mobility and preventing him from adversely shaping the terrain to create advantages.
- Utilizing highly responsive counter-mobility support to fix, canalize, constrain, or block enemy forces and protect engaged units.
- Controlling displaced persons, refugees, and enemy prisoners of war.
- Improving mobility support, bridging and obstacle breaching.

(5) Finally, commanders must be prepared to compensate for the differences in speed and mobility that may often exist within forces that have been mission tailored from unequally modernized components of the (hybrid) future Modular Force. The differences may also be acute when comparing the speed and mobility of maneuver forces against that of the sustaining organizations responsible for ensuring their timely replenishment in distributed operations.

## 5-5. Protect.

### a. *Holistic, Passive and Active Protection.*

(1) 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 area of operations. Traditionally, ground forces have sought force protection primarily through better-protected fighting platforms, adroit use of terrain, advantages in night operations, and appropriate dispersion. All of these approaches retain high value for protection in future conflict, although advances in a number of areas are also required.

(2) In the future Modular Force, 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 enhance protection through cooperative target acquisition and engagement by tactical combined arms teams of mounted and dismounted teams, connected through robust, jam-resistant communications, making it more difficult for the enemy to identify either sensors or shooters. Essentially, four integrated layers of protection act holistically together to support tactical operations: the soldier, the platform, the unit, and external support.

(a) *Soldier.* The Army places high emphasis on improvements in the means to improve individual survivability. Among others, continuing advances in body armor, self first-aid, prophylactics, aids for night operations, and individual mobility are required. Use of robotic systems in appropriate situations will also reduce exposure of manned elements in high-risk tasks. The higher levels of SU generated through *networked Soldiers and teams*, including use of miniature displays and disposable sensors, will substantively improve protection at soldier-team level.

(b) *Platform.* The future Modular Force will need to rely more fully on the development of *active protection systems* to protect fighting and support platforms on the ground and in the air. The emphasis in Army concepts on greater exploitation of the vertical dimension certainly argues for a suite of capabilities to protect aviation assets that operate in close proximity to enemy forces. Combining capabilities for detection and immediate response, active protective systems will deflect or deceive incoming high velocity rounds before they strike. Continuing improvement in reactive armor and the development of composites that provide lighter-weight reactive protection are also desirable. The network and sophisticated tactics, techniques and procedures (TTP) may also enable sub-units to employ mutually supporting direct counterfire, wherein one platform immediately retaliates by destroying an enemy weapon

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system that attempts to engage an adjacent platform, thereby generating a significant deterrent effect against the enemy in direct fire battles. Overall, the measure of effectiveness for platform protection is the degree to which it enables friendly units to confidently close with and destroy any type of enemy in all terrain and weather during tactical assaults.

(3) *Unit.* Maneuver BCTs are envisioned to include organic capabilities for identification-friend-or-foe, early warning, cueing, surprise-avoidance, preemptive and reactive counter-fire, and counter rockets/artillery/mortar capabilities. In addition, key elements of this concept will inherently contribute to force survivability.

(a) For example, decentralized operations by highly mobile maneuver elements moving along separate routes provide inherent force protection against enemy acquisition and engagement, while advantages in ISR and tactical stand-off engagement enable maneuver units to see first, understand first, and engage first, further enhancing survivability.

(b) In addition, the ability of concealed units to apply immediate indirect fires or for a platform to rapidly and precisely engage a target with assured first round kill are also key. Ideally these targets will be detected by another platform or external source, thereby enhancing protection for both sensor and shooter. This type of engagement will also confuse the enemy and prolong the ability of friendly elements to engage successive targets. Although difficult to achieve, this approach exploits synchronization of maneuver, fuses reconnaissance, surveillance, and target acquisition (RSTA) capabilities within the network, and substantively multiplies the lethality and survivability of each tactical unit.

(c) Full-dimensional protection also depends on not being detected, acquired or hit. Naturally, active measures to destroy, neutralize, or deceive the enemy's means to detect and engage effectively also remain important.

(4) *External Enablers.* Future Modular Force units will depend significantly on higher echelons to provide protection in several major areas, most notably air defense, early warning, rear area security, protection of lines of communication, elimination of enemy long-range precision fires capabilities, and large-scale chemical, biological, radiological, nuclear, and high-yield explosive (CBRNE) defense. Higher echelons will also direct maneuver support functions to protect tactical forces in the areas of population control, survivability engineering, obstacle emplacement, mine-clearing, and neutralization of other hazards.

(5) *Knowledge.* Finally, the protection advantages produced through superior knowledge cannot be overemphasized. 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 information superiority, 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.



## 5-6. Sustainment.

### a. *Robust Distributed Sustainment.*

(1) The idea of simultaneous, high-tempo, non-contiguous operations distributed widely throughout the area of operations presents significant challenges to sustainability at both operational and tactical levels. Continuing progress in the revolution in military logistics is critical to achieve the combat service support transformation needed to sustain the continuous operations described in this concept. At the tactical level, sustaining operations typically will occur in pulses keyed to battle rhythms, in which committed forces are deliberately cycled into and out of battle for mission-staging and in-stride replenishment. To adjust and redirect distribution in accordance with these cycles and the evolution of the campaign requires a high level of logistical SU and an adaptable distribution framework orchestrated at the operational level. To maintain high tempo, the duration between tactical replenishments likely will increase; self sufficiency of tactical units must also increase accordingly.

(2) Divisions will be mission-tailored with modular, unit-based sustainment capabilities appropriate to operational requirements. These capabilities may vary over time as operational conditions and missions change. In major combat operations, the division rotates its BCTs through battle and sustainment cycles (mission staging) to avoid operational pauses whenever possible and maintain continuous operations against the enemy. Normally, BCTs will be supported by an organic sustainment unit to provide forward support and in-stride replenishment. The high tempo and extended distances over which forces will operate demand organic distribution capabilities that are equally mobile and agile.

(3) In contrast, for stability operations characterized by lower tempo and the preponderance of action at battalion level and below, rotational cycles will descend to levels below the BCT. However, it is more likely that sustainment of forces in stability operations will assume more of a continuous character (rather than pulse-based). In fact, BCT sustainment capabilities may be augmented to address the specific requirements of that environment.

(4) For both major combat operations and stability operations, a non-contiguous battlefield framework will introduce challenges to the security of ground lines of communication (GLOC), particularly if the scale of operations and insufficient force density make it impractical to maintain continuous GLOCs. In those situations, division and brigade commanders will need to take special measures to open, secure, and close GLOCs as required, while the force overall expands its reliance on air lines of communication to sustain forward elements. To be most effective, air sustainment capabilities will need to deliver unit-configured stocks as close to the using tactical unit as possible. In addition to its organic capabilities for air sustainment, the future Modular Force will be further enabled by the employment of super-short take-off and landing (SSTOL) or short take-off and landing (STOL) aircraft to meet that requirement.

(5) The complexity of the sustainment challenge places a premium on continued progress in the reduction of sustainment requirements. Employing and sustaining forces in the manner described in this concept will be difficult to achieve if the future Modular Force continues to require the high volume of sustainment needed today, particularly with respect to

fuel, power, and munitions. Weight and cube reduction across all classes of supply, simplified packaging and materiel handling, and increasing commonality in equipment and platform characteristics will all contribute to ease current logistical burdens, as will improvement in the reliability and maintainability of major end items. Overall, these kinds of advances will also lead to a desirable reduction in logistical infrastructure while increasing the operational agility of the force considerably.

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### **Chapter 6.** **Capabilities for the Future Modular Force**

This chapter summarizes the most important family of capabilities necessary for the future Modular Force to conduct tactical operations as described in this concept. Some repetition exists with the summary of capabilities defined within the Operational Maneuver concept in those instances where future requirements affect both the operational and tactical levels of conflict.

#### **6-1. The Network—Battle Command and See Capabilities.**

a. 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 tactical operations.

b. The following items are a short list of the many battle command, ISR, and communications requirements that will be cited in more detail in functional concepts.

(1) 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.

(2) At heart of the network of networks, the Army must develop a single, integrated battle command system of systems, 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 COP tailored to force, function, and level.
- Supporting higher levels of situational awareness.
- Integrating information flows across warfighting functional areas.

(3) Communications:

- Commander's reach and ensure continuous connectivity through multiple pathways in the conduct of simultaneous, distributed operations. Space-based capabilities in this

area are particularly important for austere theaters characterized by undeveloped communications infrastructure.

- Airborne C2 capability and communications relays.
- Improved connectivity between individual Soldiers, sub-teams, and teams.
- Extended range, redundant communications networks are required to expand the “self-healing” qualities that automatically adjust the network, re-route information flows, and execute immediate action measures to counter the enemy's actions to ensure that degradation remains short-term and reversible.

(4) Sensor Proliferation. The *See* function at tactical level will be substantively improved by the proliferation of new sensing capabilities that have the following qualities: multifunctionality; low signature; passive and active modes; remote triggers; self-mobility; disposability and low cost; and ease of operation, with the goal of limited force structure costs for employment.

- Persistent surveillance capability.
- Unmanned air and ground systems with on-board, tailorable, sensor suites.
- Detection capability for urban and sub-surface terrain.
- ISR synchronization and display tools.
- Models to optimize employment of sensors and other collection sources.

(5) Decision Aids and Knowledge Management. Highly advanced information processing, employing automated filters, comparative analysis, and horizontal fusion are required to enable tactical formations to quickly turn information into knowledge.

- Improved models for course of action analysis, pattern recognition, and predictive planning.
- Three-dimensional mapping, optimized for specific terrain sets.
- Improved, embedded modeling and simulation capability suitable for both training and operations.
- Three-dimensional (holographic) visualization.
- Biometric and tracking tools for enemy identification and tracking.

(6) Information Assurance. Army (and joint) network design and system architectures must deliberately account for 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. Defenses against computer-network attack, deception, electronic intrusion or monitoring, and electro magnetic pulse, must also be embedded within networks. The challenge of multi-level security to control access must also be solved.

(7) Improved, joint integrated capabilities to better execute Army airspace C2.

(8) New TTP and organizational change to accommodate all the capabilities identified above.

**6-2. Advanced Lift—Move.**

a. Intratheater lift capabilities are also cited within the Move concept. Noteworthy required capabilities for operational maneuver include the following

(1) Advanced intratheater airlift is required to support tactical vertical maneuver over extended ranges through the simultaneous employment of multiple unimproved pickup and landing areas by means of SSTOL and vertical take-off and land profiles. Aircraft must be able 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. 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.

(2) Improved means for securing air corridors used for tactical vertical maneuver must be developed through a system-of-systems approach that combines on-board active and passive protection systems with the employment of advanced joint suppression of enemy air defense capabilities, 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 vertical maneuver.

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

(4) Improved obstacle detection and counter-measures to support force mobility.

(5) Denial of enemy freedom of action. Critical capabilities to execute this imperative include: smart munitions and mines with on/off modes and ability to discriminate targets; dynamic, rapidly emplaced, self-healing and self-destructing minefields; trafficability reducers; multi-spectral obscurants; and a variety of non-lethal inhibitors to enemy movement.

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

(7) Ensured mobility for logistics organizations and capabilities to keep pace with maneuver elements in a high-tempo, non-contiguous operating environment.

b. Mobility support enablers for vehicles and dismounted elements, particularly within complex terrain. For example:

- Multi-story building entry through upper floors and roofs.
- Entry and movement in subterranean complexes.
- Wall breaching.
- Vertical movement of individuals and teams.

- Rubble negotiation and clearance.
- More rapid gap and obstacle crossing.

**6-3. Logistics Transformation—Sustain.**

a. Key required capabilities include:

(1) 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.

(2) Continuing improvement in capabilities that enable in-transit visibility.

(3) Organizational and process improvements that enable broader use of unit-configured loads.

(4) Advanced intratheater and tactical lift capabilities to support distribution, recovery, and backhaul via discontinuous lines of communication.

(5) Precision aerial delivery by manned and unmanned systems.

(6) Continuing improvements in palletization and mode transfer technologies to enable more rapid transport and easier handling of support packages.

b. Keys to the reduction of sustainment demand and logistics infrastructure reduction include:

- 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, such as portable, efficient desalinization.
- Smaller, more effective munitions.
- Cube and weight reduction in all classes of supply.

**6-4. Strike.**

a. The future Modular Force requires the development of integrated joint fire control networks that provide more effective application of all source fires and effects, from theater to tactical levels.

b. As the future Army increases its dependence on joint fires, the need for improved linkages and corresponding TTP to ensure effective support becomes even more urgent. Other required capabilities:

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- Improved organic and joint sensor-shooter linkages are needed to reduce latency and expand the means and rapidity within 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 UAS, joint fires, and other joint ISR assets are required for the conduct of mobile strike operations.
- Improved target acquisition and ISR capabilities (e.g. automatic target recognition) are needed to enable more responsive and effective *preemptive* and *reactive counterfire*.

(1) *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; tunable munitions for which terminal effects can be altered once in flight; air to surface munitions for Unmanned Combat Air Vehicle; munitions effective against hardened (underground) targets; high-powered microwave munitions.

(2) *Non-lethal capabilities*. Non-lethal technologies hold huge promise for employment in future conflict and give tactical commanders a new, highly desirable set of options for use in a variety of situations. For example, they 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 offer high utility for this purpose in the future. Non-lethal capabilities will serve as acceptable substitutes for conventional munitions when collateral damage and civilian casualties are at risk. Thus, they will be particularly useful against enemy elements that employ practices such as "human shields" or sheltering within populated areas. Non-lethal capabilities may also significantly reduce costs and volume of munitions required.

(3) *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. Developing DEW capability must be a priority for Army and DOD research and development in order to avoid technical surprise in the future.

(4) *IO Strike*. Improved capabilities for electronic warfare, localized EMP (hand-held and remotely delivered), and kinetic attack are required to improve capability to degrade or destroy the enemy's information, communications, and C2 capabilities.

(5) *Sniper Capability*. Improved optics; low signature, extended range, firearms; remote sensing.

(6) *Cooperative Engagement* and *Point and Shoot* capabilities to link and optimize line-of-sight and non-line of sight engagements in which fires platforms respond to targets identified by non-organic sensors.

**6-5. Protection.**

a. Force protection will be enhanced by the following kinds of capabilities:

(1) Air and missile defense. Operational level air and missile defense are described in the *Operational Maneuver* concept.

- The projected, broad proliferation of MANPADS capability demands a holistic solution set to enable the frequent use of vertical maneuver anticipated within this concept.
- DEW capabilities for use in point defense at tactical level.
- Improvement in early warning capability to avoid surprise attacks.

(2) Development of effective active protection systems that respond to virtually all incoming munitions above the size of small arms—counter rockets, artillery, and mortars.

(3) Continuing advances in detection and neutralization of improvised explosive devices and other “unconventional” threat.

(4) Development of light composite armors.

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

(6) Improved counter-recon capabilities to deny the enemy’s ability to collect on U.S. dispositions, including detection and destruction of enemy UAS.

(7) Improvement in countermine measures for both detection and neutralization.

(8) Preemptive detection and engagement of enemy snipers.

(9) Broad, expanded suite of preventive and reactive health measures.

(10) Environmental risk assessment tools.

(11) Soldier and dismounted team protection:

- Improved body armor.
- Vision aids.
- Prophylactics.
- Self and buddy first-aid.
- Food supplements.
- Cognitive and energy aids.

(12) Survivability engineering that requires less time, infrastructure, and materiel to emplace.

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

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## Chapter 7. Conclusion

a. Assuming the future introduction of the comprehensive set of advanced capabilities described herein, this concept projects that the future Modular Force will conduct tactical operations that, in comparison to current operations: occur over larger geographical spaces; reflect considerably higher levels of simultaneity and independent action; engage enemy forces earlier and more continuously; exhibit a higher operational tempo; and conclude engagements earlier and more decisively.

b. Additional specific differences will include:

- Higher levels of *SU* within complex tactical environments to help optimize the employment of force capabilities.
- Improved ability to conduct *distributed, non-contiguous operations*.
- Execution of *commander-centric battle command*, encompassing *significant improvement within the MDMP*, enabling more precise decision-making, based on multi-echelon collaborative planning, shared COP, improved intelligence, and multiple forms of analytical and decision support tools.
- *Continuous operations* featuring cycling of BCTs and synchronization of battle and logistical rhythms.
- Capability to *self-synchronize* tactical forces while operations are in progress and *optimize cooperative engagement* between committed forces.
- Greater emphasis on *tactical stand-off engagement* versus today's higher reliance on direct fire engagements in close combat assault, applying what is essentially a new tactical paradigm to *decisive maneuver*.
- An *expanding radius of action* rising from advances in mobility, *fully networked fires*, and tactical reach.
- Greater *freedom of action*, even while maneuver elements are fully engaged.
- More *routine integration of higher Army and joint capabilities* at lower tactical levels.
- Increasing ability to leverage the *Quality of Firsts* as a fundamental means of retaining the initiative and overmatching the enemy's cycle of adaptation.
- Sharply improved *exploitation of the vertical dimension*.
- Substantially different approaches to *force survivability* and *distribution-based sustainment*.



- Continuing, improved capability to conduct *effective full spectrum operations* across the spectrum of conflict.

c. To conclude, despite the projected changes in the future joint operating environment, operations will continue to depend on tactical success in close combat, i.e., the capability of future tactical formations to close with and destroy enemy forces and to seize and control key terrain. Close combat has one purpose—the destruction or defeat of enemy forces to decide the outcome of battles and engagements. In this sense, close combat tactical actions, tempered by the unique requirements of each future contingency, are the fundamental building blocks for operational success. Imbued with the warrior ethic and the spirit of the offensive, the future Modular Force will continue to lead the world in tactical excellence. Above all else, the realization of the ideas presented within this concept depends on that condition.

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### **Appendix A. References**

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TP 525-3-0, *The Army in Joint Operations: The Army's Future Modular Force Capstone Concept 2015-2024*, v 2.0, 7 April 2005.

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## Appendix B. Assumptions and Alternative Concept Solutions

**B-1. Assumptions.** The purpose of these assumptions is to deliberately bound the strategic and operational context for the concept, identifying conditions that would require a reassessment of the concept through experimentation.

- Army force transformation campaign objectives will be achieved and will constitute a *baseline* with respect to basic force structure in 2015.
- The Army will remain a hybrid force of light, medium, heavy, and special purpose forces in the 2015-2024 time period.
- Army organizational design will continue to evolve as technologies mature and lessons from current modular forces are incorporated in to the force.
- Modularization of combat, combat support, and combat service support units will be complete; the basic building block of the future Modular Force for tactical operations will be a modular, scalable combined arms BCT supported by similar modularized functional organizations. However, the actual mix of forces and the size of the Army will be subject to significant change due to any number of unforeseen factors.
  - Joint transformation will succeed in achieving its fundamental objectives.
  - Joint and Army transformation will enable integration of joint capabilities at lower tactical levels.
  - Advances in C4ISR capabilities will enable higher levels of SU in operations at lower tactical levels.
  - Adversaries will not employ routine use of nuclear, biological, and chemical weapons.
  - U.S. armed forces global stationing policy will include a combination of continental U.S., forward deployed, and forward presence forces.
  - U.S. will maintain capability to achieve air and maritime superiority in any theater.
  - Advanced air and sealift capabilities will be fielded.
  - The network envisioned as the backbone for network-enabled operations will exist and work as estimated.
  - Joint precision fires will achieve greater lethality and standoff.

### **B-2. Alternative Concept Solution.**

a. The degree to which the assumptions “Army force transformation campaign objectives are achieved” and “joint and Army transformation will enable integration of joint capabilities at lower tactical levels” become less tenable will impact the future Modular Force’s ability to generate joint combined arms synergy at lower tactical levels. The degree to which the assumptions regarding C4ISR and the network become invalid will impact the future Modular Force’s ability to develop the situation out of contact and conduct precision maneuver to achieve positional advantage.

b. Were these assumptions to become invalid, the ability of the future Modular Force to conduct tactical maneuver as described in this operating concept would be drastically impaired, potentially constituting unacceptable risk given the future joint operational environment (JOE). Under such circumstances, an alternative concept solution that relies primarily on remote

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precision strike, thereby minimizing the need to conduct tactical maneuver to engage the enemy, may be considered desirable. While such an approach would appear to have merit, there are also shortcomings which must be considered. Most notably, this alternative concept:<sup>29</sup>

- Assumes there is no need to seize and secure an area for military, political, economic, or informational reasons.
  - Employs only the defeat mechanism of destruction, relying exclusively on the physical destruction of the enemy, and fails to fully account for the moral operational environment and ability to target an adversary's will.
  - Fails to account for intelligence gained from having ground forces involved in close combat with the enemy.
  - Assumes that intelligence gathered to support precision strike is complete and without error.
  - Assumes enemy abilities to exploit the environment for sanctuary and protection from strike operations will be negated or unsuccessful.
  - Presents few capabilities that are applicable to stability and security operations.
  - Fails to account for and potentially further complicates reconstruction operations.
  - Is subject to single point of failure.
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<sup>29</sup> Two operations in the recent past attest to the fragility and limited applicability of this alternative concept. The first example is the conduct of US and NATO operations in Kosovo in the mid-90s, the outcomes of which remained in doubt and were substantively delayed by the failure to employ ground forces to complement the remote strike operations that constituted the main effort. The second is the August 2006 conflict in Lebanon between Israel and Hezbollah, during which the latter force successfully resisted an Israeli operational plan that depended overmuch on strike operations.

## Appendix C. DOTMLPF Implications

Army concepts normally include a discussion of the implications of the concept for DOTMLPF. Those implications should be explicit enough to be actionable, that is, to generate some action for change within the DOTMLPF domains. The primary implications arising from the *Tactical Maneuver* concept are described below. Many of the items cited will require additional analysis before comprehensive actionable recommendations emerge.

**C-1. Doctrine.** Within the hybrid future Modular Force, from the BCT down to the lowest fighting elements, the operating concept envisioned will have a major impact on the methods and procedures required to effectively deploy and employ this force. With dramatic increases in lethality, mobility, agility, versatility, survivability, and interoperability resulting from leap-ahead technologies, existing how to fight doctrine and associated TTP manuals will have to be thoroughly updated and revised. Key doctrinal implications include consideration of:

- Employment of joint combined arms capabilities at lower tactical levels.
- Deployment and employment of hybrid forces.
- Task organization of modular forces.
- Operations and logistics to support hybrid forces operating in a non-contiguous, distributed environment.
  - Operations across the spectrum of conflict.
  - Operations in complex terrain sets, to include urban operations.
  - C2 of joint and MN force capabilities at the tactical level.
  - Information management to achieve enhanced SU while precluding information overload at the lower tactical levels.
    - Synchronization and integration of interagency actions at the tactical level.

**C-2. Organization.** The organizational implications for the future Modular Force that arise as a result of this operating concept are profound. Future organizational design must account for:

- A modular, scaleable, combined arms baseline design.
- Striking a balance between force size and requirements for rapid strategic responsiveness.
  - Scaleable C2; the ability to integrate additional forces as well as provide forces to other organizations.
    - Rapid and effective mission tailoring based on combined arms, modular, brigade and battalion organizations in operations across the spectrum of conflict.
    - Operating within coalition, joint, MN, and interagency command structures and organizations.
    - Routine integration of joint capabilities at lower tactical levels.
    - Demands of simultaneous and continuous operations with respect to BCT organization.

**C-3. Training.** The challenge in the training environment as a result of Army transformation will be significant as future Modular Force capabilities are fielded over time. Training will have

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to continually be updated to accommodate emerging capabilities. The following categories summarize the major implications:

### a. Training Strategy.

- Implementation of the lifetime training paradigm for individual personnel.
- Linking training strategies to Army Force Generation Model (ARFORGEN).
- Adaptation of training strategies to the force pooling organizational construct.
- 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.

### 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 rehearsal and automated After Action Reviews that reduces the burden of planning, execution, and assessment in training events.
  - Development of training capabilities at home stations that approaches the quality and standards of the combat training centers (CTC).
    - Within the combat training centers, expansion of capabilities for embedding joint, interagency and 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 time available.
  - Accommodation of an expanding number of BCTs within the Army force structure with 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 MDMP, effects generation, and non-kinetic interactions in the operational environment.
  - Development of training support functions within home station operations centers suitable for supporting deployed forces and individuals.

## C-4. Material.

The execution of the *Tactical 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 and Education.** 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 leaders will have to accept change as a routine condition and be proficient in the use of a wide range of new technologies, particularly within the information arena. The leader development triad (institution, unit, self) must produce leaders and staffs who:

- Function in an environment of ambiguity and uncertainty and make timely and effective decisions under stress.
  - With the capacity to recognize patterns, distinguish critical information, and make decisions quickly on an intuitive basis with less than perfect information.
  - Understand the impact of time and space on operations.
  - Understand the impact of culture on operations.
  - Understand organic and joint capabilities and how to employ them.
  - Are technically and tactically proficient across the ROMO.

**C-6. Personnel.**

Significant personnel implications have been cited above in the discussion of training and leader development. In addition, force stabilization policies to reduce personnel turbulence will be critical to building and maintaining the teams that are key to tactical level success. The personnel management system must also adapt to force stabilization and be subjected to 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 Modular Force.

**C-7. Facilities.** Omitted.

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**Appendix D  
Operations in Special Environments**

**D-1. Operations in an Urban Environment.**

a. The urban environment is particularly challenging because of its terrain and the continually changing operational environment, in which peacekeeping, security operations, and full combat often occur simultaneously within city blocks of each other. In addition, the urban fight is conducted in a highly compressed three-dimensional environment where relatively small elements can produce immediate changes to the situation. Small-unit battles dominate operations complicated by communications challenges, non-combatants, limited mounted maneuver space, wide variance in terrain, and masking of precision location devices and munitions.

b. There are seven principles to guide the planning, preparation, deployment, employment, and sustainment for urban operations:

- The urban environment is best understood as a complex, dynamic system.
- People, culture, and social structures are part of urban terrain.
- Small unit operations predominate.
- Technology can be leveraged in many areas to address urban complexity, but it cannot provide universal solutions.
- Maintaining the initiative is hampered by urban compartmentalization to the extent that the enemy will normally retain some degree of tactical freedom of action.

c. The compressed nature of the urban environment results in a greater likelihood of media presence. Consequently, low-level tactical actions can have import far beyond their tactical significance. This magnifies the importance of information operations through Civil Military Operations (Civil Affairs and Psychological Operations), and Public Affairs. The ability to communicate and collaborate effectively with coalition forces, governmental agencies, non-governmental organizations, international organizations, private voluntary organizations (PVOs), the media, and the indigenous public are critical tactical-level actions that help achieve specific military, political, and economic objectives of the campaign.

d. Because of the dynamic nature of urban operations, a real-time, robust, C4ISR system of systems, networked to the lowest tactical level, is critical to gaining and maintaining the information superiority necessary for mission success. HUMINT is essential to understanding and communicating with the local population and to developing SU. Leveraging local civilians for information can also contribute to increased SU.

e. Maneuver in urban areas demands an extraordinarily high level of synchronization between C4ISR, information operations, maneuver elements, and joint effects-producing systems to achieve responsive mutual support and generate synergy. The goal is to dislocate enemy forces by employing forms of maneuver that limit his options and force him to reveal his dispositions. The scaleable, modular combined arms design of the future Modular Force facilitates the rapid re-task organization necessary to respond to the changing dynamics of the



urban environment. Although most engagements will occur between smaller-sized elements, recent experience affirms the utility of the combined arms team with heavy armor in achieving decisive results.

f. Urban environments also make it difficult to avoid collateral damage and limit non-combatant casualties. Methods used in mixed or open terrain to deliver heavy fires, even though relatively precise, could result in unacceptable levels of collateral damage and civilian casualties in cities. Requirements for precision fires are much more demanding as are demands for discrete targeting for lethal fires. In effect, both delivery means and munitions must be “smart” to operate in this environment.

g. Non-lethal weapons give the future Modular Force commander added flexibility in conducting urban operations. Because the degree of provocation required to employ lethal weapons is substantially less than for deadly force, their use may result in a more proactive posture and quicker response, as well as the diminished likelihood of having a situation escalate to a point where deadly force is required to resolve the situation. Moreover, non-lethal weapons can facilitate post-conflict stabilization by reducing populace alienation and collateral damage. Non-lethal capabilities are employed by the future Modular Force to achieve incapacitation, suppression, dispersion, and denial. Non-lethal effects deny vehicle access to, use of, or movement through a particular area and can alter the terrain conditions to favor friendly elements movements and maneuver.

h. Armed ground robotic vehicles will also be employed by the future Modular Force to support mounted and dismounted operations by providing ISR, additional weapons platforms, and communications relays. In addition, UAS’ will be used for protection (sentry robots), mine clearing, remote sensing, reconnaissance, and fires.

## **D-2. Operations in a Contaminated Environment.**

a. The threat of weapons of mass destruction (WMD) profoundly changes battlefield conditions and imposes major force projection requirements. An enemy who possesses WMD should be expected to employ it as part of its anti-access operations against U.S. forces attempting to expand initial points of entry in a theater of operation. A major strategic and operational level objective is to deter WMD deployment, and if deterrence fails, to find and destroy enemy WMD before they are used. The potential destruction or contamination of infrastructure by such weapons increases the requirement for a future Modular Force that can operate effectively in and around contaminated environments.

b. Operations in WMD contaminated environments demand careful preparation. Vaccines protect Soldiers against some biological weapons, but inoculations may need weeks to fully protect recipients. Therefore, protection against these weapons becomes part of the continuous process of keeping units ready. Medical surveillance programs provide tactical commanders with a tool to develop a baseline of disease threats in the area of operations. This baseline aids in detecting when an enemy begins biological warfare.

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c. Future Modular Force units employ equipment specifically designed for operations in contaminated environments, to include detection, protection, and decontamination capabilities. Specially trained units may be required to mitigate its effects as well as perform consequence management.

d. Successful conventional U.S. operations may increase the likelihood of enemy WMD use. In an area of operations where WMD is possible, the future Modular Force concept for tactical operations as outlined in this operating concept appears to be appropriate to mitigate the risks. Rapid maneuver places future Modular Force units near the enemy, compelling him to risk employing WMD on his own forces. Future Modular Force units operate from dispersed, non-contiguous areas as much as possible and concentrate only as necessary to mass effects. Nonlinear operations position future Modular Force units throughout the depth of the operational environment, complicating the enemy's targeting decisions. Future Modular Force precision strikes destroy enemy WMD related C2 and CSS systems. Joint ISR focuses on identifying WMD-capable enemy forces. Reconnaissance units detect contaminated areas, making that information immediately available to all future Modular Force units through the COP thereby enabling contamination avoidance. Other active measures available to the joint future Modular Force include joint theater air and missile defense, counter-air operations, joint precision fires against WMD delivery systems, and offensive IO.

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## Appendix E Interagency and Multinational

### E-1. Interagency Collaboration.

a. In complex conflicts involving ethnic, religious, or ideological hostilities, combat operations alone may not be decisive. If adversaries take action by means other than conventional military operations, victory may prove elusive regardless of how effectively our combat forces perform. In such contests, the U.S. must integrate all the elements of power—diplomatic, military, economic, and informational. While military operations may be essential to producing conditions permitting resolution, other elements of national power must be applied—on an interagency basis—to resolve the conflict.

b. However, no significant improvement can be expected without frank recognition of the many serious obstacles that must be overcome, beginning with the extraordinarily broad diversity of agencies, each having their own organizational culture, hierarchy, bias, unique perspectives, and misperceptions regarding other organizations. Simultaneously, the lack of common capabilities, training, and even terminology pose daunting challenges to interagency integration. Achieving it routinely implies a long-term commitment by the military and its interagency partners, a commitment the Army can support, but which it cannot alone assure.

c. At the tactical level, the major challenge is that representatives from all of these agencies—international organizations, NGOs, PVOs—may be operating in the same operational environment as a future Modular Force element, yet the future Modular Force commander has no authority over them. The manner in which collaboration and coordination is conducted can have a positive or negative impact in the operational environment. Interagency organizations can provide valuable knowledge and experience to a commander, particularly during stability operations. A dedicated command center provides a place where these representatives can meet and collaborate. The future Modular Force uses the CMO Center to accomplish this function.

### E-2. Multinational Operations.

a. In conflicts more characterized by ideological disputes than nation-state combat, MN coalitions will be frequent and increasingly dynamic. Since the end of the Cold War, there has been and probably will continue to be less common perception of the threat. Managing this tension will require extensive engagement with regional partners, whose response to U.S. initiatives will often be situationally-based. This changed perception on the part of U.S. partners and the need to work more intensively with them will be a complicating factor in an already challenging future security landscape. Effective harmonization will become more difficult in the future, especially given the trend toward assembling coalitions *ad hoc* to deal with crises in an increasingly complex strategic environment.

b. The challenge in conducting tactical operations with MN forces is dependent on how and at what level these forces are integrated with the future Modular Force. Varying capabilities between MN forces as well as political considerations from their respective nations will guide how this integration is done. There are three basic strategies for integrating MN forces. First,

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the area of operations can be divided, giving each MN force its own geographic area in which to operate. Second, a MN force can be assigned a specific function, based upon a particular capability set possessed by that force, e.g., CBRNE reconnaissance and decontamination. Finally, MN force organizations can be integrated under a MN force headquarters (HQ) or a single nation's force HQ. While this is the most complex option that will require significant coordination and collaboration to assure synchronization of operations, it has the distinct advantage of limiting the enemy's ability to isolate MN partners and undermine their nation's will to remain engaged. To the degree possible, assigning non-contiguous areas of operation to each MN force can reduce the complexity of the challenge. Exchanging liaison teams, where future Modular Force teams take with them the equipment needed to maintain visibility over the future Modular Force's COP, can facilitate synchronization and integration of actions between MN forces. Yet even with that, common doctrine and procedures must be worked out to manage shared airspace, employ joint fires, and share intelligence.

c. Another significant challenge at the tactical level is language. Even between English speaking MN partners the lexicon for military operations differs. Expansion of military exchange programs during peacetime can help address this problem as well as technological solutions for translation on the battlefield.

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## Appendix F

### How the future Modular Force Fights

#### F-1. Division Operations.

a. The division is the higher tactical echelon for the execution of decisive operations in MCO. At this level, divisions execute a balanced focus between current and future battles, employing combined arms, air-ground maneuver in linear/non-linear or contiguous/non-contiguous operations. Highly tailorable for specific missions, divisions support committed BCTs and combat battalions with long-range fires, ISR, aviation, CS, and CSS capabilities, allocated as required by the tactical situation and assigned objectives (see Figure F-1). This support enables subordinate maneuver elements to move rapidly from one engagement to the next and maintain a high operational tempo.<sup>30</sup>

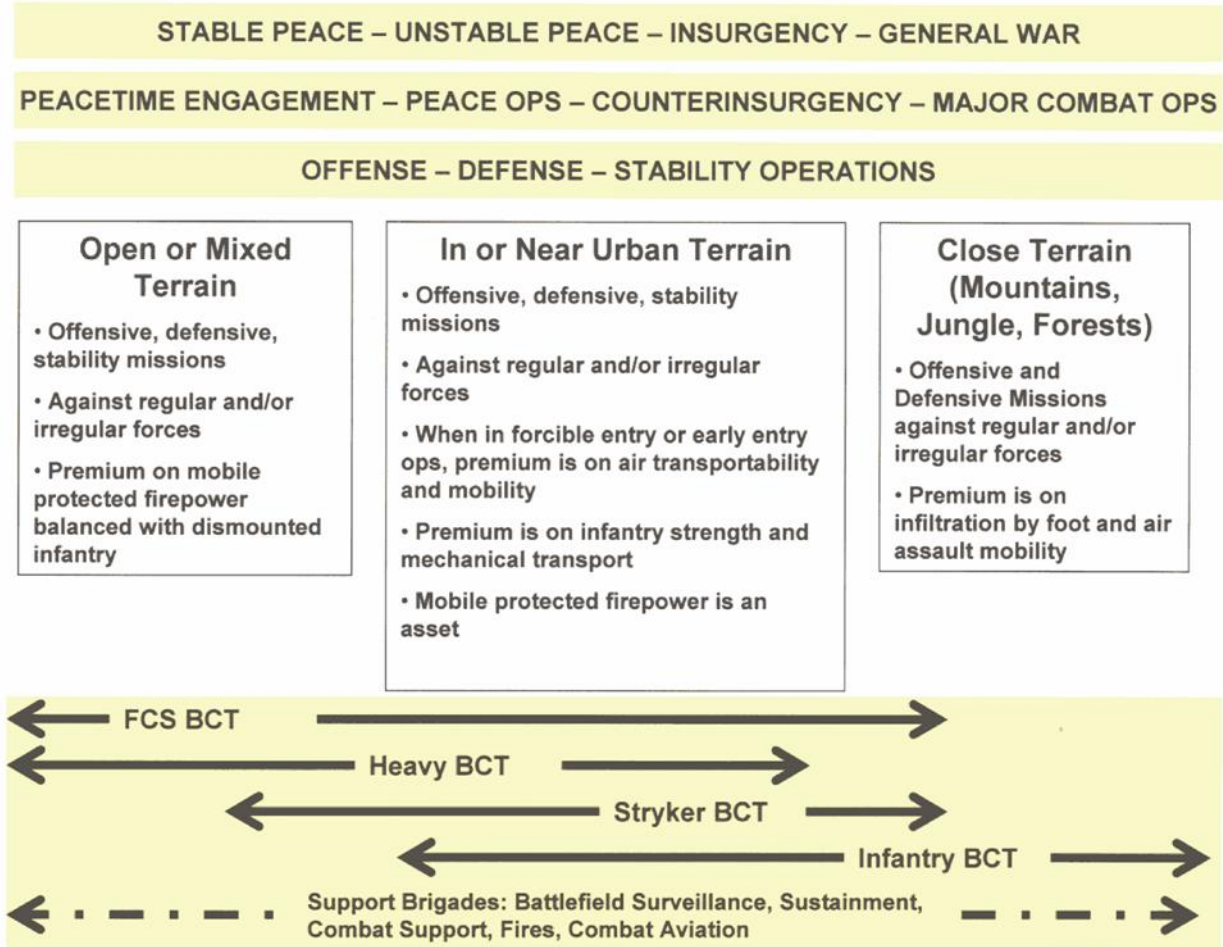
b. The division rotates subordinate BCTs through battles and sustainment cycles to maintain high tempo and continuous pressure on enemy forces. Maintaining secure ground lines of communications and uninterrupted sustainment flows to committed tactical formations often will not be practical. Instead, organizational designs and operational planning must provide for cyclical logistical replenishment and recommitment to battle. In turn, that will require that division formations be mission-tailored with enough subordinate BCTs, ideally four to six, to rotate them regularly into and out of action without diminishing engagement tempo and intensity. This concept further posits, as a start-point, that the division operating radius in conventional operations will extend to 150 kilometers (from division center of mass) with a planning horizon of at least 48-72 hours. This metric is not intended to suggest occupation of the entire area that falls within a 150km radius, but that the division can act effectively with combined arms fire and maneuver against multiple objectives within that area.

c. The division can further be described as an exploitation echelon. Directed to deep objectives, the division will have the mission-tailored capabilities to conduct operational maneuver by ground, with augmenting operational level assets and joint support to do the same by air and sea, combining all modes when feasible. Mission-tailored aviation assets provide multidimensional support, including sufficient capability to conduct battalion-sized vertical maneuver, aerial C2, and aerial sustainment.<sup>31</sup> Organic joint linkages permit the division to coordinate joint support independently or through its higher headquarters. Key enablers for higher tactical operations include advanced aviation, long-range precision fires, multifunctional sensor/attack UAS', agile distribution capabilities, and advanced C4ISR networking.

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<sup>30</sup> For stability operations, divisions will often assume operational level roles and a geographic focus, in which they integrate a wide variety of simultaneous combat and non-combat actions along multiple lines of operations.

<sup>31</sup> Brigade-level vertical maneuver is feasible but it will be more rare and directed, most often, against operational level objectives beyond tactical distances. It will also require more time and the dedication of fixed wing SSTOL/STOL aircraft, as well as more extensive support from joint forces.



**Figure F-1. Range of Combat for BCTs**

d. The division must also effectively employ the hybrid capabilities represented in the existence of multiple forms of BCTs. The chart above summarizes common missions of the combat brigades by type. Each of the mission environments is distinctive enough to call for a suitable mix of brigades but none is so specialized that it requires only a single type of brigade. Rather, the four brigade types will more often complement each other in major operations. The dark lines indicate the range of mission environments where each has a comparative advantage, and the dotted lines indicated environments where each provides complementary utility when combined with other types of brigades. Divisions must consider similar implications when integrating MN forces.

e. In employing these hybrid formations, the division must also successfully resolve two major challenges:

(1) First, the Army's current emphasis on the rapid establishment of a single battle command system will 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 or mission, enemy, terrain and weather, troops available, time available and civil considerations (METT-TC) conditions change.

(2) The most problematic area in employing a hybrid force in future operations is likely to occur in the area of sustainment where legacy/current platforms will continue to present heavy sustainment demands, while modernized forces 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.

f. In part, the two challenges above will be mitigated by the Army's doctrinal focus and strong emphasis on training and leader development, which will provide the common bond for forces of diverse capabilities to operate effectively together in a rapidly changing operational environment, with variable operational requirements.

## **F-2. Developing the Situation.**

a. The future division plays a major role in developing the tactical situation out of contact for engagements and battles. The ISR and signal elements mission-tailored to the division are specifically intended to allow it to rapidly improve situational awareness (SA) within the division area of interest, focus SA in support of BCT objectives, and ensure continuous connectivity during non-contiguous operations. Division HUMINT, air and ground RSTA elements augment BCT organic capabilities, enable in-stride updates within the COP, and significantly extend the brigade's ability to see and know beyond its own engagement ranges. While BCTs and battalions focus more exclusively on enemy force-based intelligence and information requirements, the division's expanded capabilities permit it, in conjunction with higher sources, to develop SA with respect to other important elements critical to operations and force protection, such as unconventional threats and other asymmetric features of the environment.

b. Overall, the division must use its ISR capabilities, particularly its sensor network, throughout the course of major operations to ensure continuing, focused support to engaged BCTs, while maintaining visibility over enemy forces and capabilities not located within BCT objective areas, and adjusting to changes to CCIR. In irregular warfare, in contrast, the division will often distribute ISR capabilities downward for employment at brigade and battalion level, where they are more needed and more effectively employed.

c. The brigade RSTA element also possesses organic capability to augment the brigade intelligence and information management staff elements with advanced intelligence processing, analysis, and information fusion. The brigade maintains reach-back capability for specific intelligence or informational products pertinent to ongoing on future operations and can plan and exploit more robust ISR capabilities at higher echelons (for example, division aerial reconnaissance). Overall, the brigade continuously improves SA and tailors the tactical infosphere to meet CCIR in support of both brigade and battalion objectives. Naturally, these

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tactical enhancements *also improve SA at higher echelons* and permit division commanders to more efficiently plan, apply resources, and prepare for future operations.

### **F-3. Shaping the Battle to Set Conditions.**

a. As each battle begins, the division, with support from higher Army and joint capabilities, isolates objective areas from reinforcement and shapes the battlespace in order to establish favorable conditions for decisive maneuver. Two overarching goals must be accomplished during this process. First, these shaping actions must deny the enemy freedom of action and keep him exposed to repeated, continuous blows from a protected attacking force. Second, the division must orchestrate sufficiently comprehensive isolation and shaping actions to ensure that *all enemy forces within the division area of operations* that can affect BCT operations, including in particular those located outside BCT objective areas, are effectively suppressed, neutralized, or destroyed. The division must rely on timely, responsive, external support to accomplish these goals.

b. Joint and Army stand-off precision fires and effects fix the enemy in place, prevent counter-maneuver, and suppress, shock, disorient, blind, and destroy forces in and near BCT and battalion objectives. Enemy forces choosing to maneuver to avoid fires or to conduct spoiling attacks will actually expose themselves to greater and more rapid destruction by precision fires and other effects. Enemy capabilities to respond, particularly high value targets such as enemy aviation, artillery, target acquisition, and command, control, and communications capabilities, are rapidly stripped away or effectively suppressed in this shaping process.

c. Supporting fire units will be mission-tailored to divisions in accordance with the factors of METT-TC for each conflict environment. Fire units located at division level will provide a broad array of lethal and non-lethal precision munitions with ranges extending to the entire area of responsibility. However, shaping will also include: emplacement of obstacles to fix or block enemy forces; information operations; and employment of air/missile defense forces to deny enemy use of airspace and protect freedom of maneuver.

### **F-4. Maneuver Enhancement/Combat Support.**

a. Maneuver enhancement includes tasks necessary to retain freedom of action by enabling and amplifying friendly maneuver while creating conditions unfavorable to enemy maneuver, and by providing force protection. Maneuver enhancement focuses on the opportunities and challenges derived from the physical environment (including terrain, weather, infrastructure, electromagnetic spectrum, hazards, population presence, and the interaction of all of these factors) that can be exploited to enable friendly maneuver and force protection or, conversely, to degrade enemy maneuver and force protection.

b. The division orchestrates its mission-tailored maneuver enhancement forces to support brigade and battalion operations and prepare for future operations. In doing so, the division generates combat power, protects its forces, exploits opportunity and maintains tactical momentum that hastens the collapse of the enemy. Key maneuver support tasks include:



- Highly responsive counter-mobility support to block enemy forces and shield engaged battalions.
  - Defeat of enemy counter-C4ISR measures.
  - Control of displaced persons, refugees, and enemy prisoners of war.
  - Mobility support, large-scale bridging and obstacle breaching.
  - Battlefield circulation.
  - Vertical construction.
  - Survivability.
  - Deliberate decontamination.

#### **F-5. Brigade and Battalion Operations.**

- a. Develop the Situation out of Contact and Decide When and Where to Fight.

(1) *Out of Contact.* Technically, future Modular Force formations will seek to maintain unbroken contact with the enemy in order to apply continuous pressure that retains the initiative and keeps the enemy in a reactive posture. However, the conceptual point here is that prior to decisive combat in a specific engagement, the BCT and its subordinate battalions will apply both organic and external assets to fully develop the situation with respect to enemy dispositions, strengths, and vulnerabilities, as well as other aspects of traditional intelligence preparation of the battlefield. In that sense, the BCT develops the situation *out of contact* even though it will retain contact with the enemy through its sensing and fire capabilities. It is the means, of course, by which the BCT sees first and understands first while retaining freedom of action. Building from the baseline established by the existing COP, the BCT possesses considerable organic resources to develop the situation out of contact, including UAS's, remotely delivered sensors, and scouts, potentially with ground robotics. The division may dedicate additional assets to the effort, including advanced aerial reconnaissance and more capable UAS's and sensors, providing direct feeds to the BCT or select combat battalions. This process to develop SA continues once contact is initiated, through the final assault. It will be accompanied by specific efforts to prevent the enemy from interfering with observation or by other overt actions intended to compel him to expose a capability or reveal an intention.

(2) *In Contact.* Conditions will often exist that prevent the BCT from developing the situation fully out of contact. For example, terrain, environmental conditions, force dispersion, as well as the enemy's own deliberate actions to deny information, may often degrade "out-of-contact" capabilities to see, know, and shape. In those circumstances, the BCT and its subordinate battalions will still have the capability to conduct movement to contact and develop the situation through fires and maneuver. At each level, commands can employ organic reconnaissance and/or maneuver forces themselves to fight for information in this manner, depending on the scale of effort required and the availability of forces. The battalion may also choose to fight to develop the situation when time constraints require it to do so (cannot wait for other means to develop) or when battlefield conditions or assigned missions change rapidly.

(3) *Decide When and Where to Fight.* Efforts to develop the situation are integral components of the tactical MDMP. Ultimately they lead to the commander's decision regarding when and where to initiate battle. Typically, the brigade will assign missions and objectives and

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identify objective areas for subordinate battalions. The battalions, in turn, through mission analysis, will determine the appropriate application of the elements of combat power against specific decisive points, key forces, and capabilities within the designated objective area to accomplish the assigned mission.

(4) The configuration of each battalion objective area may be unconstrained initially by linearity. The size and shape of objective areas will be based on the factors of: mission; terrain; enemy size, dispersion, and engagement capabilities; friendly capabilities to see/know/act; and the time available to develop the situation. Overall, the area of lethality will expand sharply, as much due to enemy capabilities to detect and engage at expanding distances as to the battalion's own capabilities for the same.

(5) As the engagement is conducted, enemy actions to reinforce, conduct counter-attack, avoid contact, or otherwise alter its dispositions, will change the size and shape of the objective area. Within this shifting framework, however, *the principle of concentration will continue to apply*. To engage decisively, the combat battalion must focus combat power on a particular set of tactical requirements that define its assigned mission and objective. Despite its enhanced capabilities to strike at a distance, it must avoid ineffective, over-dispersion of its efforts and take care not to overly stress span of control. Moreover, time-distance factors constrain the ability of battalion elements to engage with tactical standoff, then rapidly maneuver, and conduct a combat assault to exploit the effect. Within urban areas, these factors are even more restricting. As a result of these constraints, the battalion engagement will retain more of a linear nature than higher echelon operations, particularly as battalion elements close for final assault.

(6) *Isolate and Shape Engagements through Tactical Stand-off*. Once decision is made on when and where battalions will fight, actions to shape the battlespace further through stand-off fires begin immediately. BCT and battalion stand-off fires are synchronized with and supplemented by the shaping fires from higher levels. Tactical stand-off positions for organic battalion elements are selected dependent on cover, concealment, protection, and the enemy's own capabilities for detection and engagement. Stand-off positioning must balance maximizing engagement ranges to avoid/negate enemy reciprocal stand-off capabilities with minimizing engagement ranges in order to reduce exposure time for complementary maneuver.

(7) In its essence, tactical stand-off is intended to destroy or neutralize critical elements of enemy combat power, generating a significant level of enemy disintegration prior to close combat assault. Wargaming and analysis suggest that tactical stand-off actions conducted with high SU and precision will be responsible for most of the attrition suffered by the enemy, a result that may accelerate the pace of the engagement and place the enemy at an overwhelming disadvantage. *In certain conditions, tactical stand-off engagement may be so overwhelming that it leads to tactical decision*. At the very least, it will improve the conditions required for rapid decision.

### b. Maneuver to a Position of Advantage and Continue to Integrate Fire and Maneuver.

(1) These two steps occur simultaneously. As external and organic forces isolate and shape the battle, battalion elements maneuver rapidly and autonomously along multiple,

dispersed routes to positions of advantage identified earlier. Tactical stand-off fires continue, further attriting the enemy's ability to resist. Maneuver elements employ speed, stealth, and deception to avoid detection, protect movement, retain freedom of action, *engage enemy forces while en route*, and build momentum. Movement is fully integrated with organic and supporting fires that further come into play and/or shift as required as battalion elements converge in a synchronized attack. Rapid closure is critically important to fully exploit the effects of precision tactical stand-off fires and achieve the ambush dynamic inherent within dominant precision maneuver. The less time between these complementary actions, the more decisive the engagement. ISR activities and "re-seeding" of sensors occurs to continue to update information in real time. During the course of the advance, battalion elements provide mutual support when required (including to adjacent battalions) and adjust routes and objectives in accordance with positive and negative changes to the situation (tactical self-synchronization).

(2) Effects of supporting fires are continually monitored, assessed, and reported to the attack echelons. Highly responsive, low-latency, sensor- shooter linkages ensure rapid response to fleeting targets and other targets of opportunity, while networked targeting expands options for engagement and distributes fires effectively across the force.

c. Initiate Decisive Contact and Finish the Enemy Through Assault.

(1) In many engagements, the combined results of tactical stand-off fires and simultaneous maneuver to the objective may render decisive or near-decisive results, as previously noted. *Overall, the weight, diversity, precise focus, and simultaneity of these actions will overwhelm and confuse the enemy, creating the effects of shock and surprise similar to an ambush or, better, a combination of synchronized ambushes.* Despite stand-off attrition, the enemy may still retain significant fighting elements, particularly in the form of small sub-units and dismounted infantry. In those situations, a wholly conclusive outcome still requires the battalion to finish the enemy through close assault. In addition, in contrast to many engagements of the past during which defeated enemy forces were able to withdraw and reconstitute to fight another day, the combat battalion seeks to engage an enemy force one time, rendering a level of destruction to the extent that enemy reconstitution is not attainable. That goal requires both close assault and finishing actions that continue contact with retreating forces to destroy them in detail.

(2) Mounted and Dismounted Combinations. Whereas the stand-off component of the engagement is carried out by mounted forces, the assault will normally require some combination of mounted and dismounted action, combinations which may also change as the assault proceeds. As the battalion and its subordinate elements convert from mounted to dismounted modes, the enemy must still be held under constant observation and subjected to continuous pressure from direct and indirect fires.

(3) The combat battalion's maneuver elements execute support-by-fire tasks and assault near simultaneously. Networked teams rapidly coordinate actions, focus efforts, exploit each other's actions, and mass against difficult enemy positions. Man portable sensors and networked manned and unmanned ISR rapidly update the situational awareness of dismounted teams. Well-trained NCOs and junior officers play the crucial role in this decentralized, but highly

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synchronized assault, as they employ multiple teams and integrate supporting fires and effects to accomplish tasks and missions.

(4) Maintaining effective, responsive linkages between dismounted elements and fire support systems (and between mounted and dismounted elements oriented on different tasks) constitutes a major challenge. Soldier systems and innovative sensing capabilities such as ground sensors, robotics, and unmanned aerial vehicles, linked to responsive firing systems, enable dismounted teams to integrate reinforcing and complementary fires, greatly enhancing the lethality, mobility, and survivability of the dismounted force.

(5) Finally, close combat forces must be capable of quick transition from mounted to dismounted operations and back again. Organizational design and TTP must actively link mobility systems to dismounted teams to enable these elements to rapidly regroup and reposition for protection, exploitation or for a follow-on mission. At the end of the engagement, the enemy is defeated in detail or surrenders, unable to regroup to fight another day, while the combat battalion consolidates and prepares for the next engagement.

d. In summary, combat battalion engagements will be far different in power and velocity from those of today. Although many advanced capabilities will be required to carry out this tactical concept, it is clear that the three most central ones are the advanced C4ISR that enables superior SU, the complementary and reinforcing lethality presented by the networked FCS system of systems, and the excellence of the leaders and Soldiers that will man and fight the battalion.

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## Glossary of Acronyms

|          |  |
|----------|--|
| ARFORGEN | Army force generation model  |
| BCT      | brigade combat team  |
| C2       | command and control  |
| C4ISR    | command, control, communications, computers, intelligence, surveillance, and reconnaissance    |
| CBRNE    | chemical, biological, radiological, nuclear, and high-yield explosive                          |
| CCIR     | critical commander information requirements  |
| CMO      | civil military operations  |
| COP      | common operational picture   |
| CS       | combat support   |
| CSS      | combat service support   |
| CTC      | combat training centers  |
| DA       | Department of the Army   |
| DEW      | directed energy weapon   |
| DOD      | Department of Defense  |
| DOTMLPF  | doctrine, organizations, training, materiel, leadership and education, personnel, and facility |
| FCS      | Future Combat Systems  |
| GIG      | global information grid  |
| GLOC     | ground line of communications  |
| HQ       | headquarters   |
| HUMINT   | human intelligence   |
| IO       | information operations   |
| ISR      | intelligence, surveillance, and reconnaissance   |
| JOE      | joint operational environment  |
| 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  |
| NGO      | non-governmental organization  |
| OEF      | Operation Enduring Freedom   |
| OIF      | Operation Iraqi Freedom  |
| PVO      | private voluntary organization   |
| ROMO     | range of military operations   |
| RSTA     | reconnaissance, surveillance, and target acquisition   |
| SA       | situational awareness  |
| SOF      | special operations forces  |
| SSTOL    | super-short take-off and landing   |
| STOL     | short take-off and landing   |
| SU       | situational understanding  |
| TP       | TRADOC pamphlet  |
| TTP      | tactics, techniques, and procedures  |

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| TRADOC | United States Training and Doctrine Command |
| UAS    | unmanned aerial system                      |
| UAV    | unmanned aerial vehicle                     |
| U.S.   | United States                               |
| VTOL   | Vertical Take-off and Landing               |
| WMD    | weapons of mass destruction                 |

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