Foreword

From the Director
United States (U.S.) Army Capabilities Integration Center

The U.S. Army is the Nation's principal land force organized, trained, and equipped for prompt and sustained combat on land. Today's adversaries have studied how the U.S. Joint Force prefers to operate and adapted to develop capabilities that contest our operations on land, at sea, in the air, in space and cyberspace, as well as the electromagnetic spectrum, information environment, and human perception. Defeating future enemies that possess advanced capabilities calls for land forces operating as integrated joint teams that conduct simultaneous and sequential operations across multiple domains. Future Army forces will be prepared to fight and win across all contested spaces to create temporary windows of superiority across multiple domains that enable Joint Force freedom of action to seize, retain, and exploit the initiative to defeat enemies. This requires flexible and resilient ground formations that project combat power from land into other domains to enable Joint Force freedom of action, while seizing positions of relative advantage and controlling key terrain to consolidate gains.

TRADOC Pamphlet 525-3-6, The U.S. Army Functional Concept for Movement and Maneuver (AFC-MM), expands on the ideas presented in TRADOC Pamphlet 525-3-1, The U.S. Army Operating Concept: Win in a Complex World (AOC). It describes how Army maneuver forces generate overmatch across all domains, the electromagnetic spectrum, information environment, and human perception. The concept also describes how Army forces project power across strategic distances and then transition rapidly to cross-domain maneuver, and how maneuver formations at echelons above brigade contribute to shaping operations and the close fight.

Maneuver forces integrate reconnaissance and security operations, maneuver sensors and long-range capabilities into positions of advantage, integrate intelligence and operations, defeat enemy cross domain capabilities, and transition from shaping operations to close combat. Maneuver forces require a nonlinear, decentralized, and cross-domain approach to land-based tactics, where forces orient on objectives and focus on creating specific effects at multiple decisive spaces of operational and strategic importance. Attacking from multiple directions and domains creates multiple dilemmas for the enemy. Fighting in this manner causes the enemy to orient in multiple directions and compromises his defenses by reducing his ability to communicate, control direct fires and movement, and sustain the fight. Enemy forces are placed in less favorable positions progressively, while friendly forces exploit tactical successes to build operational results.
This concept serves as a foundation for developing future maneuver support required capabilities and is fundamental to Army leaders ability to think clearly about future armed conflict, learn about the future through the Army's campaign of learning, analyze future capability gaps, identify opportunities, and implement interim solutions to improve current and future force combat effectiveness.

H. R. McMaster
Lieutenant General, U.S. Army
Director, Army Capabilities Integration Center
History. This pamphlet is a major revision to United States (U.S.) Army Training and Doctrine Command (TRADOC) Pamphlet (TP) 525-3-6, The U.S. Army Functional Concept for Movement and Maneuver (AFC-MM). Because this publication is revised extensively, not all changed portions have been highlighted in the summary of change.

Summary. The AFC-MM describes how Army forces will maneuver as part of joint, interorganizational, and multinational efforts to accomplish campaign objectives and protect U.S. national interests. This concept will lead force development and modernization efforts by establishing a common framework within which to develop the specific capabilities required to fully enable movement and maneuver in the period 2020-2040.

Applicability. This concept applies to all Department of the Army (DA) activities that develop doctrine, organizations, training, materiel, leadership and education, personnel, facilities, and policy capabilities. It guides future force development and supports the Joint Capabilities Integration and Development System process. It also supports Army capabilities development processes described in the Army Capabilities Integration Center (ARCIC) Concepts and Capabilities Guidance.

*This publication supersedes TRADOC Pamphlet 525-3-6, dated 13 October 2010
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**Summary of Change**

TRADOC Pamphlet 525-3-6  
U.S. Army Functional Concept for Movement and Maneuver 2020-2040

This major revision, dated 24 February 2017-

- Expands on the ideas in United States Army Training and Doctrine Command Pamphlets 525-3-0 and 525-3-1 (throughout concept).

- Describes the need for Army forces to deploy across strategic distances rapidly with the capabilities necessary to transition to cross-domain maneuver immediately upon arrival (paras 3-4 and 4a).

- Introduces the term cross-domain maneuver, to describe how Army forces combine the capabilities of the five domains – land, air, maritime, space, and cyberspace to enable joint force freedom of movement and action (para 3-5).

- Recognizes the requirement for an echelon above brigade headquarters to plan and manage campaigns and synchronize operations (para 2-3e(9)).

- Recognizes the need for maneuver forces to train and deploy combat-configured and task-organized to conduct dispersed operations semi-independently and accomplish operational objectives (paras 1-4a, 2-3e(5), 3-4d(2), 3-4d(4), and 3-6g(5)).

- Highlights the need for maneuver forces to generate overmatch in space, cyberspace, and the electromagnetic spectrum, including electronic warfare (EW), information operations, and population perceptions (paras 1-4d, 1-5(9), 2-1a, 2-2b, 2-2c, and 2-3a).
Emphasizes fighting for information and developing situational understanding in close contact with populations and the enemy (paras 3-4c(13)).

Recognizes the need for capabilities to integrate efforts with joint, interorganizational, and multinational partners across the range of military operations (paras 3-1, 3-6b(1), b-2d(30), and c-1).

Recognizes the role unmanned air and ground systems and robotics in future maneuver (paras 2-2a(1), b-2a(4), and E-3c).

Emphasizes the need for sufficient Army information network access and bandwidth to the tactical point of need (para D-2a(1)).

Recognizes the need to integrate intelligence and operations rapidly to seize, retain and exploit the initiative and develop situational understanding through action across all domains (para 2-1b).

Recognizes the requirement to integrate joint, interorganizational, and multinational partners resources and capabilities at echelon into area security efforts to achieve operational objectives (paras 2-1b and 3-4c(12)).

Recognizes the requirement for echelons above brigade to resource, organize, and synchronize area security efforts between multiple brigade formations and joint, interorganizational, and multinational partners to create sustainable outcomes consistent with national objectives (paras 2-3e(9), 2-3e(10), 3-4d(10), and 3-5d(2)).

Recognizes the cognitive aspects of political, human, social, and cultural interactions and the requirement to plan and synchronize engagement efforts to shape security environments, influence key actors, and consolidate gains to achieve operational objectives (paras 2-2d(1), 2-2d(2), and 2-3c).

Recognizes the need for reconnaissance and security capabilities at echelons above brigade (paras 2-3c, 2-3e(9), 2-3e(10), 3-4d(4), and 3-5d(2)).

Added appendices on science and technology and risk (apps C and D).

Added appendix on the robotics strategy (app E).

Recognizes the need for echelons above brigade to integrate reconnaissance and security operations, maneuver sensors, and long-range capabilities into positions of advantage, integrate intelligence and operations, defeat enemy cross-domain capabilities, and transition from shaping operations to close combat (2-3c, 2-3e(9), 2-3e(10), 3-4d(4), 3-4d(10), and 3-5d(2)).

Recognized the required capability to operate with and through populations in uncertain complex, highly-competitive and politically volatile operating environments in order to enhance regional stability and enable a range of strategic options (paras 2-2a and 2-2d(1), and app B).

Introduces the term decisive space to address positions of advantage in multiple domains (para 1-4d).
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Chapter 1
Introduction

1-1. Purpose
United States (U.S.) Army Training and Doctrine Command (TRADOC) Pamphlet (TP) 525-3-6, *The U.S. Army Functional Concept for Movement and Maneuver* (AFC-MM) describes how Army forces conduct combat operations against threats in the 2020-2040 timeframe. It proposes a concept and the required capabilities necessary to provide commanders with multiple options to seize and control terrain, defeat or destroy enemy forces, and protect populations, activities, and infrastructure to achieve military objectives. The AFC-MM offers a hypothesis to inform further concept development, war-gaming, experimentation, and capability development.

1-2. References
Appendix A lists required and related publications.

1-3. Explanations of abbreviations and terms
The glossary explains abbreviations and special terms used in this pamphlet.

1-4. Background

a. The movement and maneuver warfighting function consists of the related tasks and systems that move and employ forces to achieve positions of relative advantage. The function addresses movement and maneuver, which is the rapid deployment of task-organized and combat configured combined arms forces able to transition quickly to conduct operations of sufficient scale and ample duration. The purpose of the movement and maneuver warfighting function is to link positive tactical actions to operational and strategic objectives that create sustainable operational outcomes consistent with national objectives.

c. Movement comprises actions associated with deploying forces to an operational area and actions taken throughout the operational area to position forces in preparation for maneuver in relation to enemy forces. The Joint Force’s ability to deploy large numbers of forces over extended distances rapidly, sustain them, and deliver precise, discriminate results provides a deterrent capability as well as the proper force required to defeat adversaries. To this end, the AFC-MM acknowledges the continuum of “responsiveness” that includes the global response force, regionally aligned forces, forward stationed forces, moving forces by air and sea, and utilizing pre-positioned stocks. The amount of force needed within a set amount of time to provide a credible deterrent capable of winning and achieving operational objectives varies by region, adversary, and situation. Thus, the concept supports the Joint Force in achieving a balance between forward positioned forces, rapidly deployable forces, reinforcing forces, and sustainable land combat power adept at integrating capabilities in all domains to assure mission success.

d. Maneuver is the employment of forces in the operational area through movement, in combination with fires, to achieve a position of advantage in relation to the enemy for the purpose of closing with and destroying enemy personnel and equipment, seizing and holding terrain, and protecting populations.1 Overtime the concept of maneuver has grown to include other arms to increase relative combat power–combined arms maneuver–which is the application of the elements
of combat power in unified action to defeat enemy ground forces; to seize, occupy, and defend land areas; and to achieve physical, temporal, and psychological advantages over the enemy to seize and exploit the initiative.² TP 525-3-1, The U.S. Army Operating Concept: Win in a Complex World (AOC) provides an extension of the concept of combined arms maneuver which is, joint combined arms maneuver - the synchronized application of two or more arms or elements of one service, along with the application of joint, interorganizational, and multinational capabilities to place the adversary in positions of disadvantage.³

e. The AFC-MM expands upon both concepts of combined arms maneuver and introduces cross-domain maneuver. Cross-domain maneuver is the employment of mutually supporting lethal and nonlethal capabilities in multiple domains to generate overmatch, present multiple dilemmas to the enemy, and enable joint force freedom of movement and action. Integrating capabilities in all domains in such a way to achieve a synergistic effect increases relative combat power and enables Army maneuver forces to destroy or defeat enemy forces. Commanders employ cross-domain maneuver to concentrate effects in decisive spaces across the five domains to achieve physical, temporal, and psychological advantage over enemy forces.

f. The AFC-MM builds on lessons learned from past conflicts, interprets the recent trends in the character of war, analyzes future threats and operational environments, and is intended to help Army leaders and teams see, learn, understand, and adapt to complex environments.

1-5. Assumptions

a. The assumptions from TP 525-3-0, The U.S. Army Capstone Concept (ACC) and the AOC apply to this concept.

b. The following assumptions also apply.

(1) The Army will continue to preposition equipment globally.

(2) Future operating environments will consist of complex urban terrain and dense populations.

(3) Future threats will become increasingly adaptive and employ a mix of traditional, unconventional, and hybrid strategies to threaten U.S. interests abroad, and create a complex, uncertain operational environment.

(4) Future threats, with advanced technology, will degrade U.S. communications, observation, precision fires, and position, navigation, and timing (PNT), challenging U.S. forces across the breadth and depth of the battlefield.

(5) Peer threats will exploit multi-domain anti-access and area denial capabilities with extended ranges, integrate precise near-real time information collection, enabled by space and cyber-electromagnetic activities, air defense, and fires, contesting all domains, and challenging U.S. power projection, entry, and freedom of action.
(6) Lighter and smaller platforms and systems will increase strategic and tactical mobility for some formations, but U.S. armored brigade combat teams will remain the premier combined arms force with improved mobility, firepower, and protection capabilities.

(7) U.S. Army maneuver forces will become increasingly vulnerable over time as threat anti-tank, anti-personnel, and anti-air munitions continue to exceed protection.

(8) Active protection systems will mature, but will not protect against the full range kinetic energy threats nor be fielded fully to the force during the 2020-2040 timeframe.

(9) Future forces will need to operate with joint, interorganizational, and multinational partners to conduct strategic and operational movement, reconnaissance, and security operations, cross-domain maneuver, wide area security, and mitigate threat overmatch.

(10) Armored, infantry, and Stryker BCTs will remain the Army’s primary tactical fighting formations during 2020-2040.

(11) Enemy long range target acquisition and fires capabilities will increase the vulnerability of stationary light forces.

(12) The Army will continue to rely on aerial maneuver when conducting air-ground operations and sustainment.

1-6. Linkage to the Army concept framework

a. The AOC is grounded in a vision of future armed conflict that considers national defense strategy; missions; emerging operational environments (OEs); advances in technology; and anticipated enemy, threat, and adversary capabilities and strategies. The AOC describes how future Army forces, as part of a joint, interorganizational, and multinational team, operate to enable Joint Force freedom of movement and action, and accomplish campaign objectives by influencing other domains from the land domain.

b. To refine and expand on the AOC, the AFC-MM describes how Army forces enable Joint Force freedom of movement and action through cross-domain maneuver, operates semi-independently, integrates reconnaissance and security operations, and realizes mission command to seize and control terrain; defeat enemy forces, and protect populations, infrastructures, and activities. The concept provides a vision of how future maneuver forces employ to develop situational understanding continuously, gain positions of relative advantage, and consolidate gains to achieve commander’s intent and accomplish the mission.
2-1. Operational context

a. In the future, Army forces will face adaptive enemies and adversaries that employ a mix of traditional, unconventional, and hybrid strategies to threaten U.S. interests. The future operating environment will be uncertain, complex, highly-competitive, and politically volatile.\(^4\) While threats will vary across regions, all enemies and adversaries will to adapt tactics and integrate new technologies to outpace U.S. forces and achieve local overmatch in multiple domains. In some cases, adversaries will employ forces and other means, such as cyber attacks, at a level short of traditional conflict to generate disorder and advance their interests. Because reduced Army force structure and fewer forward stationed forces have the Army out of position and outnumbered in areas of strategic importance, potential enemies may be embedded, increasing the risk of conflict.

b. Given the conditions of the anticipated OE, winning requires integrating and synchronizing joint, interorganizational, and multinational capabilities to defeat complex threats. Commanders and staffs at all levels must integrate intelligence and operations in all domains to develop situational understanding, create depth, shape the OE, and employ maneuver forces in such a manner to create multiple dilemmas for the enemy. To win, Army forces integrate capabilities to create synergy across all domains, increase relative combat power, disrupt enemy cohesion, maximize strengths, attack enemy weaknesses, and operate at a tempo and pace the enemy cannot sustain.

2-2. Future operational environment

a. Contested domains. The proliferation of affordable advanced technology enables adversaries to contest the U.S.’s ability to operate in the land, air, maritime, space, and cyberspace domains.\(^5\) Adversaries will seek deterrence against the U.S. by contesting every domain and reducing the Joint Force's freedom of action. As Army forces set the theater, enemy long range precision systems will target those forces with integrated fires to deny Joint Force entry. Simultaneously, adversaries will contest every domain to limit the U.S.’s ability to collect information, develop the situation, and gain situational understanding.

(1) In the land domain. Adversaries will employ precision and extended range munitions, requiring U.S. forces to transition rapidly from movement to maneuver and disperse forces to avoid enemy massed fires. The enemy will use advanced multifunctional mines to deny friendly freedom of movement and maneuver while protecting its own land force. Furthermore, the enemy will employ camouflage, deception, and security forces to mitigate U.S. collection capabilities.

(2) In the air domain. Enemy forces will employ integrated air defense capabilities, particularly man-portable systems that are difficult to detect. Advances in unmanned air- and ground- systems enable the enemy to threatened U.S. formations at lower cost. Long range integrated air defenses will seek to defeat or limit past U.S. dominance in aerial reconnaissance while simultaneously employing inexpensive unmanned air systems to target U.S. formations and critical nodes. Enemy capabilities will be resistant to electronic suppression and use passive sensing
technology such as infrared search and track to deny effective U.S. air-ground integration of movement, maneuver, and fires.6

(3) In the maritime domain. Army and Navy forces provide lift, sustainment, and ship-to-shore fires to support maneuver, while ground forces project land-based combat power via direct and indirect fires into littoral areas to support maritime operations.

(4) In the space domain. Adversaries will deny U.S. and allied space-based intelligence, reconnaissance, PNT capabilities, such as the global positioning system and secure satellite communications.

(5) In the cyberspace domain. Advancements in cyberspace technology will allow adversaries to attack the Army information network and degrade effectiveness. Cyberspace offers other state and non-state actors the capacity to delay U.S. and partners response to a nonlethal attack by implanting malicious code in advance on the U.S. and partners logistics, command, control, communications, computers, intelligence, reconnaissance, and commercial support networks.7 The U.S. can expect similar advancement and challenges from the electromagnetic spectrum (EMS). For example, the Chinese strategy, known as integrated network electronic warfare (EW) combines EW, computer network operations, and nonlethal strikes to disrupt battlefield information systems that support an adversary’s warfighting and power-projection capabilities.8

b. Lethal battlefields.

(1) Until recently, the Army enjoyed significant technological advantages when fighting at night, allowing it to see enemies without being seen. In the future, being seen will expand beyond the purely physical into all domains (land, air, maritime, space, and cyberspace), and forces that can be seen in any domain. Because what can be seen can be killed, the Army must improve operational security, signature management, obscuration, concealment, and deception significantly in all domains to mitigate the increased lethality of the OE. Adversary forces will employ synchronized space and cyberspace capabilities to locate and attack forces with precision weapons and use EW capabilities to disrupt or degrade Army information networks.

(2) Adversaries will adapt tactics, integrate technology, and use positional advantage as they seek to generate overmatch with well-led, trained, and equipped traditional and unconventional forces, experienced in close fighting.9 Advancements in technology enable adversaries to employ anti-tank guided missiles, direct fire platforms, and autonomous weapon systems. Adversaries already outnumber and outrange Army indirect fire capabilities and are adept at linking manned and unmanned platforms with effectively massed indirect fires. Because the global proliferation of technology will continue to benefit likely adversaries, the Army must expand its capabilities into all domains to assure battlefield success.

c. Degraded operations.

(1) Adversaries have studied the manner in which the U.S. coordinates technical reconnaissance, satellite-based communications, and air and maritime power to enable ground
freedom of maneuver and overmatch.\(^1\) Highly advanced potential adversaries are developing methods to counter U.S. strengths in the air and maritime domains, and degrading key capabilities by disrupting access to land, space, cyberspace, and the EMS. An effective Army information network enables rapid sharing of information and understanding and effective integration of joint and combined arms capabilities. Coupled with network-assured PNT and the availability of precision munitions, these capabilities are the trademark of how the U.S. Army fights. However, as dependence on digital and electromagnetic systems grow, Army formations become more vulnerable to enemy attack in cyberspace and EW, while threatening PNT and the Army’s information network.

(2) Adversaries possess the capability to degrade U.S. situational awareness, shared understanding, and common operating pictures, while threatening U.S. use of precision munitions. Vital space-based capabilities can be attacked from cyberspace, or destroyed physically by ground- or air-launched anti-satellite weapons. Absent accurate PNT data and satellite communications, manned and unmanned air- and ground-platforms integration will lose the ability to impact the land, air, and maritime domains. Ultimately, U.S. forces should expect periods of degradation in current and future operating environments.

d. Operations among populations in complex terrain. Global trends in urbanization point to the inevitable growing challenges of the anticipated complex environment the Army will face in future operations. Unfortunately, enemies and hybrid threats will choose to live and operate in dense urban areas to mitigate U.S. capabilities due to the varying nature of the physical structures of a city, such as multi-story buildings, subterranean routes, bridges, and vast population centers.

(1) The U.S. Army may operate in one or more dense urban areas with a population of 10 million people or more. Cities will continue to be the centers of global political and economic power. The use of state-sponsored propaganda, deception, disinformation and the ability of highly empowered individuals and groups to influence disparate populations through social technologies indicate an alternative character of conflict that harnesses cognitive influences. The proliferation of mass communication capability via the Internet, coupled with the explosion of social media and readily available means to transmit both information, or disinformation to wide audiences, requires an expanded understanding of maneuver that accounts for employing capabilities in a population-centric battlefield to achieve dominance and gain positions of advantage.

(2) Army forces must broaden the current maneuver and operations framework to consider the cognitive aspects of their environment to operate effectively within, as well as influence decision making and population behavior. Language barriers, cultural, religious, and political differences will challenge Army leaders and Soldiers to expand their knowledge and expertise on the cognitive aspect of the human terrain, and methods of persuasion and negotiation. Setting the conditions to gain situational understanding, establish security, and achieve operational objectives amongst populations in complex OEs will require leaders and Soldier to understand and leverage available capabilities of all domains to influence perceptions and narratives that enable the force to achieve operational objectives.

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\(^1\) Overmatch is defined as the application of capabilities or unique tactics either directly or indirectly, with the intent to prevent or mitigate opposing forces from using their current or projected equipment or tactics.
2-3. Implications for the future

a. Fight throughout contested domains. While the Army has almost always conducted operations in a contested land domain, future adversaries will contest Joint Force operations in the air, maritime, space, and cyber space domains. As a result, Army forces must expand its role in projecting combat power across all domains to enable Joint Force freedom of movement and maneuver. The employment of mutually supporting capabilities across domains creates conditions designed to generate overmatch, present multiple dilemmas to the enemy, and enable Joint Force freedom of movement and action. To present a credible deterrent, the Joint Force must demonstrate the ability to conduct effective joint combined arms operations. This requires the Army to design, equip, and train forces capable of defeating adversaries with advanced capabilities and able to prevail in lethal, complex, and multi-domain environments.

b. Be mobile and maneuver dispersed. The steady increase of lethality, range, and rate of fire of modern weapons requires Army forces to operate dispersed and adjust tactics accordingly. Future Army forces must operate dispersed to avoid enemy strengths and evade enemy attacks, while retaining the freedom of movement to concentrate combat power rapidly across domains to fight, survive, and win. Additionally, Army forces must employ obscuration capabilities not just on the physical battlefield, but also across cyberspace and the EMS to prevent detection and protect the force. Future Army forces must possess the appropriate mix of mobility, firepower, protection, intelligence, sustainment, and mission command capabilities to operate dispersed, generate overmatch, gain positional advantage, and consolidate gains. To achieve depth, and preserve and freedom of movement and action, commanders at all levels must integrate reconnaissance and security operations, and resource, organize, and synchronize area security efforts between multiple maneuver formations and joint, interorganizational, and multinational partners to develop situational understanding, prevent surprise, preclude enemy action, and protect the force.

c. Integrate reconnaissance and security efforts. To win in complex OEs that consist of contested domains, lethal battlefields, and complex terrain while operating against capable and elusive enemies demands an integrated reconnaissance and security effort at all levels. Enemies and adversaries will evade long-range detection through concealment, deception, and intermingling with civilian populations. Because of these and technological counter-measures to long range surveillance capabilities, Army forces will develop situational understanding through the integration of intelligence and operations in close contact with enemies and civilian populations. Therefore, to collect required information, protect the force, interdict threats, and consolidate gains – that is, retain the initiative – requires cross-domain reconnaissance and security to gain and maintain contact with enemy organizations across all domains, identify opportunities to establish cross-domain superiority in decisive spaces, and maneuver to positions of advantage.

d. Decentralize operations. The availability of old and new technologies, coupled with human interaction, creates a complex, hyperactive environment inundated with sensors, precision shooters, robots, machines, networks, and a range of threat forces operating within all domains. Technology alone will not provide higher echelons with the capability to manage all decisions, anticipate threats, and respond in a timely manner. Given the capability of adversaries to degrade PNT and the Army information network, future Army forces must have the organic capability and
authority to operate decentralized to enable rapid adaptation to continuous changes in the operational environment with less reliance on higher echelon direct support than in the past. The AOC defines decentralization as the delegation of authority to enable aggressive, independent, and disciplined initiative to develop the situation; seize, retain, and exploit the initiative; and cope with uncertainty to accomplish the mission within the commander’s intent. Therefore, realizing mission command, allowing formations to operate semi-independently, and empowering commanders and leaders to seize, retain, and exploit the initiative is imperative to ensure success when operating in degraded environments.

e. Summary of implications relevant to future movement and maneuver.

(1) Army forces must employ mutually supporting capabilities across the land, air, maritime, space, and cyberspace domains to create conditions designed to generate overmatch, present multiple dilemmas to the enemy, and enable Joint Force freedom of movement and action within domains.

(2) Army forces must be designed, equipped, and trained to think, access, combine, and employ capabilities across all domains.

(3) The Army must align the right mix of forward-deployed and rotational forces, and prepositioned equipment regionally to deter aggression, protect U.S. national interests, and provide options for joint force commanders.

(4) Because future enemies and adversaries will seek to saturate the entirety of the OE with a diverse and dynamic combination of regular, irregular, and/or criminal elements to create multiple dilemmas, Army forces will be required to conduct continuous cross-domain reconnaissance and security operations at all echelons of command through the entirety of the OE, to develop the situation through action while preserving combat power for the decisive operation.

(5) Because threats to national security can arise anywhere around the world, the Army must deploy combat configured formations capable of transitioning from strategic movement to cross domain maneuver while operating decentralized and dispersed to accomplish operational objectives.

(6) Complex operational environments require leaders to possess cross cultural capabilities to operate among populations effectively.

(7) A cluttered and hyperactive OE requires decentralization of capabilities and decision-making authorities to the lowest practical echelon.

(8) Army forces must equip with appropriate mobility, protection, firepower, sustainment, and mission command capabilities to generate overmatch.

(9) To achieve depth in time and space, simultaneity of action, and accomplish campaign objectives requires echelons above brigade (EAB) headquarters to direct reconnaissance and security efforts, conduct intelligence synchronization, organize and resource efforts to establish
wide area security, coordinate sustainment efforts, and consolidate gains for multiple brigades in linear and non-linear operational frameworks.

(10) EAB headquarters require reconnaissance and security capabilities to develop situational understanding, shape the environment, and protect the force.

Chapter 3
Military Problem and Components of the Solution

3-1. Introduction
This chapter describes how Army forces operate in increasing complex future environments to fight, survive, and win across the range of military operations (ROMO) and integrate all arms and capabilities.

3-2. Military problem
How do Army forces, operating as part of a joint, interorganizational, and multinational force train, organize, equip, and posture sufficiently to deter or defeat highly-capable peer threats in the degraded, contested, lethal, and complex future OE?

3-3. Central idea
The Army, as part of the Joint Force, engages regionally to shape the security environment, prevent conflict, and create multiple options for responding to and resolving crisis. When called upon, Army forces deploy and transition rapidly from movement to cross-domain maneuver with organizations operating semi-independently, and enabled by realized mission command, conduct joint combined arms operations semi-independently throughout the depth of the battlefield to seize, retain, and exploit the initiative; defeat enemies; and achieve operational objectives.

3-4. Concept synopsis

a. Because of the steady increase in lethality, range, and rate of fire of modern weapons over the past 150 years, the battlefield has become more dispersed. Furthermore, the proliferation of technology and the number of systems employed on the modern battlefield, (for example, digital, EM, space based, manned, unmanned, ground, and aerial) present a cluttered OE where the employment and interactions of each system produces a hyper-active environment. Large volumes of information coupled with numerous systems, Soldiers and populations in complex terrain create a fluid environment that limits a commander’s ability to manage all decisions in a timely manner. Additionally, given a potential adversary’s capability to contest all domains, Army forces must be capable of operating degraded.

b. Therefore, the AFC-MM proposes a combination of decentralized linear and nonlinear, contiguous and non-contiguous schemes of cross-domain maneuver, with formations operating semi-independently to seize, retain, and exploit the initiative; and defeat enemies by forcing them to fight against multiple types of attacks from multiple directions and domains, thus achieving surprise and gaining temporal advantage. The aim is to shatter the enemy’s cohesion. The immediate objective is to create a situation in which the enemy cannot function. The central idea
is to avoid an enemy strength and attack enemy weaknesses from multiple positions of advantage throughout the depth of the battlefield. The ultimate goal is panic and paralysis for an enemy who has lost the ability to respond to friendly actions effectively.

c. Theoretical and historical underpinnings.

(1) Ultimately, war is a brutal business that requires units to engage in close combat. Close combat is the ability to seize and control key terrain and to destroy enemy forces through movement in coordination with fires. Close combat has one central purpose: the defeat or destruction of enemy forces to decide the outcome of battles and engagements. The ability to win engagements is essential to successful campaigns and achieving military objectives. Therefore, battles and engagements are the fundamental building blocks of operational success and strategic victory.

(2) The ability to dictate the terms of action throughout a battle or engagement determines whether the attacker can compel enemy behavior at acceptable cost. Presenting the enemy with multiple dilemmas in the form of simultaneous or sequential threats from different locations, directions, and in multiple domains can quickly overwhelm the ability to resist effectively. Speed of movement and action can accentuate the pressure on enemy decision-makers, creating both physical and psychological positions of advantage. The exploitation of those positions of advantage by engaging in close combat forces the enemy to yield position quickly, be destroyed, or surrender its forces. This is how battles and engagements finish quickly, enemy units are defeated, ground is taken, and campaigns are won.

(3) Army forces with the capability and skill to deploy rapidly to close with and destroy throughout the depth of the enemy’s battlespace will control the initiative and gain a psychological advantage. More important, Army forces must prepare, and have the latitude, to exploit the initiative. This means organizing combined arms teams so they can develop the situation in close contact with populations and the enemy, and empower them to close with and finish rapidly with a ruthless assault at a time and place of the U.S.’s choosing. With the enemy defeated, combined arms teams, or their reinforcements, follow through to the next action to retain or exploit the initiative by consolidating gains and continuing reconnaissance and security efforts. This is the way for tactical success to yield operational opportunities and decisive results.

(4) At the operational level, commanders decide when, where, and under what conditions to engage the enemy in battle—and when, where, and under what conditions to refuse battle with reference to higher aims. At the tactical level, commanders focus on applying combat power to defeat an enemy at a particular time and place by using firepower and maneuver, integrating capabilities in all domains, and exploiting success immediately to defeat the enemy. Operational level commanders use their intent to guide subordinate unit operations that infiltrate and penetrate the enemy in depth to deceive, turn, envelope, and threaten the enemy in the land domain, while integrating joint, Army, interorganizational, and multinational capabilities employed in other domains to deny enemy freedom of movement and action.

(5) Operating dispersed and decentralized make friendly decisive operation ambiguous to the enemy. Successful reconnaissance on enemy defenses uncovers opportunities that commanders
can choose to reinforce by employing follow-on forces or reserves to maneuver through gaps and around surfaces to exploit success throughout the depth of the enemy’s area of operations. This in turn disrupts the coherence of the enemy’s formations, rendering them unable to respond to friendly actions effectively. The combination of dispersion and rapid concentration in decisive spaces enables attacking forces to negate numerical advantage by avoiding enemy strengths, and attacking enemy weaknesses to seize, retain, and exploit the initiative.18

(6) For example, during the Mexico City Campaign of 1847:
Winfield Scott dispersed his [combined arms formations] during the preparatory phase for a major attack and thereby threatened multiple targets simultaneously. Tactical dispersion was problematic for Santa Anna because it crippled his ability to predict Scott’s true intentions.19 Unable to foresee where the primary attack would occur, the Mexican commander dispersed his forces accordingly in order to protect all possible targets. This, however, stretched and weakened the Mexican defensive line and made it vulnerable to concentrated American assaults. This allowed Scott to attack at a time and place of his choosing. Paired with deception and misinformation, dispersion is a powerful preparatory tactic because the defender is unable to identify the location of the main attack. The combination of dispersion and concentration enabled Scott to negate the numerical advantage of the Mexican Army by causing Santa Anna to distribute his forces, while Scott’s dispersed forces rapidly concentrated at decisive points, pitting his strength against enemy weakness, achieving surprise, and accomplishing the mission (See figure 3-1).20

Figure 3-1. Mexico City campaign, 1847
(7) To place emphasis on the need to seize, retain, and exploit the initiative, the AFC-MM promotes an offensive approach but acknowledges that combat manifests itself in two different but complementary forms: offense and defense.21 The offense contributes striking power and generally has as its aim, positive gain. It is through the offense that the U.S. seeks to impose U.S. will on the enemy and dictate the terms of the battle. The defense, on the other hand, contributes resisting power, which is the ability to preserve and protect.

(8) During dispersed offensive operations, attacking forces focus actions against decisive spaces, orienting more on assigned objectives, (such as, destroying an enemy force or seizing and controlling critical terrain or population centers), than their relationship to adjacent units.22 Attacking forces impose an operational tempo that allows friendly forces to seize and maintain the initiative by forcing the enemy to react to actions in multiple domains continuously in ever shorter periods of time. Army forces exploit the initiative with maneuver that defeats or destroys enemy forces. As the enemy loses its capability to resist, it becomes compelled to withdraw, surrender, or be destroyed. Enabled by deception, misinformation, obscuration, and dispersion, attacking forces infiltrate or penetrate the enemy defense along multiple directions of attack and concentrate at decisive points rapidly to seize and control terrain, destroy enemy forces, or compel the enemy to withdraw.

(9) The offense cannot be sustained indefinitely. At some times and places, it becomes necessary to halt the offense to replenish, and the defense takes over. Furthermore, the requirement to concentrate forces at decisive points for the offense often necessitates assuming the defensive elsewhere.23 Out of necessity, the AFC-MM includes defensive considerations. In the defense, defenders focus on destroying enemy forces, even if it means losing physical contact with other friendly units. Due to the increases in lethality contained in the maneuver forces they are able to increase survivability through an offensive approach to the defensive. This means the defense assumes a very aggressive and potentially offensive character. Dispersed defenses arranged in nonlinear and noncontiguous fashion are generally mobile defenses; however, some subordinate units may conduct area defenses to hold key terrain or canalize attackers into engagement areas. Forces in area defense work to retain the initiative by concentrating overwhelming firepower on enemy forces, retaining freedom of movement, and defending in depth.24

(10) Whether conducting offensive or defensive operations, the Army relies on integrated reconnaissance and security effects to gain relevant information, consolidate gains, protect the force, and preclude enemy attacks.25 To protect themselves, attacking forces rely less on mass and more on reconnaissance and security operations to develop situational understanding, identify opportunities, and retain mobility to gain positional advantage. Decentralized and dispersed operations place a premium on communications, intelligence, mobility, mission command, sustainment, and allocating minimum essential combat power to defensive operations. Maintaining reserves allows attacking forces to exploit success, interdict enemy counterattacks, and retain the initiative.

(11) Furthermore, cross-domain obscuration enabled by space, cyberspace, and EMS capabilities enhances protection and makes formations harder to detect. When multiple subordinate formations operate dispersed and potentially out of mutual supporting range, higher level commanders integrate capabilities across domains, echelons, and formations to conduct
continuous reconnaissance and provide security over wide areas between subordinate maneuver forces, such as providing a dedicated reconnaissance force, employing unmanned aerial and ground platforms, robotics and sensors, or a combination of both. The aim is to integrate reconnaissance and security efforts in all domains throughout the depth of the battlefield to prevent surprise, protect the force, and preclude enemy options.

(12) Consolidating gains is an integral part of armed conflict and is essential to retaining the initiative over determined enemies and adversaries. In essence, consolidation of gains is the act of leveraging tactical, operational, and strategic level advantages to retain the initiative and create irreversible momentum towards the desired endstate. Advantages that provide leverage are created in one or multiple domains such as seizing and controlling key terrain, denying enemy freedom of movement and action in the air and maritime domains, disrupting cyber access, denying enemy PNT capabilities, establishing rule of law, and controlling narratives to influence population support. In the future enemy organizations will operate in physical, temporal, and psychological dimensions and domains where perception, criminality, social and cultural norms, political will, timing and physical control affect human behavior and the mission. Therefore, consolidating gains is decisive, yet far more challenging and complex, to successful unified land operations.

d. Application of the AFC-MM ideas.

(1) Because threats to national security and vital interests can develop rapidly, the Army provides rotational and forward-deployed forces, prepositioned equipment, and strategic movement capacity to reinforce U.S. forces abroad, deter threats, reassure allies, and provide improved situational awareness. Army special operations forces and regionally aligned forces conduct integrated reconnaissance and security efforts essential to the defense policy goals of shaping security environments and preventing conflict. Furthermore, forward positioned and rotational forces demonstrate U.S. resolve and provide foundational capabilities, such as communications, intelligence, rotary wing aviation, missile defense, logistics, and engineering to the Joint Force. However, short of sufficient forward presence, or if deterrence efforts fail, Army forces conduct expeditionary movement over strategic distances and transition rapidly to cross-domain maneuver of sufficient scale and duration to accomplish operational objectives.

(2) The capability to enter a theater at just about any point with combat configured, highly mobile, and lethal forces provides Joint Force commanders with options to surprise the enemy and present multiple dilemmas. Surprise, coupled with the ability to defeat enemy forces in fast-paced, violent tactical battles and engagements, sustain the enemy’s initial surprise with shock effect. Surprise, shock effect, and rapid destruction will both disorient and weaken the enemy while also increasing joint force freedom of movement and action from the land domain. This is the way to defeat enemy forces; by causing dislocation and disintegration rather than by engaging in sequential, set-piece battles of annihilation.

(3) A successful initial entry into a theater may not be sufficient. To be decisive, Army forces must sustain an ever-increasing operational tempo; specifically, the Army must reinforce initial-entry forces with a steady flow of follow-on elements, while executing and sustaining combat operations by forces already engaged. However, the critical measure of successful force projection is not the speed with which the first combat elements engage, but rather the rate at which the Joint
Force and its partners are able to penetrate enemy anti-access and area denial capabilities and attack into the depth of the enemy defense. Army forces must translate the initiative gained by forcible entry into decisive operations against key enemy capabilities and vulnerabilities in depth rapidly, to disrupt the cohesion of the enemy’s defense.31

(4) To ensure successful entry and follow-on operations, headquarters at EAB integrate and synchronize joint, Army, interorganizational, and multinational capabilities to develop situational understanding continually, organize sustainment operations, integrate reconnaissance and security efforts, shape the area of operations to support battles and engagements, and consolidate gains to accomplish campaign objectives. EAB commanders empower subordinate commanders to use disciplined initiative to exploit opportunities and respond to unexpected threats. Realizing mission command, combat configured BCTs deploy and operate semi-independently to seize, retain, and exploit the initiative within the commander’s intent by attacking from multiple locations, directions, and domains to present dilemmas to the enemy throughout the depth of the battlefield.

(5) BCTs operating semi-independently multiply the effects of simultaneous attacks from multiple locations and directions to confuse and disrupt enemy forces, enabling BCTs to strike from positions of advantage throughout the depth of the battlefield. Moving along multiple routes, BCTs infiltrate, evade attacks, deceive the enemy, and reduce vulnerability to massed fires and attacks by superior forces. Dispersion coupled with continuous integrated reconnaissance and security operations reduces vulnerabilities to enemy counters. Collectively, these actions reinforce the effects of fires and present a set of unfavorable options to paralyze and overwhelm the enemy, and lead to rapid collapse of enemy forces.32 BCT success when operating semi-independently links critically to improved mobility, firepower, protection, and sustainment capabilities.

(6) To outmaneuver the enemy, the Army must design combat vehicles to provide BCT’s with high mobility via durable low maintenance and efficient power sources, reduced weight, and sophisticated countermine and gap-crossing capabilities to overcome obstacles. The intent is for BCTs to outmaneuver enemy forces by ground using organic vehicles, or by air using future vertical lift platforms at both tactical and operational levels. BCT’s are equipped with improved firepower based on enhanced target acquisition technologies; integrated air-ground-cyber-space reconnaissance and security operations; and the capability to integrate joint cross-domain fires. Advanced target acquisition and weapon systems enable Soldiers, crews and teams to ‘see’ and engage at extended ranges in all weather conditions with superior overmatch potential for direct and indirect fire systems. These capabilities include both directed and kinetic energy weapon systems.

(7) Integrating capabilities across all formations, echelons, and domains enhances force protection, situational understanding, and the creation of a secure environment significantly. Integrated cyberspace, space, and EMS capabilities, enabled by unmanned aerial platforms, robotics, and multiple mode delivery sensors provide BCTs with enhanced reconnaissance and security advantages. Active and passive armor provides an additional layer of protection for combat vehicles. Additionally, obscuration of maneuver forces is achieved by integrating capabilities in the EMS and cyberspace domain that degrade enemy sensors and detection capabilities, and overwhelm an enemy’s ability to discern targets. Organic obscuration, advanced
and indirect fire capabilities allow BCT’s to detect the enemy, deploy, close with the enemy under obscuration, and engage at a time and place of their choosing.

(8) Reduced logistic demands, organic power generation, autonomous resupply, additional medical capability and capacity, and extended reach improves BCT endurance enabling them to sustain a high tempo for sustained periods of up to seven days. Reduced logistics demand extends and enhances the BCT’s ability to maintain a pace and tempo to a level the enemy cannot sustain. Improved power generation capability increases the operating range and system operating time, and extends the BCT’s organic systems battery life. Autonomous resupply enables greater dispersion allowing more flexibility for maneuver formations. Increased medical capability and capacity decreases the time and distance between combat resources required for medical treatment and aviation asset use. Extended reach and increased responsiveness, capable of rapid resupply and recovery for isolated personnel, reduces the risk of U.S. Army Soldiers, Civilians, and contractors being captured or isolated by adversaries.

(9) However, vulnerability increases as BCTs extend their lines and become exposed over a larger operational area. This is especially the case if the operational design is to position BCTs throughout the depth of the battlefield, in which the ability to move to reinforce a troubled friendly unit would be seriously challenged. Additionally, noncombatants, bypassed enemy formations, degraded capabilities, and dispersed and semi-independent operations fluidity have the potential to disrupt operations. To address these risks, commanders at all levels create shared understanding, and integrate reconnaissance and security operations to gain and maintain contact with the enemy, provide early warning, and keep units from becoming surprised or isolated. Furthermore, the ability to think, access, and employ organic and joint force capabilities in all domains allows BCT’s to fight and win repeatedly with reduced reliance on EAB headquarters support, allowing the EAB to focus on operational shaping, transition, and consolidating gains.

(10) Application of the ideas in the concept requires a nonlinear, decentralized, and cross-domain approach to land-based tactics, where forces orient on objectives and focus on creating specific effects at multiple decisive spaces with operational and strategic importance.\textsuperscript{33} Fighting in this manner causes the enemy to orient in multiple directions and stretch its defense.\textsuperscript{34} Attacking the enemy from multiple directions and domains creates multiple dilemmas. If the enemy choses to orient in multiple directions, it potentially weakens its defense. If the enemy choses to remain concentrated in one area, it risks being enveloped, turned, isolated, or destroyed in detail. As enemy units lose mutual support due to multiple attacks, they lose coherence of action, and become dislocated. As enemy capabilities in multiple domains are attacked, its ability to communicate, control direct fires and movement, and sustain the fight is lost. Enemy forces crumble, while friendly forces exploit success and dictate the terms of battles and engagements to achieve operational results. These ideas are not unlike those accomplished by American forces in Panama in 1989 and other places, such as France, and the Southwest Pacific in 1944. (See Figure 3-2.)
3-5. Components of the solution

Movement and Maneuver Functional Concept

Central idea: As part of the Joint Force, Army forces deploy and transition rapidly from expeditionary movement to cross-domain maneuver with Brigade Combat Teams that, enabled by mission command, conduct joint combined arms operations semi-independently to seize, retain, and exploit the initiative; defeat enemy forces; operational objectives.

- **EAB HQs**: Manage campaigns and transitions; create shared understanding, shape OEs for BCTs; integrate security operations; and synchronize sustainment operations.

- **Conduct Cross-Domain Maneuver**: Create synergy with capabilities employed across all domains to increase relative combat power, pose enemies with multiple dilemmas, and defeat or destroy enemy forces.

- **Operate Semi-independently**: BCTs possess sufficient mobility, firepower, protection, intelligence, mission command, and sustainment capabilities necessary to conduct cross-domain maneuver while dispersed at extended distances, and for ample duration.

- **Integrate Reconnaissance and Security Operations**: Combine organic and joint capabilities at all command echelons with reconnaissance and security operations over wide areas to reduce enemy options and protect the force.

- **Realize Mission Command**: Empower subordinate leaders to seize, retain, and exploit the initiative consistent with the commander’s intent regardless of the condition of the mission command network or other cross-domain enablers.

Figure 3-3. AFC-MM components of the solution
a. Successful application of the ideas in this concept relies on Army forces executing four critical components of the solution to the military problem, which are: conduct cross-domain maneuver, operate semi-independently, integrate reconnaissance and security operations, and realize the Army’s mission command philosophy (see figure 3-3.).

b. Conduct cross-domain maneuver (see figure 3-4.).

(1) Defeating capable enemies in the future requires Army maneuver forces to expand the concept of combined arms to include employing capabilities in all five domains. Cross-domain maneuver is the employment of mutually supporting lethal and nonlethal capabilities in multiple domains to create a synergistic effect that increases relative combat power and provides Army maneuver forces with the overmatch necessary to destroy or defeat enemy forces. Cross-domain maneuver includes the cross-domain fires concept, as maneuver is the employment of forces in the operational area through movement, in combination with fires, to achieve positions of advantage in relation to the enemy. Army maneuver forces must have the ability to access and employ capabilities in each domain to conduct effective cross-domain maneuver.

![BCT Conducting Cross-Domain Maneuver](image)
(2) Cross-domain maneuver employs joint and Army force capabilities in all domains. In the land domain, ground maneuver formations engage in close combat with lethal and nonlethal direct and indirect capabilities, precision munitions, directed energy weapons, and long-range fires to seize and control terrain and destroy enemy forces. In the air domain, ground forces provide surface to air fires to deny enemy freedom of movement and action, while Army, Air Force, and Navy manned and unmanned aerial platforms provide movement and fires, enable sustainment, and conduct reconnaissance. Furthermore, suppression of enemy air defenses using land and maritime based fires enables freedom of movement and action in the air domain. In the maritime domain, Army and Navy forces provide lift, sustainment, and ship-to-shore fires to support maneuver, while ground forces project land based combat power via direct and indirect fires into littoral areas to support maritime operations.

(3) Within the space and cyberspace domains, land, maritime, and air forces access and employ EMS capabilities to deny the enemy secure communications necessary for command and control, as well as deny PNT data required for precision navigation and weapons. Additionally, the space and cyberspace systems protect and provide Army information network capability, assured PNT, and contribute to reconnaissance and security efforts. The synergistic effect of integrating capabilities in all domains to support maneuver enables Army forces to develop situational understanding continually, achieve overmatch, gain positional advantage, and operate at a pace and tempo the enemy cannot sustain.

c. Operate semi-independently.

(1) The future OE requires Army forces to operate dispersed with the ability to concentrate combat power rapidly at decisive points, and in spaces (domains) to achieve operational objectives. BCTs operating semi-independently possess sufficient mobility, firepower, protection, intelligence, mission command, and sustainment capabilities to conduct cross-domain maneuver at extended supporting range and distance for up to seven days while achieving operational objectives. The increased duration of endurance and ability to operate at extended distances enables BCTs to lengthen the period between operational pauses and create multiple dilemmas for the enemy. While BCTs possess the capability to operate semi-independently in nonlinear and noncontiguous areas of operation, EAB headquarters retain the capability to execute linear and contiguous operations when multiple BCTs are required to concentrate combat power in close proximity to achieve operational objectives.

(2) Operating semi-independently allows BCTs to infiltrate along multiple axes, evade enemy attacks, achieve surprise, and gain positions of advantage to isolate, envelope, or destroy enemy forces. BCTs conduct continuous cross-domain reconnaissance and security operations in close contact with populations and the enemy to identify threats, and protect populations, infrastructure, and activities over wide areas. Flexible and precise cross-domain fires enable BCTs to shape and set conditions to destroy enemy forces. Furthermore, improved mobility and sustainment capabilities, along with fundamental demand reduction, enable BCTs to operate at a tempo the enemy cannot respond to or sustain, while enabling BCTs to concentrate combat power rapidly to close with and destroy enemy forces from multiple positions of advantage.
d. Integrate reconnaissance and security operations.

(1) The complexity of the OE requires an integrated, combined arms approach to reconnaissance and security beyond traditional air-ground screen, guard, and cover missions conducted by dedicated reconnaissance forces. While traditional reconnaissance and security operations remain valid, organizing all forces within an AO to assist with integrating intelligence and operations enables commanders to continually develop situational understanding, protect the force, and create a secure environment. Integrated reconnaissance and security operations are coordinated cross-domain actions that apply capabilities in the land, maritime, air, cyber, and cyberspace domains, in conjunction with deception, obscuration and force to provide reaction time and maneuver space, preserve combat power, achieve economy of force, facilitate movement and transitions, fight for information and protect the force (see figure 3-3).

(2) BCTs operating semi-independently use their organic cavalry squadron and cross-domain capabilities to develop tactical and operational depth and to create reaction time and maneuver space. To support BCTs operating semi-independently, EAB commanders assume responsibility for AOs not assigned to subordinate formations and allocate joint capabilities (cross-domain fires and Army special operations forces, for example) within those areas to maintain situational awareness and provide security in those areas. To support the requirement for reconnaissance and security at echelons above brigade, the EAB commander may designate and task-organize a BCT or squadron to perform reconnaissance and security tasks. When securing wide areas, forces at each echelon incorporate manned and unmanned aerial and ground reconnaissance platforms and sensors to expand their area of influence, identify threats to the force, and continually develop situational understanding. EAB commanders synchronize reconnaissance and security operations across subordinate formations, coordinate intelligence requirements, fuse intelligence from multiple echelons to support cross-domain fires and maneuver, and integrate the full range of capabilities in all domains to protect the force.

e. Realize mission command.

(1) A cluttered and hyperactive battlefield limits higher commanders’ ability to manage all decisions in a timely manner. To generate the tempo of operations desired and to best cope with the uncertainty, disorder, and fluidity of combat, command must be decentralized. That is, subordinate commanders must make decisions on their own initiative, based on their understanding of their higher command’s intent, rather than passing information up the chain of command and waiting for the decision to pass back down. A competent subordinate commander who is at the point of decision will naturally have a better appreciation for the true situation rather than a higher commander some distance removed. Employment of a maneuver forces at echelon for reconnaissance, as well as integrating reconnaissance and security operations across all echelons can assist with improving situational understanding. However, degraded environments demand that commanders realize mission command through decentralized operations that employ flexible schemes of maneuver to allow subordinates leaders to press the fight even when degraded.

(2) The potential for enemies to degrade communications will force commanders to realize the Army’s mission command philosophy. Mission command is the exercise of authority and direction by commanders, supported by their staffs, that fosters mutual trust, encourages initiative,
and empowers subordinate leaders to develop the situation, adapt, and act decisively within the commander’s intent. Commanders determine the extent to which they centralize or decentralize authority based upon their understanding of the situation, their concept for accomplishing the mission, the mutual trust and confidence shared with subordinates, and the degree of risk they are willing to assume to accomplish the mission. Realizing mission command means commanders enable agile and adaptive leaders and organizations to execute dutiful initiative within the commander’s intent to exploit opportunities. Under dispersed and degraded conditions the Army’s ability to seize, retain, and exploit the initiative will depend on empowering leaders to exercise disciplined initiative consistent with the commander’s intent when mission command systems become degraded, fail, or are not used in order to conceal operations and reduce digital signature.

h. Closing.

(1) The AFC-MM emphasizes a nonlinear, decentralized, and cross-domain approach to land based tactics where forces orient on objectives and focus on creating specific effects in multiple decisive spaces of operational and strategic importance. While advantageous, it is difficult to operate dispersed and concentrate to close rapidly in the face of an armed enemy. To reduce risk to forces operating dispersed, in lethal and degraded environments, among populations in complex domain requires Army forces to conduct cross-domain maneuver; be trained, equipped and organized to operate semi-independently; integrate reconnaissance and security efforts across all domains and echelons; and realize the Army’s mission command philosophy.

(2) Historically, countless combat units have conducted operations in this manner with decisive effect. The Masurian Lakes campaigns across Germany in Aug-Sep 1914, Israeli Defense Forces’ campaigns across the Sinai in October–November 1956 and again in June 1967, and ongoing operations in the Ukraine serve as examples of operational maneuver where an enemy defense is “lifted off its hinges” by fast-moving, independent columns, each operating on its own axis of advance.35 (See figure 3-5.) In the case of the Israelis, both campaigns resulted in the direct accomplishment of theater strategic goals as well. The ability of BCTs operating semi-independently to fight and win a series of successive engagements to support a flexible operational scheme will keep an enemy in a state of imbalance—particularly so if dispersed maneuver causes the enemy to face multiple, simultaneous threats from multiple directions and in all domains. Inducing this state of imbalance in the enemy is how BCTs will win battles and engagements that achieve operational and strategic outcomes.

Figure 3-5. Israeli Defense Forces’ campaigns across the Sinai 1967
3-6. Supporting ideas

a. This section describes key functional enabler capabilities that enable execution of the central idea and support the components of the solution.

b. Intelligence.

(1) Integrating national to tactical intelligence with operations provides commanders a high degree of situational understanding across the ROMO while operating in complex environments against determined, adaptive enemy organizations. Army commanders develop situational understanding of complex situations in depth, breadth, and context through the integration of intelligence and operations while operating with multiple partners. This includes cross-domain reconnaissance and security operations to satisfy commanders’ information requirements. Technology is a central enabler to the intelligence enterprise but adaptive leaders and cohesive teams that thrive in ambiguity and chaos, and are adept at conducting reconnaissance operations in close contact with populations and the enemy underpin everything.

(2) The intelligence enterprise uses a multi-domain approach to support situational understanding, collecting information across all five domains. To support Army movement and maneuver, information collection capabilities configure for rapid deployment and immediate employment upon arrival with mobility and survivability commensurate with the supported formation. Supported by a resilient network and mission command, intelligence development enables continuous positive action throughout the operation. The intelligence enterprise provides Army forces at all echelons with the capability to generate situational understanding at the speed of mission command to enable maneuver even as aggressive air-ground reconnaissance and security operations remain a key element of intelligence collection.

(3) Due to periods of network degradation, BCTs must retain the capability to synchronize the intelligence warfighting function to support situational understanding. Inherent in that synchronization is the ability to focus requested collection sharply to satisfy information requirements. BCTs operating semi-independently in a degraded network environment require organic analytic capability to focus intelligence collection which will minimize resulting reporting and reduce demand on the network.

c. Army aviation.

(1) Army aviation supports cross-domain maneuver by conducting air-ground operations as part of the combined arms team. Air-ground operations are the simultaneous or synchronized employment of ground forces with aviation maneuver and fires to seize, retain, and exploit the initiative, and achieve positions of advantage in relation to the enemy. Aircraft provide a maneuver advantage for widely dispersed forces to overcome the constraints of limiting terrain and extended distances, enabling rapid aggregation of disparate units to exploit temporary dominance in select domains. Air-ground teaming options can contribute to integrated security operations by creating temporary windows of domain superiority to allow freedom of movement and action for the Joint Force.
Army aviation is organized and equipped to support Army combined arms operations as well as joint, interorganizational, and multinational operations. Army aviation formations are organized with reconnaissance and attack, cargo, utility, and air medical evacuation helicopters, unmanned aircraft, and air traffic services systems to provide support to maneuver forces conducting land operations under EAB and BCT’s mission command. Army aviation operates with the ground force at the lowest practical level, ensuring responsiveness to the ground commander's needs, and providing an intrinsic cross-domain maneuver capability. Aviation forces operate in highly contested and complex airspace with the situational understanding to execute cross-domain maneuver. Maneuver forces synchronize joint and Army manned and unmanned systems, fires with ground maneuver forces to attack the enemy at the time and place of the U.S.’s choosing while maintaining adequate levels of fratricide risk.

d. Fires.

(1) The AOC and AFC-MM describe a future environment that requires responsive, and effective fires capabilities, resulting in conceptual investment in: expanding cross-domain fires; improving integration with joint, interorganizational, and multinational assets; establishing sensor-to-shooter linkages as a state of being; and converging multifunctional fires capabilities to gain efficiencies.

(2) Fires units support joint combined arms operations by integrating and delivering fires through multiple domains in time and space. Fires organizations at all echelons task organize capabilities to support the maneuver operation and scheme by providing shaping fires, air and missile defense fires, and fire support by integrating joint, Army, interorganizational, and multinational capabilities across all domains, enabling friendly freedom of action. Fires organizations require a tiered and layered approach to enable movement and maneuver by destroying, neutralizing, or deterring low altitude air threats to protect critical fixed and semi-fixed assets and maneuvering forces.

(3) Cross-domain fires support cross-domain maneuver by expanding fires capabilities through all domains. Operating semi-independently requires organic and multifunctional fires capabilities along with an integrated sensor to shooter network that enable massed and synchronized fires in time and space. Effective mission command requires fires capabilities that are persistent, comprehensive, and agile, creating sensor networks that provide wide ranging and integrated sensor-to-shooter linkages. Fires formations support integrated security operations across all domains by optimizing joint, interorganizational, and multinational capabilities that provide deep shaping fires through air and missile defense and fire support. As maneuver is movement supported by fires, the components of the solution within both the AFC-MM and TP 525-3-4, The U.S. Army Functional Concept for Fires are mutually reliant and interrelated to conduct joint combined arms operations.

e. Space operations.

(1) Space forces provide capabilities across the Department of Defense (DOD) that facilitate multi-domain battle. Specifically, space forces support a BCT’s ability to move and maneuver
semi-independently through a contested environment using unique technical capabilities: space force enhancement, space support, space control, and space force application.

(2) Maneuver forces leverage space-based capabilities through organic and embedded space professionals and cadre within the formation. Space support elements, Army space support teams and other specialized teams combine to plan, coordinate, synchronize, and integrate the human and technical elements of space operations to support maneuver forces across joint, interorganizational, and multinational partners.

(3) Space forces support the semi-independent execution of cross-domain maneuver and integrated security operations through space-based intelligence, surveillance, and reconnaissance; satellite communications; PNT; environmental monitoring; and missile warning. Space operations enable movement and maneuver within the operational environment via joint friendly force tracking, navigation warfare, alternate compensatory control measures, and special technical operations. Space forces protect the use of space-based capabilities and space domain freedom of maneuver through offensive and defensive space control.

f. Maneuver support.

(1) Maneuver support forces integrate security and conduct cross-domain maneuver to ensure joint, interorganizational, and multinational forces freedom of movement and action regardless of the operational environment’s complexity or systems degradation. Maneuver support forces provide unique technical capabilities to understand and shape the environment, mitigate the effects of obstacles and hazards, and protect the force, populations, resources, and activities throughout the continuum of conflict.

(2) Maneuver support forces integrate security operations and conduct cross-domain maneuver throughout the support area. Technical intelligence, such as geo-intelligence, criminal intelligence and weapons of mass destruction technical intelligence, coupled with a persistent presence and technical capabilities such as police operations, counter-weapons of mass destruction activities, counter-explosive hazards and general engineering, shape the environment, mitigate threats and enable freedom of movement and action along extended lines of communication. Integrated security influences the human perspective and counters the enemy’s deep fight, while providing the commander with additional time and maneuver-space. Integrated security operations also compliment the maneuver support forces ability to conduct and support cross-domain maneuver. Through planning, synchronizing and leveraging cross-domain effects, maneuver support forces capitalize on windows of opportunity in which to shape both the human perspective and the terrain. Maneuver support forces, organic to BCT formations, conduct mobility and counter mobility operations, including breaching, gap crossing, obstacle reduction and emplacement, and movement corridor operations. Cross-domain maneuver results in windows of opportunity to gain positional advantage, achieve overmatch and defeat enemy forces.

(3) To offset demand on maneuver support forces, units integrate emerging technology such as unmanned aircraft systems (UAS), artificial intelligence, robotics, and autonomous systems. Improved mobility, fire power, protection, intelligence, mission command, and sustainment enable maneuver support forces to integrate with BCTs better. These material solutions along with an
evolved Total Army training methodology and a dynamic task organization capability enable leaders and units to conduct and support integrated security operations, cross-domain maneuver and semi-independent operations simultaneously. Throughout the area of operation, maneuver support forces enhance protection and facilitate freedom of movement and action, ultimately critical to the consolidation of gains and the rapid transition to follow on operations.

g. Sustainment.

(1) Army forces sustain joint combined arms operations in multiple domains with sustainment organic to the BCT and scalable capability at echelon using multiple routes, modes, nodes, and suppliers, to provide freedom of action to the supported commander. Sustainment forces task organize to support semi-independent and dispersed BCT operations with reduced demand, improved shared understanding, and enhanced distribution. The Army integrates tactical, operational, and strategic sustainment operations to provide the foundational framework to support the force, providing multiple options to the supported commander while contributing to integrated security operations. Increased sustainment force lethality will not eliminate the requirement for synchronization of security operations in the support area.

(2) Semi-independent and dispersed operations require a fundamental reduction in demand to operate for ample duration (up to seven days) and changes in distribution centric sustainment operations with integrated security. The most significant demand characteristics are fuel, water, and ammunition, which determine the sustainment footprint for supply, storage, and distribution. Freedom of action for dispersed forces operating semi-independently requires disciplined resource consumption and materiel management. Development and acquisition of more reliable and efficient ground and aerial combat systems must account for greater than 50 percent reduction of fuel requirements to enable operational reach. Without this fundamental reduction in demand, BCT requirements will result in a significant reinvestment in sustainment force structure and capacity. Meeting demand at the point of need through advanced technology provides greater capability within the BCT. Semi-independent BCTs require 100 percent mobile sustainment assets and capabilities. Development of autonomous ground and aerial distribution systems provide enhanced freedom of action through responsive periodic resupply operations.

(3) Sustainment forces require increased organic lethality and protection to generate security and provide overmatch. Extended and contested lines of communication through unoccupied areas that emerge between dispersed, semi-independent units increase risk to sustainment operations. Support operations across domains require smaller, mobile, concealable capabilities with counter-UAS ability to remain undetected and avoid enemy targeting. EAB forces create windows of domain superiority to set conditions for distribution and emergency resupply to combat forces including maneuver support coordination, fires, and cyberspace operations to enable distribution along multiple routes, across multiple domains.

(4) Accurate reporting and visibility of semi-independent BCT sustainment information is essential for shared understanding and forecasting of sustainment activity from the tactical to strategic level. A reliable sustainment component of the BCT mission command information systems with redundant sustainment enterprise information systems provide decision support. Sustainment information systems, and networks are vulnerable to disruption by enemy cyber
operations adversely affecting BCT freedom of action. Defensive cyberspace operations capabilities are paramount to maintain sustainment operations security. Sustainment information systems must operate with intermittent connectivity in a degraded communications environment with hardened and redundant network.

(5) The Army uses forward positioned, rotational forces, Army prepositioned stocks, and activity sets to assist in reducing response time. Configuration, size, and capability of strategically positioned Army prepositioned stocks allows future forces to deploy combat configured across strategic distances and transition rapidly from expeditionary movement to cross-domain maneuver. Reception, staging, onward movement, and integration remain enduring missions mitigated with lighter and configured forces for reduced reception, staging, onward movement, and integration.

(6) Semi-independent and dispersed BCT operations generate the requirement for an enhanced organic medical suite of enablers for prolonged care forward. Contested domains will cause delayed evacuation and will require future forces to have the ability to treat and hold casualties for extended periods of time. The BCT requires enhanced medical capability at the point of injury by providing advanced trauma and resuscitation skills, and possess prolonged patient holding abilities to support this future OE. Additionally, the increase in existing and emergent health threats to the force must offset by expanding force health protection capabilities to mitigate disease and non-battle injury casualties from non-traditional agents, chemical, biological, radiological, and nuclear (CBRN) threats and hazards, disease vectors, and toxins.

h. Mission command.

(1) The Army institutionalizes the mission command philosophy fully. Mission command becomes intrinsic to the Army Profession recognized as equally applicable to commanders, subordinate leaders, Soldiers, and Army Civilians of both the operational and institutional Army. All Army leaders understand and apply the mission command philosophy habitually to everything they do—training (including training management), operations, routine military functions, and daily administrative activities.

(2) EAB headquarters organize and resource joint combined arms operations. They conduct multi-domain intelligence collection, all-source fusion, and intelligence product dissemination to provide operational synthesis and enable shared understanding throughout their command. To support decisive operations, they plan and execute shaping operations, coordinate sustainment efforts, integrate reconnaissance and security efforts at echelon over wide areas, and consolidate gains through mission command. EAB headquarters enable BCTs to operate semi-independently to present the enemy with multiple dilemmas and achieve operationally significant objectives. EAB headquarters magnify force operational effects by combining actions in all domains with simultaneous action by multiple subordinate elements, and the effects of joint cross-domain fires in decisive spaces to extend operations in depth and achieve operational-level objectives.
Chapter 4
Conclusion

a. The AFC-MM describes how maneuver forces conduct cross-domain maneuver, operate semi-independently, realize mission command, and integrate reconnaissance and security operations to close with and destroy enemy forces, protect populations and friendly forces, consolidate gains and achieve operational objectives. The concept emphasizes BCTs operating semi-independently to develop situational understanding, gain multiple positions of advantage across the five domains, and consolidate gains to accomplish operational objectives. EAB headquarters shape the fight in support of BCTs, set conditions for transitions, and integrate reconnaissance and security operations to protect the force and exploit opportunities. To operate in this manner, Army forces must think, have access to, and employ cross-domain capabilities to adapt to changes in the environment and take actions necessary to seize, retain, and exploit the initiative.

b. The Army continues to evaluate the ideas contained in this concept and the assumptions through the physical and intellectual activities that help leaders integrate future capabilities and interim solutions to ensure the Army’s maneuver force is prepared to meet the future armed conflict demands.

Appendix A
References

Section I
Required References

TP 525-3-0
The U.S. Army Capstone Concept

TP 525-3-1
The U.S. Army Operating Concept: Win in a Complex World

Section II
Related references

ADP 3-0
Unified Land Operations
ADP 5-0
The Operations Process

ADP 6-0
Movement and Maneuver

ADP 6-22
Army Leadership

Army Doctrine Reference Publications 7-0
Training Units and Developing Leaders


Field Manual (FM) 1-02
Terms and Military Symbols

FM 3-0
U.S. Army Operations

FM 3-98
U.S. Army Reconnaissance and Security Operations

Fleet Marine Force Manual (FMFM) 1
Warfighting


JP 3-0
Joint Operations

Appendix B
Required Capabilities

B-1. Introduction
Movement and maneuver required capabilities describe capabilities needed to execute the missions under the conditions described within the AFC-MM. Required capabilities identify and focus movement and maneuver capability development. The Campaign of Learning, in collaboration with other warfighting function and domain leads, continues to inform required capabilities development.

B-2. AFC-MM RCs

a. Conduct cross-domain maneuver.

(1) Future Army forces require mutually supporting capabilities across the air, land, maritime, space and cyberspace domains to create conditions designed to generate overmatch, present multiple dilemmas to the enemy, and enable Joint Force freedom of movement and action. (AFC-MM: 3-3, 3-4.c, f., 3-5.b.(1), 3-5.c.(1))

(2) Future maneuver forces require the capability to integrate and team air and ground manned and unmanned systems capabilities during cross-domain maneuver to seize and control terrain, including subterranean, destroy enemy forces, and protect populations, infrastructure and activities. (AFC-MM: 3-4.g.,h., 3-5.b.(2), (3), 3-5.e.(2))

(3) Future Army forces require precise lethal and nonlethal capabilities, coupled with sensors and integrated with intelligence, to engage targets 360-degrees at extended range in all domains. (AFC-MM: 3-4.g,(5), (6), 3-5.e.(2))

(4) Future maneuver forces require the capability to maneuver and survive in close combat against enemies with robotic and autonomous systems, unmanned aircraft systems, manned aircraft (rotary and fixed wing), and short to medium- range ballistic missiles to preserve the force during joint combined arms operations. (AFC-MM: 2-2.a.(2), 3-4.e., 3-4.g.(6), 3-5.e.(2))

(5) Future Army forces require the capability to move formations rapidly to control tempo and momentum of maneuver and to enable them to concentrate combat power in decisive spaces. (AFC-MM: 3-4.b., 3-5.b.(3), 3-5.c.(2))

(6) Future Army forces require the capability to deploy combat-configured, combined arms forces rapidly, and to transition quickly and conduct joint combined arms operations of sufficient scale and ample duration to generate overmatch, present multiple dilemmas to the enemy, and enable Joint Force freedom of movement and action. (AFC-MM: 2-3.e.(5), 3-6.f.)

(7) Future Army forces must be able to conduct joint entry operations in a high anti-access and area denial environment from strategic distances and transition from movement to maneuver rapidly to accomplish mission objectives. (AFC-MM: 3-4.g.(1), (2))
Future Army forces require the capability to provide air-to-ground precision and volume, scalable (nonlethal to lethal) fires during joint combined arms air-ground operations to destroy or neutralize enemy forces while obscuring friendly forces to support ground maneuver and shaping operations. (AFC-MM: 3-4.b (2), 3-5.b.(2), (3), 3-5.e. (1), 3-6.d.)

Future Army forces require the capability to conduct air movement and maneuver of combat Soldiers and associated equipment from land or sea bases, to austere or unprepared landing zones, to transport personnel, equipment and supplies to forward points of need, and air medical evacuation during joint and combined air-ground operations to seize and control terrain, destroy enemy forces, and protect populations, infrastructure and activities. (AFC-MM: 3-5.b.(2))

Future Army forces require assured mobility across multiple domains at the time and place of a commander’s choosing as they generate windows of opportunity to gain positional advantage. (AFC-MM: 3-4.f.(4), 3-6.f.(2), 3-6.g.(1))

Future Army forces require the capability to conduct personnel recovery of isolated personnel to prevent the capture and exploitation of U.S. Army Soldiers, civilians, and contractors by adversaries. (AFC-MM: 3-4.d.(9), AOC:3-3.b, ACC 3-5.c)

b. Operate semi-independently.

Future maneuver forces require the capability to operate semi-independently and sustain operations for ample duration and to concentrate combat power rapidly from multiple locations and directions. (AFC-MM: 3-5.c, 3-6.c.)

Future Army forces require the capability to employ remote and standoff CBRN detection and integrate disparate, non-CBRN detectors to enhance situational understanding of CBRN threats and hazards during joint combined arms operations. (AFC-MM: 3-6.e.(1))

Future Army forces require the capability to identify, secure, and reduce obstacles and hazards; to breach structures; and to bridge gaps to guarantee unimpeded freedom of maneuver during joint combined arms operations. (AFC-MM: 3-4.b., 3-6.e.(1))

Future Army forces require the capability to produce accurate firing data from the lowest echelon, transmit that information rapidly and accurately, de-conflict fires, and deliver precision fires on enemy formations to create the desired effects during joint combined arms operations. (AFC-MM: 3-5.b.(2), 3-6.d.)

Future Army forces require the capability to obscure, without inhibiting friendly forces maneuver, the enemy’s ability to locate, see, hear, monitor and render effects on friendly forces in all spectrums and across all domains to maintain freedom of movement, force protection, and mission command throughout an area of operations. (AFC-MM: 3-4.b. (2) (3) (11) (12), 3-4.e. (5), (7) (8) 3-5.e. (1))

c. Integrate reconnaissance and security operations.
(17) Future maneuver forces require the capability to conduct persistent, cross-domain (land, air, maritime, space, and cyberspace) combined arms, air-ground reconnaissance and security operations to collect, develop and report near real time actionable combat information and provide early warning, reaction time, maneuver space, and security. (AFC-MM: 3-4.f. (4), (4), 3-5.c.(2), 3-5.e.(1))

(18) Future Army forces require the capability to operate with joint, interorganizational, and multinational partners to protect populations, friendly forces, installations, borders, infrastructure, and activities to enhance regional stability. (AFC-MM: 3-4.f. (2), (4), 3-4.g. (3), 3-5.d., 3-5.e.(2))

(19) Future Army forces require the capability to field trained, culturally aware, and politically astute leaders to engage with military forces; joint, interorganizational, and multinational partners; and populations to build partnerships, shape environments, apply influence, deter adversaries and consolidate tactical gains to ensure mission accomplishment across the ROMO. (AFC-MM: 2-3.d. 3-5.b.(2), 3-5.b.(3) 3-6.b.(2))

(20) Future Army forces require the capability to operate with and through populations in uncertain complex, highly-competitive and politically volatile operating environments in order to enhance regional stability and enable a range of strategic options. (AFC-MM:2-1.a,2-3.d,(4),(6))

(21) Future Army forces require the capability to obscure their formations from elevated (UAS, manned aircraft, and space-based systems) and ground based sensors (radar, unmanned ground systems (UGS)) across the EMS to prevent detection from threat multi-spectral sensors. (AFC-MM: 3-4.b.(2), (3), (11), (12); 3-4.c. (5), (7) (8) 3-5.e. (1))

d. Realize mission command.

(22) Future maneuver forces require the capability to employ space and cyberspace capabilities that allow maneuver forces to identify threats, defend the Army information network, disrupt machine assisted learning tools, and exploit access to enemy networks to achieve offensive effects to support tactical and operational maneuver. (AFC-MM: 3-4.c. (5), (7), (8), 3-5.b.(2), 3-5.e. (1), (3),3-6.h.(2))

(23) Future Army forces require the capability to task organize to the team level rapidly to provide tailored capabilities to execute cross-domain maneuver and accomplish campaign objectives. (AFC-MM: 3-4.g. (2), (3))

(24) Future Army forces require the ability to generate situational understanding through continual regional engagement and intellectual and operational preparation of the environment to inform senior leaders and prepare Army forces for global missions. (AFC-MM: 3-4.g. (1), 3-6.c.)

(25) Future Army forces require the capability to train and develop resilient, fit, agile, and adaptive leaders and units who operate in complex and uncertain environments across the range of military operations to preserve friendly freedom of movement and action, prevent surprise, protect populations, infrastructure, and activities, consolidate gains, and retain the initiative. (AFC-MM: 2-3.a., 3-5.e.(2), 3-6.g.(1))
(26) Army forces and mission command nodes require the capability to project an augmented reality image or signature onto appropriate threat sensors to obscure mission command systems, locations, and composition or provide faulty targeting data to threat systems. (AFC-MM: 3-4.c. (5), (7), (8), 3-5.b.(2), (3), 3-5.e. (1), 3-6.h.(2))

(27) Army forces require the capability to mimic friendly forces or “spoof” enemy forces to mask friendly high value assets and to lure out enemy detection assets, fires and SOF. (AFC-MM: 3-4.c. (5), (7), (8), 3-5.b.(2), (3), 3-5.e. (1), 3-6.h.(2))

Appendix C
Science and Technology

C-1. U.S. Army science and technology (S&T)

a. Future S&T solutions in this appendix directly support the four components of the solution detailed in this concept. The future Army will largely be continental United States-based. However, it will deploy forces rapidly, overcome anti-access and area denial actions, defeat any range or combination of threats decisively, conduct missions across the ROMO, and seize and secure large operational areas requiring cross-domain maneuver. Future BCTs and their subordinate elements conduct operations over large areas requiring formations, from battalions to squads to operate semi-independently (up to and beyond seven days) while remaining connected in purpose and intent to the larger whole. A robust, resilient tactical network that leverages cross-domain capabilities enables realized mission command.

b. Advanced sensors and autonomous robotic systems teamed with Soldiers enable integrated security operations allowing formations to conduct continuous reconnaissance, early warning and to maintain enemy contact including in the cyber domain. These capabilities enable maneuver formations at all levels to move to positions of advantage rapidly and enter fights at unexpected locations. Formations, down to the squad level have a firefight ending capability. Equipment and formations will be leaner, more self-sustainable for extended periods of time and effective in lethal and nonlethal force application. Equipment and formations will be capable of operating in all types of environments, from large urban areas among populations to deserts, rolling terrain, mountains, and dense jungles.

C-2. Army S&T investment areas - ground

a. Cross-domain maneuver. Cross-domain maneuver is the employment of mutually supporting lethal and nonlethal capabilities of multiple domains to create conditions designed to generate overmatch, present multiple dilemmas to the enemy, and enable joint force freedom of movement and action.

(1) Provide improved and more capable combat vehicles with advanced lethal, nonlethal, and sensor capability providing Soldiers and platforms increased capability to detect, recognize, identify, and locate entities rapidly and precisely at extended distances with greater image
resolution. This improved capability enables rapid and precise fires application from multiple domains to effect enemy formations and systems.

(2) Advanced sensors will be integral mechanisms of vehicles, unmanned systems, and those carried by individual Soldiers. These sensors packages will be multi-modal (such as infrared, radars, acoustic, and biometric) and result in an integrated holistic situational awareness environment that supports both mounted and dismounted applications. These capabilities will reduce risk, reduce collateral damage, and provide overmatch compared to enemy capabilities resulting in increased lethality.

(3) Soldier, platform, and formation sensor fusion will provide enhanced situational awareness and increase weapon system effects by reducing response time, promoting cross-talk (between Soldiers and systems), and queuing between systems internal and external to the BCT.

(4) Advanced sensor technologies will enable increased unmanned systems autonomy further enhancing maneuver and situational awareness.

(5) Common Soldier, platform, and formation sensor architectures reduce procurement and life cycle and costs, while providing a common framework for the development of future systems.

b. Operate semi-independently. BCTs operating semi-independently possess sufficient mobility, firepower, protection, intelligence, mission command, and sustainment capabilities to conduct cross-domain maneuver at extended supporting range and distance for up to seven days while achieving operational objectives.

(1) Future combat vehicles must reduce logistics demand, and increase reliability, availability, and maintainability through significant reductions in size, weight, and required power. Combat vehicle systems weight and volume will decrease by as much as 50 percent compared to current vehicles by using lighter materials, new joining techniques, and novel protection solutions that limit the weight of passive armors.

(2) Vehicles will have a variety of passive and active technologies that reduce vehicle signature significantly by decreasing visual, infrared, radar, cyber, and electromagnetic signatures.

(3) Sensors locate and identify threats 360-degrees proactively, allowing active protection systems to anticipate and adjust dynamically to counter threats. These improvements allow systems and formations to maneuver out of visual, direct, and indirect contact. However, Army combat vehicles will still have the capability to close with the enemy, defeat them in close combat, and win meeting engagements when sensors fail to provide accurate and timely warning.

(4) Weapons systems will have enhanced lethal and nonlethal capabilities, at long ranges, with the ability to defeat threats beyond line of sight, in defilade or under cover.

(5) Future combat vehicles will reduce logistics demand drastically, and increase reliability, availability, and maintainability significantly through reductions in size, weight, and power.
(6) 3D printing technologies will allow formations to reduce reliance on the sustainment system outside the BCT.

(7) Combat vehicles will incorporate autonomous systems both on and off the vehicle. Autonomous systems assist in operating, targeting, protecting, and maintaining on-board systems. Off-board systems will provide intelligence, surveillance, reconnaissance, protection, and additional lethality options to the manned combat vehicle.

(8) Advanced integrated Soldier and vehicle power management systems will enable leaders and Soldiers to understand the energy status in a formation.

(9) Soldier systems will have reduced energy demand for carried devices. Soldier systems will have a reduced number and type of batteries to power systems. Soldiers will have the ability to exchange and share energy quickly, the ability to generate energy unobtrusively, and the ability to receive energy from vehicles and harvest energy from local power sources. Energy density will allow the Soldier to operate for days or weeks without resupply.

(10) Vehicle stored energy combined with autonomous ground and air resupply will allow BCTs to operate semi-independently for extended periods (7 days or greater). Assured resupply provides for reduced physical burden by providing the Soldier and formation the supplies needed at the right time, location. Together these improvements help decrease what combat vehicles and Soldiers are required to carry.

(11) The Soldier, crew, and leader will experience advances in materials, computing, and autonomy that allow for off-loading weight, reducing system weight, simplified function, increased protection at reduced weight, and energetics. Examples include one common weapon interface for future combat vehicles and individual weapons systems, autonomous driving, common user interface for vehicles, and Soldier heads-up displays.

(12) Remote and close proximity autonomous robotic unmanned ground and aerial systems that provide intuitive alert interfaces for danger awareness and avoidance, afford greater situational awareness.

(13) The small unit will have the lethality and survivability necessary to win the close fight, and the protection to endure the effects of multiple protracted engagements. Small units will have multiple firefight ending capabilities – immediate, overwhelming precision, direct and indirect fire. Small units will detect, identify, and engage, with precision, personnel, and vehicle targets at extended ranges, and engage threat personnel in defilade. Small units will mark autonomously, tag and track targets, recognize threats and automatically engage with lethal and nonlethal capabilities. The dismounted formation will have a lightweight precision shoulder launched munitions capability, able to defeat armored vehicles and hardened structures. Small units will have a signature management capability to suppress acoustic, flash, and thermal signature of all Soldiers and weapons systems.

(14) Each combat Soldier will operate from a protective ensemble that includes a helmet usable by both mounted and dismounted Soldiers. The capabilities this helmet system provides
are key elements for ensuring both speed and accuracy. The helmet system integrates digital and voice communications, integrated configurable targeting and sensor data, visualization of the immediate environment in all conditions, and ballistic, environmental, and overpressure protection that eliminates or mitigates the effects of traumatic brain injuries.

(15) Autonomous unmanned systems will conduct swarming behaviors that are useful militarily. A swarm of autonomous unmanned systems can be used for offensive or defensive missions to overwhelm enemy platform capabilities. For example, swarms will fly to the vicinity of enemy indirect fire systems and defeat outgoing projectiles. Individual systems will also be capable of 4D transformation–4D being the ability to change the system’s shape, modality, and function. For example, a swarm of unmanned systems will be capable of moving to an obstacle, such as a river, and then forming a structure to span the gap. Swarms will also act as additional protective measures for formations and individual systems, defeating incoming projectiles prior to close protection systems engaging to defeat them.

(16) Autonomous unmanned systems will have the capability to move over complex terrain and environments equal to or greater than will their human counterparts. These systems extend the reach of leaders while allowing formations to initiate contact under the most favorable conditions, and provide situational understanding.

(17) Future technological advances in hemorrhage control, synthetic blood, virtual health, remote physiologic monitors, and human physiologic modulation will enhance Soldier survivability to prolonged combat field care.

c. Realize mission command. Realized mission command requires empowering leaders to exercise disciplined initiative consistent with the commander’s intent when mission command systems fail or are degraded. Uninterrupted and common mission command is essential to support the four components of the solution. Network capabilities are assured, interoperable, tailorable, collaborative, identity-based, and accessible at the point of need in operations that include other mission partners. Assured communications are essential to operations that require fully integrated networked capabilities in a highly contested and congested electromagnetic environment.

(1) Communication and information systems must be simple, redundant, interoperable, mobile, and maintained easily.

(2) Army forces will have the ability to establish and maintain secure communications in sufficient capacity to enable mission essential information exchange throughout the formations. The system must reach reliably to the lowest tactical mounted and dismounted formation.

(3) Robust and redundant PNT capabilities support the mounted and dismounted forces ability to maintain operational tempo under all maneuver conditions.

(4) The Army information network is available immediately and robust upon forcible entry. It will be resilient against cyber and electromagnetic attack, degrade slowly, and is simple to establish, operate, and move with maneuver force formations.
(5) Leaders, Soldiers, and units entering combat for the first time have the experience equivalent to seasoned veterans through technologies, such as augmented reality, use of advanced artificial intelligence in simulations, and intelligent tutors. The Army will have technologies that enable individual leaders and Soldiers to train, grow, and share battlefield experience before arriving to the actual battlefield. This includes the integrating technologies into platforms and weapon systems.

(6) Autonomous unmanned systems will respond to digital and verbal commands and act as members of the squad or crew. They will provide accurate verbal and written language translation unobtrusively. Autonomous unmanned systems will function as members of the formation executing tasks as well as providing oversight for subordinate systems. This capability will allow leaders to employ unmanned systems for critical and complex tasks such as establishing a mesh communication network, or reconnoitering and mapping subterranean infrastructures.

d. Integrate reconnaissance and security operations. While dedicated reconnaissance and security forces remain vital to mission success, integrated security operations add organizing and employing capabilities at echelon in all domains to develop situational understanding continually, protect the force, and create a secure environment. This includes combining organic and joint cross-domain capabilities at all command echelons with reconnaissance and security operations over wide areas to develop situational understanding continually in close contact with populations and the enemy to preclude enemy options and protect the force from dangers.

(1) Improved sensor capability will provide increased capability to detect, recognize, identify, and locate entities rapidly and precisely at extended distances with greater image resolution.

(2) Autonomous unmanned robotic systems integrated into combat formations allow the maneuver force from squad to the BCT to reduce force density in conditions of uncertainty, extend the area and time of the formation operational effectiveness, and enable freedom of movement and action. Future systems are capable of a high degree of autonomous operation including the decision analysis and execution of simple to advanced tasks without Soldier intervention.

(3) Autonomous systems perform dangerous, dirty, and dull tasks. These systems function as scouts, load carriers, resupply platforms, and communication nodes. They will have a variety of imbedded sensors. They will reduce the dangerous, physically demanding, and routine tasks required of Soldiers and crew members. Autonomous systems are rugged with minimal maintenance and are repairable in the BCT. These systems provide sufficient identification and location accuracy to enable precision engagement of detected and identified targets.

C-3. Army S&T investment areas - air

a. Army aviation is the lead for developing and producing the next generation of DOD vertical take off and landing aircraft. The future vertical lift (FVL) initiative has high visibility within the joint and Army communities and is important in determining the shape and direction of joint and Army rotary wing aviation over the next 50 plus years. FVL will enable increased capability in executing air-ground operations by providing worldwide self-deployment; twice the average speed and range of the current rotary wing fleet; increased payloads; operation in worldwide
environmental extremes; increased survivability; common systems approach; and improved affordability. The assumption is that FVL will transition to a major defense acquisition program and reach initial operational capability in approximately 2032. FVL will likely replace legacy aircraft incrementally and by type (attack, reconnaissance, assault, cargo, and others).

b. The next generation UAS will have a vertical takeoff and landing capability, reducing the dependency on runways for employment. This will result in a more responsive Aviation asset in closer proximity to the supported ground commander.

c. The rotorcraft threat protection system will develop and demonstrate seeker/guidance agnostic, hard kill countermeasure capability as part of an integrated team survivability solution. This will result in assured ownership and team survivability in emerging threat environments.

Appendix D
Risk

D-1. Introduction
There are three primary risks that maneuver forces face as the Army implements the ideas in the AFC-MM. These risks are resources and readiness, technological or strategic surprise, and bureaucracy. The Army and maneuver leaders must build the relationships with Joint Force and civilian partners to assess these risks continuously, to communicate these risks and changes in the OE effectively, and to remain smart, fast, agile, and precise in applying risk mitigation solutions.

D-2. Areas of risk

a. Resources and readiness.

(1) Insufficient funding and inadequate capacity. The Army requires an adequate budget to maintain force readiness, support warfighting functions, and fund future capabilities development simultaneously. Adversaries continue to invest in capabilities and are implementing changes to their doctrine and organizations to counter U.S. force’s maneuver advantage. Without commensurate investment in future capabilities, the Army faces the risk of being outmaneuvered in a future conflict. In the worst case, the Army could be outmaneuvered before the fighting begins. Funding must be available to deploy rapidly; to ensure the Army can fight for information both in and out of contact; to develop a reliable Army information network that ensures applying Army capabilities at the point of need; to optimize forces to operate in a joint, interorganizational, and multinational environment; and to fight and win when committed. Additionally, the Army must plan far into the future and resource the development of the next generation of combat vehicles. This takes time, so the development must start now to ensure the Army can field a fighting vehicle capability that will dominate the future battlefield. The Army must integrate and consolidate programs to ensure it is getting the most benefit from development efforts and dollars.

(2) Insufficient strategic lift. Army forces must deploy to the fight. These deployments will require strategic air- and sea- lift assets. Future maneuver forces will require increased tactical mobility once they disembark from the strategic platforms. While much of this effort resides in
the joint community, the maneuver responsibility within the Army’s role for strategic deployment is to ensure forces are as expeditionary as possible by reducing the size and weight of units and equipment. In addition, maneuver forces must determine how to deploy to the fight best and be sustained from a variety of platforms such as, joint logistics over the shore, seabasing, prepositioning equipment, and vertical lift thus reducing the load on strategic lift assets.

(3) Industrial base. Combat vehicles and weapon systems require a vital industrial base to ensure development and production. As the Army and the Joint Force work to protect the industrial base, the Army must communicate valid requirements for development and the industrial needs. This includes a realistic assessment of what the Army needs to maintain combat platforms and fighting capability. The Army must look for opportunities to consolidate efforts that save industrial capacity while ensuring increased production when necessary.

b. Technological or strategic surprise.

(1) Disruptive technologies. There is a significant and credible risk of an innovative and adaptive enemy or adversary developing a disruptive technology or adapting an existing technology to have a disruptive effect. The Army counters this by developing smart and agile leaders, combat developers, and industrial partners who create U.S. disruptive technologies and that see and apply new technology implications. The Army must anticipate emerging technologies and trends that affect or influence warfighting. The Army empowers Soldiers, leaders, and partners to experiment with capabilities to explore different and better ways to employ technology. Increasingly, more leaders and Soldiers possess a natural comfort with technology that allows them to lead and inform this effort, but only if empowered during the physical (experiments, evaluations, exercises, modeling, simulations, wargames) and intellectual (studies, analysis, concepts, lessons learned) activities that help them think, learn, and analyze. The resulting feedback informs equipment development and assists in developing countermeasures to the disruptive technologies.

(2) Strategic surprise. Maneuver elements play a critical role in mitigating the risk that strategic surprise presents to the Army, the Joint Force, and to the Nation. First, the Army trains maneuver leaders to be agile and adaptable through tough training that recognizes and rewards adaptability and innovation. These leaders excel in regional engagement and learn to recognize potential changes in the nature of warfare that threaten formations and the Army. These leaders learn to gain information through regional engagement and through collaboration with other combined, joint, interorganizational, and multinational partners and assets. The Army also maintains a credible forcible entry capability that allows forces to conduct rapid expeditionary operations to address strategic threats. Forcible entry operations include amphibious, airborne, and air assault operations in any combination.

c. Bureaucracy. The Army’s bureaucratic organization increases lead times for initiatives and solutions, and is outpaced by the rate of change in the OE. Maneuver leaders and acquisition professionals must remain aware of the newest technology applications that competitors might exploit. To mitigate risk, the Army must adapt to changes in the OE and propose creative and rapid solutions to protect forces. As part of this action, the Army must build a supporting movement and maneuver exercise strategy critical to learning lessons rapidly and getting proposed solutions into the Army systems. As part of this, the movement and maneuver exercise strategy
must identify and highlight operational requirements and evolving risks to forces as part of the capabilities development process.

d. The best way to reduce risks to the Army is to support, reinforce, and implement changes to the Army’s institutional systems that make forces smarter, adaptable, and precise in applying lethal and nonlethal capabilities. In addition, maneuver forces and leaders must present a credible threat to potential adversaries. Finally, the Army reduces risk by training leaders and Soldiers to be innovative and by building systems that enable innovation to reach decision makers. This comprehensive approach ensures the Army maintains pace with rapidly developing technology and remains ahead of adversaries.

Appendix E
Robotics Strategy

E-1. Introduction
The role robotics plays within the Army force has a drastic and lasting effect on how the Army fights and wins in a complex world. Exponential advancements in robotics continue, increasing the opportunities for military employment. In the mid-term, robotics deploy as force multipliers at all echelons from the squad to the BCT. Future robotic technologies augment Soldiers and increase unit capabilities for mobility, speed of action, and situational awareness generation. As the Army reduces in size and increases expeditionary capability, maintaining overmatch against state and non-state enemies and adversaries requires employment of robotic systems to mitigate capability gaps and leverage technological overmatch. The wars in Iraq and Afghanistan demonstrate the ability of current UAS and UGS to improve unit route reconnaissance, aid in counter-mine and counter-improvised explosive device operations, and identify threats. The payoffs in speed, standoff, lethality, and manpower savings allow the Army to prioritize robotic technologies, operational concepts, and tactics, techniques, and procedures.

E-2. Opportunities for leaner and effective protection

a. UGS already in use demonstrate small unit standoff from potentially lethal threats. Explosive ordnance disposal and engineer units utilize these systems while conducting route reconnaissance and counter-improved explosive device missions. Though enemies destroyed hundreds of UGS in recent operations, human operators remained unharmed through the standoff protection UGS provide. In the future, the proliferation of CBRN and high yield explosive threats requires increased use of robotics technologies to secure the force and civilian populations. The development of autonomous capabilities allows unmanned systems to operate in areas difficult for humans to access, where threats demand standoff for manned teams, or where the duration of the operation dictates UGS employment.

b. In the far-term, UGS provides suitable autonomous or semi-autonomous behaviors, preventing the need for constant Soldier input. The ability to assign tasks to UGS and passively control or overwatch multiple assets at the same time is critical to decreasing the Soldier to robot controller ratio which provides significant gains in unit effectiveness and manpower savings.
c. Prioritizing research on autonomous UGS, supporting parallel technology efforts in persistent power supply, and upgrading Army information network and sensor capabilities is critical in the far-term. Once refined, these supporting technologies allow teams of UGS and UAS to work together and expand the operational reach and situational awareness of commanders. Teams of nano-UAS and -UGS provide highly deployable, persistent information collection capability to areas denied access to manned teams, or where teams could move on to other tasks or missions. Missions, such as subterranean mapping or responsive named area of interest overwatch, use teams of small robots to accomplish tasks previously requiring up to squadron or battalion sized formations, while maintaining the element of surprise. Automation use on manned vehicles may allow crew reduction, but must weigh favorably against other organizational tasks performed by the crew members. The bigger gain may be to allow crew members to perform other tasks such as controlling additional unmanned systems. The use of smaller robotics compared to current manned platforms will increase the capabilities of the force and help the force become leaner and more deployable.

E-3. Improving expeditionary capability

a. The Army must be able to prevent conflict and shape the OE. Therefore, the Army must organize deployable forces to be agile and responsive to the geographic combatant commander’s needs by becoming more adaptable, flexible, and tailorable and demonstrating speed and capability. Robotics has the potential to affect deployability, maintainability, and manpower in all echelons. Experimentation demonstrates the potential for UGS to reduce Soldier load significantly in the far-term. Reducing the load increases mobility and allows Soldiers to maneuver on the battlefield more quickly and arrive in condition to conduct operations.

b. Robotics allocation should be studied to determine where their application provides optimal manpower savings and marked improvements to force effectiveness. Potentially, UGS allocated to support battalions for conducting routine maintenance and autonomous re-supply operations results in reduced manpower needs in expeditionary environments. By designing deployable, modular systems with low maintenance demands, robotics adds capability options to commanders, and ultimately reduces support demands. When connected to the reporting system and equipped to execute assigned tasks to support the maneuver force, UGS are integral parts to a support structure which allows commanders to retain the initiative and extend their culminating point during high tempo semi-independent operations.

c. As the Army becomes more technically and network reliant over the next decade, robotics offer additional benefits when outfitted to establish and extend the Army information network capabilities to the individual Soldier. Commanders require situational understanding provided by teams of robotic information collection assets and an advanced Army information network established by similar systems. Use of unmanned platforms in mounted and dismounted maneuver formations enables greater expeditionary capability. Unmanned air and ground teaming extends the operational reach of units from squad through BCT without needing Soldiers in the immediate vicinity.
Appendix F
Employing Cross-Domain Obscuration to Enable Maneuver

a. Russia demonstrated capability during their recent conflict with Ukraine to detect and target opposing forces visually with advanced optics on land and air systems, and electronically with advanced sensors sensing across the EMS highlights the critical requirement land forces must have to obscure their signature from targeting and attack in all domains. This required capability is cross-domain obscureration. The objective of cross-domain obscurcation is denying enemy forces the ability to acquire and target friendly forces visually and in the EMS.

b. In the past, commanders only needed to protect their formations from visual observation and detection via radio frequency emissions. However, modern sensor technologies and electro-optic devices are much more capable and can detect and blend signatures from multiple spectrums which greatly increase their capability to detect and target U.S. formations. Commanders must employ cross-domain obscurcation to protect formations and enable maneuver.

c. Effective cross-domain maneuver synchronizes the effects of traditional smoke, which denies the enemy visual observation, with obscurcation effects generated in the cyberspace domain and EW activities which obscure U.S. electronic signature. This cross-domain approach to obscurcation reduces the enemy’s ability to detect and target U.S. systems and formations thereby reducing enemy combat power and enhancing U.S. ability to maneuver.

d. Cross-domain obscurcation is defined as, the use of tactics, materiel, or technology in the land, air, cyberspace, space, and maritime domains that degrade threat sensor capability to prevent enemy forces from detecting and effectively targeting friendly units, combat platforms, and key assets. U.S. forces must have the capability and capacity to remain protected from detection and targeting across the entire EMS to protect forces, to preserve operational security, and to retain freedom of maneuver at the tactical and operational levels. The Army should strive to achieve spectral dominance to counter enemy targeting and acquisition of friendly forces throughout the EMS while also developing the advanced weapons and sensors to counter enemies’ obscurcation efforts. To realize this, the Army must incorporate cross-domain obscurcation that uses and synchronizes the obscurant effects of the traditional combined arms approach to operations with the added effects generated through space, cyberspace, and EW to increase friendly relative combat power and to gain an advantage over threat forces.

Glossary

Section I
Abbreviations

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<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tr>
<td>ACC</td>
<td>Army Capstone Concept</td>
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<td>ADP</td>
<td>Army doctrine publication</td>
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<td>AFC-MM</td>
<td>Army Functional Concept for Movement and Maneuver</td>
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<td>AOC</td>
<td>Army Operating Concept</td>
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<tr>
<td>BCT</td>
<td>brigade combat team</td>
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</table>
CBRN chemical biological radiological and nuclear
DOD Department of Defense
EAB echelon above brigade
EMS electromagnetic spectrum
EW electronic warfare
FM field manual
FMFM fleet Marine force manual
FVL future vertical lift
JP joint publication
OE operational environment
PNT position, navigation, and timing
ROMO range of military operations
TP TRADOC Pamphlet
TRADOC United States Army Training and Doctrine Command
UAS unmanned aircraft system
UGS unmanned ground system
U.S. United States

Section II
Terms

adversary
A party acknowledged as potentially hostile to a friendly party and against which the use of force may be envisaged.

agility
The ability of friendly forces to react faster than the enemy.

anti-access
Those actions and capabilities, usually long range, designed to prevent an opposing force from entering an operational area.

area denial
Actions and capabilities, usually of shorter range, designed to limit an opposing force’s freedom of action within an operational area.

area security
Security task conducted to protect friendly forces, installations, routes, and actions within a specific area.

brigade
Unit consisting of two or more battalions and a headquarters company or detachment.

brigade combat team
A combined arms organization consisting of a brigade headquarters, at least two maneuver battalions, and necessary supporting functional capabilities.
close combat
Warfare carried out on land in a direct-fire fight, supported by direct and indirect fires and other assets.

combat configured
A state of readiness achieved by having personnel, equipment, supplies, and command and control present and operational, pre-combat checks complete, and necessary enablers available in order to accomplish assigned missions.

combat power
The total means of destructive, constructive, and information capabilities that a military unit or formation can apply at a given time.

combined arms
The synchronized and simultaneous application of arms to achieve an effect greater than if each arm was used separately or sequentially.

command
The authority that a commander in the armed forces lawfully exercises over subordinates by virtue of rank or assignment.

commander’s intent
A clear and concise expression of the purpose of the operation and the desired military end state that supports movement and maneuver, provides focus to the staff, and helps subordinate and supporting commanders act to achieve the commander’s desired results without further orders, even when the operation does not unfold as planned.

complex terrain
A geographical area consisting of urban center larger than a village and/or of two or more types of restrictive terrain or environmental conditions occupying the same space.

control
The regulation of forces and warfighting functions to accomplish the mission in accordance with the commander’s intent.

cyber-electromagnetic activities
Activities leveraged to seize, retain, and exploit an advantage over adversaries and enemies in both cyberspace and the electromagnetic spectrum, while simultaneously denying and degrading adversary and enemy use of the same, and protecting the movement and maneuver system.

cybersecurity
Prevention of damage to, protection of, and restoration of computers, electronic communications systems, electronic communications services, wire communication, and electronic communication, including information contained therein, to ensure its availability, integrity, authentication, confidentiality, and nonrepudiation.
cyberspace
A global domain within the information environment consisting of the interdependent network of information technology infrastructures, including the internet, telecommunications networks, computer systems, and embedded processors and controllers.

cyberspace operations
The employment of cyberspace capabilities where the primary purpose is to achieve military objectives or effects in or through cyberspace.

decisive action
The continuous, simultaneous combinations of offensive, defensive, and stability or defense support of civil authorities tasks.

decisive point
A geographic place, specific key event, critical factor, or function that, when acted upon, allows commanders to gain a marked advantage over an adversary or contribute materially to achieving success.

end state
The set of required conditions that defines achievement of the commander’s objectives.

enemy
A party identified as hostile against which the use of force is authorized.

execution
Putting a plan into action by applying combat power to accomplish the mission.

expeditionary
The ability to deploy task organized forces on short notice to austere locations, capable of conducting operations immediately upon arrival.

expeditionary maneuver
The ability to deploy task-organized combined arms forces to a foreign country and transition quickly to conduct operations of sufficient scale and ample duration to achieve strategic objectives and redeploy.

fires
The use of weapons systems to create a specific lethal or nonlethal effect on a target.

forward presence
Maintaining forward-deployed or stationed forces overseas to demonstrate national resolve, strengthen alliances, dissuade potential adversaries, and enhance the ability to respond quickly to contingencies.
influence
Changing the decision-making and behavior of foreign friendly, neutral, adversary and enemy individuals and populations to support operations.

information
The meaning that a human assigns to data by means of the known conventions used in their representation.

information management
The science of using procedures and information systems to collect, process, store, display, disseminate, and protect data, information, and knowledge products.

information system
Equipment that collects, processes, stores, displays, and disseminates information.

integration
The arrangement of military forces and their actions to create a force that operates by engaging as a whole.

interdependence
The purposeful reliance by one service on another’s capabilities to maximize complementary and reinforcing effects of both; the degree of interdependence varying with specific circumstances.

interorganizational
Elements of U.S. government agencies; state, territorial, local, and tribal agencies; foreign government agencies; intergovernmental, nongovernmental, and commercial organizations does not include forces.

interorganizational coordination
Interaction that occurs among elements of the DOD; engaged U.S. Government agencies; state, territorial, local, and tribal agencies; foreign military forces and government agencies; intergovernmental organizations; nongovernmental organizations; and the private sector.

joint combined arms maneuver
The synchronized application of two or more arms or elements of one service, along with the application of joint, interorganizational, and multinational capabilities to place the adversary in positions of disadvantage.

joint combined arms operations
Synchronized, simultaneous, or sequential application of two or more arms or elements of one service along with joint, interorganizational, and multinational capabilities combined with leadership and education across services to ensure unity of effort and create multiple dilemmas for the enemy to seize, retain, and exploit the initiative.
**joint task force**
Capabilities of Services from at least two military departments operating under a single joint force commander.

**knowledge**
Information analyzed to provide meaning and value or evaluated as to implications for the operation.

**leader**
Anyone who by virtue of assumed role or assigned responsibility inspires and influences people to accomplish organizational goals.

**leader development**
The deliberate, continuous, and progressive process - founded in Army values--that grows Soldiers and Army Civilians into competent, committed professional leaders of character.

**leadership**
The process of influencing people by providing purpose, direction, and motivation to accomplish the mission and improve the organization.

**lethal**
To be deadly in the application of force.

**maneuver**
Employment of forces in the operational area through movement, in combination with fires, to achieve a position of advantage in respect to the enemy.

**mission**
The task, together with the purpose, that clearly indicates the action to be taken and the reason therefore.

**mission command**
The exercise of authority and direction by the commander using mission orders to enable disciplined initiative within the commander’s intent to empower agile and adaptive leaders in the conduct of unified land operations.

**military engagement**
Routine contact and interaction between individuals or elements of the Armed Forces of the United States and those of another nation's armed forces, or foreign and domestic civilian authorities or agencies to build trust and confidence, share information, coordinate mutual activities, and maintain influence.

**movement and maneuver warfighting function**
The related tasks and systems that move and employ forces to achieve a position of relative advantage over the enemy and other threats, including tasks associated with force projection related to gaining a positional advantage.
**nonlethal weapons**
Weapons, devices and munitions explicitly designed and employed primarily to incapacitate targeted personnel or materiel immediately, while minimizing fatalities, permanent injury to personnel, and undesired damage to property in the target area or environment. A weapon that is explicitly designed and primarily employed so as to incapacitate personnel or materiel, while minimizing fatalities, permanent injury to personnel, and undesired damage to property and the environment.

**objective**
Clearly defined, decisive, and attainable goal toward which every operation is directed; location on the ground used to orient operations, phase operations, facilitate changes in direction, and provide unity of effort.

**operation**
A military action or the carrying out of a strategic, tactical, service, training, or administrative military mission.

**operational environment**
A composite of the conditions, circumstances, and influences that affect the employment of capabilities and bear on the decisions of the commander.

**phase**
A planning and execution tool used to divide an operation in duration or activity.

**planning**
The art and science of understanding a situation, envisioning a desired end future, and laying out effective ways of bringing that future about.

**preparation**
Those activities performed by units and Soldiers to improve their ability to execute an operation.

**reconnaissance**
A mission undertaken to obtain, by visual observation or other detection methods, information about the activities and resources of an enemy or adversary, or to secure data concerning the meteorological, hydrographical, or geographical characteristics and the indigenous population of a particular area.

**regionally aligned forces**
Those forces that provide a combatant commander with up to joint task force capable headquarters with scalable, tailorable capabilities to enable the combatant commander to shape the environment.

**seabasing**
Employment, assembly, command, projection, reconstitution, sustainment, and re-employment of joint power from the sea without reliance on land bases within the operational area (JP 1-02).
security cooperation
All DOD interactions with foreign defense establishments to build defense relationships that promote specific US security interests, develop allied and friendly military capabilities for self-defense and multinational operations, and provide U.S. forces with peacetime and contingency access to a host nation.

security force assistance
DOD activities that contribute to the support and development of the capacity and capability of foreign security forces and their supporting institutions.

situational understanding
The product of applying analysis and judgment to relevant information to determine the relationships among the operational and mission variables to facilitate decision-making.

special operations forces
Those active and reserve component forces specifically organized, trained, and equipped to conduct and support special operations.

special warfare
Execution of activities that involve a combination of lethal and nonlethal actions taken by a specially trained and educated force that has a deep understanding of cultures and foreign language, proficiency in small-unit tactics, and the ability to build and fight alongside indigenous combat formations in a permissive, uncertain, or hostile environment.

stability tasks
Tasks conducted as part of operations outside the U.S. with other instruments of national power to maintain or reestablish a safe and secure environment and provide essential government services, emergency infrastructure reconstruction, and humanitarian relief.

strategic environment
Global conditions, circumstances, and influences that affect the employment of all elements of national power.

surgical strike
Execution of activities in a precise manner that employ special operations forces in hostile, denied, or politically sensitive environments to seize, destroy, capture, exploit, recover or damage designated targets, or influence threats.

survivability
A quality or capability of military forces which permits them to avoid or withstand hostile actions or environmental conditions while retaining the ability to fulfill their primary mission.

tactical level of war
Level of war at which battles and engagements are planned and executed to achieve military objectives assigned to tactical units or task forces.
targeting
The process of selecting and prioritizing targets and matching the appropriate response to them, considering operational requirements and capabilities.

threat
Any combination of actors, entities, or forces that have the capability and intent to harm U.S., U.S. national interests, or the homeland.

trainability
Set of principles that simplify system design so Soldiers can learn easily and retain knowledge to operate the system effectively without requiring frequent refresher training to meet training standards.

warfighting function
A system (people, processes, and tools) and group of tasks united by a common purpose that commanders use to accomplish missions and train objectives

Section III
Special terms

air-ground operations
The simultaneous or synchronized employment of ground forces with manned and unmanned, rotary, and fixed wing aviation and fires to seize, retain, and exploit the initiative.

cross-domain maneuver
The employment of mutually supporting lethal and nonlethal capabilities of multiple domains to create conditions designed to generate overmatch, present multiple dilemmas to the enemy, and enable joint force freedom of movement and action.

decisive space
A four-dimensional conceptual space defined by the commander contained within the areas of operations and influence based on the operational and mission variables that includes the five domains and information environment that allows commanders to gain a marked advantage over an enemy and greatly influence the outcome of a mission.

degraded
Using nonlethal or temporary means to reduce effectiveness or efficiency

machine learning tool
Method of data analysis that automates analytical model building. Using algorithms that iteratively learn from data, machine learning allows computers to find hidden insights without being explicitly programmed where to look.

project national power
Ability to deploy and sustain land power rapidly and effectively in and from multiple locations and domains.
range of military operations
Military activities, tasks, missions, and operations along the continuum of conflict from peace to war that vary in purpose, scale, risk, and combat intensity.

operate semi-independently
Possess sufficient mobility, firepower, protection, intelligence, mission command, and sustainment capabilities to conduct cross-domain maneuver at extended supporting range and distance for up to seven days while achieving operational objectives.

set the theater
Actions taken to establish and maintain the conditions necessary to seize the initiative and retain freedom of action.

shape the security environment
Activities that reassure partners, curtail aggression, and influence local perceptions, while establishing conditions that support the employment of Army forces.

shared understanding
A collaboratively-developed and shared mental model of the OE, problems, and approaches to solving them.

strategic movement
Act of changing physical location or position to achieve important objectives, goals, or interests.
Endnotes

1 FM 1-02, Terms and Military Symbols, pg. 1-58.
2 FM 1-02, pg. 1-18.
3 AOC, pg. 47.
4 AOC, pg. 10-14.
5 AOC, pg. 11-12.
6 Reilly, J.M., pg. 65.
7 Reilly, J.M., pg. 66.
8 Reilly, J.M., pg. 67.
9 AOC, pg. 12-14.
10 FMFM1, Warfighting, USMC, 1989, pg. 31. Concentration is the convergence of effort in time and space. It is the means by which we develop superiority at the decisive time and place. Concentration does not apply only to combat forces. It applies equally to all available resources: fires, aviation, the intelligence effort, logistics, and all other forms of combat support and combat service support.
11 AOC, pg. 46.
12 The Land Warfare Papers; Surprise, Shock and Daring; Hickey, pg. 28.
13 Land Warfare Papers, pg. 41.
14 The Land Warfare Papers, pg. 41.
15 FMFM1, pg. 32. Speed is rapidity of action. Like concentration, speed applies to both time and space. And, like concentration, it is relative speed that matters. Superior speed allows us to seize the initiative and dictate the terms of combat, forcing the enemy to react to us. Speed provides security. It is a prerequisite for maneuver and for surprise. Moreover, speed is necessary in order to concentrate superior strength at the decisive time and place.
16 FMFM1, pg. 60. "...the aim of maneuver warfare is to shatter the enemy’s cohesion, the immediate object toward that end is to create a situation in which he cannot function. By our actions, we seek to pose menacing dilemmas in which events happen unexpectedly and faster than the enemy can keep up with them. The enemy must be made to see his situation not only as deteriorating, but deteriorating at an ever-increasing rate. The ultimate goal is panic and paralysis, an enemy who has lost the ability to resist."
17 FMFM1, pg. 23.
18 Journal of Military History, the True Napoleon of the West, pg. 11.
19 True Napoleon, pg. 10-11.
20 True Napoleon, pg. 10-11.
21 FMFM1, pg. 23U.
23 FMFM1, pg. 25-26.
24 True Napoleon, pg. 12.
25 JP 3-0, pg. V-52, and True Napoleon, pg. 13
26 AOC, pg. 17, para a.
27 AOC, pg. 17 para b.
28 FMFM1, pg. 32. The combination of concentration and speed is momentum. Momentum generates impetus. It adds “punch” or “shock effect” to our actions. It follows that we should strike the decisive blow with the greatest possible combination of concentration and speed.
29 FMFM1, pg. 33. By surprise we mean striking the enemy at a time or place or in a manner for which he is unprepared. It is not essential that we take the enemy unaware, but only that he become aware too late to react effectively.
30 FM 3-0, pg. 3-9, 6-9, 6-10; and FM 3-98, pg. 3-6.
31 Land Warfare Papers, pg. 13.
32 Land Warfare Papers, pg. 15.
33 JP 3-0, pg. V-51.
34 True Napoleon, pg. 11
35 Land Warfare Papers, pg. 20.
36 Institutionalize is to deliberately translate an organization's code of conduct, mission, policies, vision, and strategic plans into guidelines and practices applicable to the daily activities of its leaders and subordinates. It is to integrate fundamental values and objectives into the organization's culture, structure, and operating capabilities.
37 "We cannot consider ourselves ready or sufficiently adaptable until mission command is fully integrated into all aspects of our doctrine, organization, training, materiel, leader development and education, personnel, and facilities (DOTMLPF)." Caslen, R., & Flynn, C. (2011, February). Introducing the mission command center of excellence. Army Magazine, 61(2), p. 53.