



MISSION COMMAND OF MULTI-DOMAIN OPERATIONS

A US Army War College Student Integrated Research Project

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September 2020

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FOREWORD

This project supports the US Army War College's efforts to remain a recognized leader in the creation of invaluable ideas on strategic issues relating to the US Army and the global application of Landpower. The project was requested in 2018 by Headquarters, US Army Training and Doctrine Command, to describe a new or modified operational framework to enable successful visualization and mission command of Army forces and the Joint Force across all domains in multi-domain operations (MDO) against peer competitors.

The resulting product is an integrated student research project conducted primarily during academic year 2019 that involved four US Army War College students and four faculty members, led by Dr. John A. Bonin. The project examines the MDO concept with respect to how it affects the philosophy of mission command and the execution of command and control functions. The transition to MDO changes the traditional view of the ways in which Army commanders and staffs conduct operations in the physical environment and operations in the information environment within the competition continuum.

This project employs the introduction of aircraft into the US Army during World War I as a case study for the challenges of integrating new domains into the military. The project also provides an overview and analysis of MDO and the ways it is changing how we fight as well as roles and responsibilities in the Army. These changes will allow the Joint Force to campaign more effectively across the continuum, especially in competition below armed conflict.

The transition to MDO will require new processes and this project investigates how a multi-domain synchronization cycle could be beneficial. Changes to physical systems, Joint professional military education, Joint and Army doctrine, and headquarters staff structures will be required as leaders and their staffs will need different skills to operate in this new environment.

Carol V. Evans

DR. CAROL V. EVANS
Director
Strategic Studies Institute and
US Army War College Press

EXECUTIVE SUMMARY

The Army's emerging multi-domain operations (MDO) concept places new challenges on the recently revised Army doctrine for mission command. The United States has not fought against a peer competitor in 75 years; as a result, individual services have focused conceptually on fighting their own symmetrical domain wars and paid less attention to supporting other services in other domains. As technology changes and defense budgets shrink, services are quickly losing the capability and capacity to control their domains through sheer presence and numbers. As a result, services require an asymmetrical advantage from different domains to enable success in their domain operations.

The Army's approach to command and control is mission command. This approach requires commanders to have the ability to understand, visualize, communicate, and assess key decisions, risks, and critical intelligence and information requirements. Mission command of MDO will require commanders to maintain both single-domain excellence and knowledge across multiple domains and between and within the echelons of command. Equally as important, commanders must create, ensure, and sustain shared understanding of their own decision-making processes. Risk analysis and critical intelligence and information requirement processes are necessary for ensuring commanders can set conditions that empower subordinate leaders, enable disciplined initiative, and influence decentralized operations within the context of multiple domains. Thus, new frameworks for understanding and adapting multi-domain command relationships and staff structures will be required to meet these new demands.

These new frameworks will require a multi-domain synchronization process to provide commanders with a methodology for identifying and resourcing the new requirements. Unlike traditional operations processes that used the military decision-making process or the Joint planning process, both of which are focused on single-domain planning, a multi-domain synchronization process evolves from the continuous collaboration between commanders and staffs across all domains and environments throughout the planning and execution cycles. This evolution creates shared understanding of key decisions, associated risks, and critical intelligence and information requirements the commander has deemed essential.

This study supports the US Army War College's efforts to remain a recognized leader in the creation of invaluable ideas on strategic issues relating to the Army and the global application of Landpower. The study examines the application of the MDO concept with respect to how it affects the philosophy of mission command and the execution of command and control functions. The introduction of aircraft during World War I provides a context that is similar to the current circumstances because the Army of 1918 struggled with how to best provide command and control for large-scale ground operations against a peer adversary and how to integrate the air in support of land. While the Army tries to understand how to integrate across multiple domains, insights from General John J. Pershing's integration of aircraft are illustrative. William Mitchell's roles during and after the war illustrate some of the challenges we will likely face when trying to execute MDO, such as defending the cyber and space domains during future large-scale ground combat operations.

An overview and analysis of MDO will provide the Army's definition of the concept and describe the role of the Army in the competition continuum. The MDO concept will require new organizational and staff frameworks to implement MDO across all aspects of the conflict continuum. The Army cannot remain a static organization; the Army must be able to both win armed combat in the land domain and help to shape competition to prevent future conflicts.

Operations below armed conflict have historically been a struggle for the Joint Force and the Army. The Army's mission command approach to command and control in combat will not be sufficient for organizing for competition below armed conflict against adversaries on a daily basis. The Army performs essential tasks—especially in the information environment—for the Joint Force during competition, and these tasks will expand under MDO.

Current operations processes focus on single domains and have limited applicability for supporting functions external to the given domain. We must have new processes that allow for the synchronization of assets across all domains to optimize our effectiveness while minimizing risk to those assets. Though applicable to all levels of command, the proposed process focuses on the planning and data collection required primarily at high operational and strategic levels.

The change of focus from single domain to multi-domain necessitates that Joint and Army doctrine be revised and updated. Joint professional military education curriculum and Joint doctrine will need to be adapted to teach the next generation of leaders how to integrate across the domains. Being aware of the other services is no longer enough; commanders and staffs will need to know how capabilities in other domains can support their efforts and what their requirements may be in supporting the other domains. The Joint Force has long been Joint in name only, with each domain fighting to win its own fight. The MDO concept allows the Joint Force to optimize its limited resources to both respond to a crisis and, in the best of circumstances, prevent a crisis from occurring during competition.

CHAPTER 1. INTRODUCTION

The Army's emerging multi-domain operations (MDO) concept places new challenges on the recently revised Army doctrine for mission command. Mission command requires commanders to have the ability to understand, visualize, communicate, and assess key decisions, risks, and critical intelligence and information requirements. Mission command of MDO requires commanders to have this ability across multiple domains and between and within echelons. Multi-domain operations (MDO) are risky because mission success depends on capabilities that commanders do not own or control. Commanders must be willing to accept the need for this interdependence. These considerations require a careful examination of our command and control system and structure to identify the changes that must be made to facilitate mission command in support of MDO.

Equally important, commanders must create, ensure, and sustain shared understanding of decision making. Risk analysis and critical intelligence and information requirements set conditions that empower subordinate leaders, enable disciplined initiative, and influence decentralized operations in the context of MDO. As such, new frameworks for understanding MDO command relationships and staff structures are required. In addition, an MDO synchronization process that provides commanders with a tool for addressing these new requirements may be needed. Unlike traditional operations processes principally developed during the military decision-making process or the Joint planning process and designed to address single-domain planning, an MDO synchronization process evolves from continuous collaboration between commanders and across domains and environments throughout planning and execution that creates and sustains shared understanding of key decisions, associated risks, and related critical intelligence and information requirements.

This study examines the application of MDO on mission command. Unlike the recently published *Commentary on "The US Army in Multi-Domain Operations 2028"* by Brigadier General Huba Wass de Czege, this study is not intended to provide a comprehensive and critical appraisal of the MDO concept; rather, this study is intended to provide a more narrow and structured analysis.¹ This study is primarily intended for an internal, professional, military audience and starts with a historical case study on World War I, the introduction of the new air domain in a large-scale combat operation, and the postwar challenge of zealotry. The study continues with an overview and analysis of MDO and examines new organizational and staff frameworks for implementing MDO across all aspects of the conflict continuum. Chapter 4 emphasizes operations below the threshold of armed conflict, including implications for mission command as an approach. Chapter 5 describes an MDO synchronization process that applies to all echelons, but with data and content tailored for application at the high operational and strategic levels. Chapter 6 includes considerations for Joint education, especially for developers of senior-level Joint professional military education curriculum. Chapter 7 provides implications and recommended changes to Joint and Army doctrine as well as staff and force structure.

1. See Huba Wass de Czege, *Commentary on "The US Army in Multi-Domain Operations 2028"* (Carlisle, PA: Strategic Studies Institute, US Army War College Press, April 2020).

CHAPTER 2. THE US ARMY IN WORLD WAR I: A CASE STUDY IN LARGE-SCALE COMBAT OPERATIONS IN MULTIPLE DOMAINS

On September 26, 1918, the American Expeditionary Forces (AEF), under the command of General John J. Pershing, began the Meuse-Argonne offensive, which would be the largest, longest, and bloodiest campaign of the United States' participation in World War I.¹ The campaign would be fought over the course of the next 47 days, albeit with several pauses, until the fighting ended on the Western Front when the armistice went into effect on November 11. Almost 1.25 million US troops in 22 divisions participated in the campaign, of which over 122,000 became casualties (26,277 killed and 95,786 wounded). The official casualty figures were not published by the War Department until 1926 because they were so shocking.² Though large casualties were characteristic of fighting on the Western Front, many casualties were avoidable and the result of inadequate preparation. As famed historian I. B. Holley Jr. aptly concluded, "Superior arms . . . while essential, are insufficient unless the 'superior arms' are accompanied by a military doctrine of strategic or tactical application which provides for full exploitation of the innovation."³

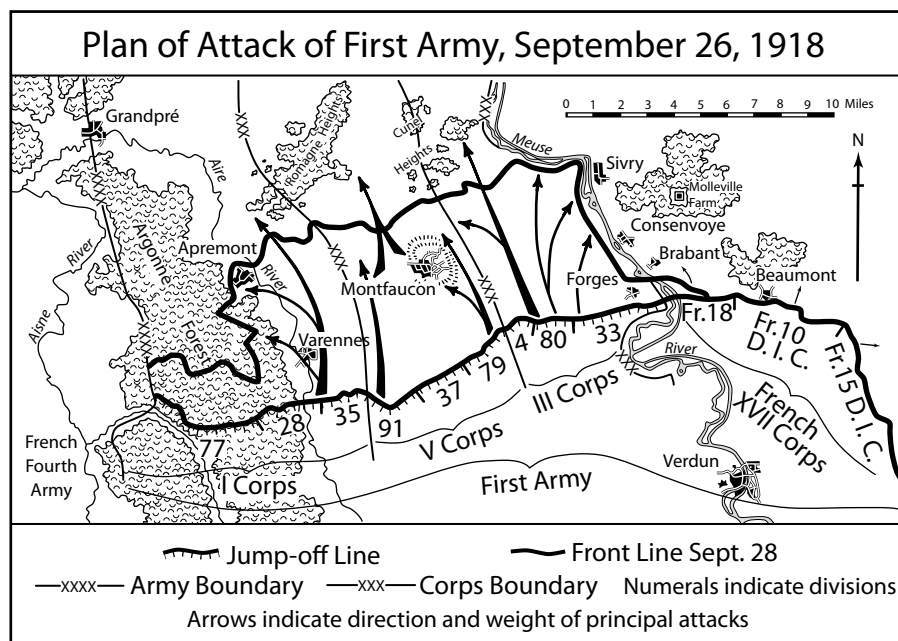


Figure 2-1. Meuse-Argonne offensive plan, first stage

(Reprinted from American Battle Monuments Commission, *American Armies and Battlefields in Europe* [1938, repr., Washington, DC: Center of Military History, US Army, 1992], 172)

1. Robert H. Ferrell, *America's Deadliest Battle: Meuse-Argonne, 1918* (Lawrence, KS: University of Kansas Press, 2007), xi.

2. Edward M. Coffman, *The War to End All Wars: The American Military Experience in World War I* (1968; repr., Lexington, KS: The University of Kansas Press, 1998), 299.

3. I. B. Holley Jr., *Ideas and Weapons: Exploitation of the Aerial Weapon by the United States during World War I: A Study in the Relationship of Technological Advance, Military Doctrine, and the Development of Weapons* (New Haven, CT: Yale University Press, 1953), 19.

Pershing's optimistic and overly ambitious campaign plan (figure 2-1) called for First Army – with 16 infantry divisions organized under three corps (I, III, and V) – to complete the campaign in three stages.⁴ He believed the AEF possessed the aggressiveness, energy, and doctrinal superiority to break the deadlock of the trenches. The first stage called for the attacking infantry divisions to break through the German first-line defenses of the *Etzel-Giselher Stellungen* and then penetrate the main-line defenses of the *Kriemhilde Stellung*, which included a strongpoint at Montfaucon. The nine divisions in the initial attack, encompassing a nearly 18-mile front, were supposed to complete a 7- to 10-mile advance within the first 36 hours. Pershing counted upon speed and surprise to overcome the German defenses before they could bring in reinforcements. The second and third stages would clear the sector up to and beyond the Meuse River to the town of Mézière 40 miles behind the German lines.

Because of the lack of time to shift forces that had participated in the recent Saint-Mihiel offensive, only three of the nine divisions in the opening attack had significant combat experience.⁵ During the Saint-Mihiel offensive, American ground forces had been supported in gaining air superiority over the front in the new air domain by Colonel William Mitchell, chief of the Air Service, First Army.⁶ He had under his command some 1,476 aircraft and 20 balloons. Of the 6,287 total aircraft received by the AEF up to the armistice, only 1,216 were from US sources; all but 3 of those were DH-4s.⁷ Mitchell called this “the greatest concentration of air power that had ever taken place and the first time in history in which an air force, cooperating with an army, was to act according to a broad strategical plan which contemplated not only the advance of the ground troops but spreading fear and consternation into the enemy's line of communication [by air].”⁸ Conducting an operation in the Meuse-Argonne region would challenge a veteran army, let alone the inexperienced AEF. The operation would be a trial by fire.

Opposing the doughboys in the Meuse-Argonne region was an army that excelled at conducting defensive operations. Despite its weakened state, the German army would provide the Americans a battlefield education in large-scale ground combat operations. Having occupied this sector since 1914, the German army established its lines along three major defensive belts running east-west that maximized the restrictive terrain characterizing the AEF's area of operation. The belts consisted of multiple lines of trenches supported by interlocking machine-gun and indirect fires.⁹ Additionally,

4. American Battle Monuments Commission, *American Armies and Battlefields in Europe* (1938; repr., Washington, DC: US Government Publishing Office, 1992), 172.

5. Edward G. Lengel, *To Conquer Hell: The Meuse-Argonne, 1918* (New York: Henry Holt and Company, 2008), 61–62.

6. Russell F. Weigley, *History of the United States Army* (Bloomington, IN: Indiana University Press, 1984), 385; and James J. Cooke, *The US Air Service in the Great War, 1917–1919* (Westport, CT: Praeger, 1996), 133.

7. Holley, *Ideas and Weapons*, 131.

8. William Mitchell, *Memoirs of World War I: “From Start to Finish of Our Greatest War”* (New York: Random House, 1956), 238–39.

9. Lengel, *To Conquer Hell*, 58–59.

German command doctrine emphasized flexibility and decentralized control that empowered leaders at the lowest level to conduct local counterattacks to defeat Allied penetration attacks.¹⁰ The German army, despite being greatly weakened by losses and suffering from low morale at this point in the war, remained a dangerous opponent.

As is often the case, the campaign did not go according to plan; it was fought in five phases, two more than envisioned by AEF General Headquarters. The first phase lasted only four days, until Pershing ordered a halt to all major attacks to reorganize units. The offensive would continue in fits and starts as attacks ran out of steam in the face of stiff German resistance and mounting casualties. A second phase lasted October 1–11. Only in the third phase, October 14–16, did the AEF finally secure the first day's objectives. The fourth phase near the end of October consisted of limited attacks to buy time while the majority of the AEF took an operational pause for two weeks to refit and reorganize. A fifth and final phase commenced on November 1 and lasted until combat operations ceased when the armistice went into effect.¹¹ Though some of the problems the AEF encountered proved common to all offensives conducted during the war, a significant number were self-induced because of deficiencies in experience, training, and preparedness.

When the US Army entered the war in April 1917, it found itself totally unprepared to conduct large-scale ground combat against a peer enemy, Imperial Germany. At the time of the US declaration of war, the Army comprised only some 137,000 Regular Army and 181,000 National Guard soldiers.¹² In addition, despite being the nation that invented the airplane in 1903, the nation's air arm completely lacked adequate numbers of personnel or modern equipment and doctrine. The Aviation Section of the Signal Corps had only 65 officers, 1,120 enlisted men, and some 200 obsolescent training aircraft.¹³ Though the Army made great strides in the prewar years to professionalize the officer corps, improve military education, and develop planning staffs, it lacked the appropriate doctrine, organization, and training suitable to command and control operations on the Western Front in 1917–1918.¹⁴ To field a force capable of conducting operations overseas as an independent army and to achieve national objectives, the Army undertook one of the most comprehensive and rapid transformation and modernization efforts in its history. As a result, numerous shortfalls emerged, including mobilization, equipment, training, and logistics that hampered the operational effectiveness of the AEF. Among the most relevant to this discussion were mission command shortfalls. These stemmed from the Army's inability to understand the nature of the conflict, develop doctrine accordingly,

10. Jonathan M. House, *Toward Combined Arms Warfare: A Survey of 20th-Century Tactics, Doctrine, and Organization* (Fort Leavenworth, KS: US Army Command and General Staff College, 1984), 25–27.

11. Russell F. Weigley, "Strategy and Total War in the United States: Pershing and the American Military Tradition," in *Great War, Total War: Combat and Mobilization on the Western Front, 1914–1918*, ed. Roger Chickering and Stig Forster (New York: Cambridge University Press, 2000), 339. Note that historian accounts differ as to the number of phases and the dates they occurred.

12. Lengel, *To Conquer Hell*, 18.

13. Holley, *Ideas and Weapons*, 37.

14. Brian Linn, *The Echo of Battle* (Cambridge, MA: Harvard University Press, 2007), 95.

effect combined arms integration, provide command and control, and produce adequate numbers of trained leaders.

World War I was fought on a level of violence, intensity, and vastness of scale never before seen in history. Battles involved hundreds of thousands of troops fighting over large areas of front that lasted weeks and months. The deadliness of the World War I battlefield resulted from the immense amount of firepower that could be brought to bear and sustained by the large-scale mobilization of manpower and industry. Armies on both sides had to learn, at great cost, how to incorporate and coordinate new weapons and technologies, such as the machine-gun, tank, and airplanes. The US Army in many ways had not made the transition from the nineteenth into the twentieth century and did not initially anticipate that it would have to send a large expeditionary force to fight an enemy overseas.¹⁵ The Army now had to change its operational focus completely from protecting the United States and its territories—coastal defense and constabulary duties—to serving as an instrument of the country's foreign policy.¹⁶ As a result, Army leaders needed to gain an understanding of the nature of the conflict and develop a doctrine to guide the AEF's fighting strategies.

Pershing, who had been commissioned cavalry in 1886, believed the AEF would provide the driving force in breaking the deadlock of the trenches. But the small size and constabulary focus of the Army meant the senior officers who would lead AEF divisions did not have the experience, education, or training in waging modern warfare. New division, corps, and army commanders did not have prewar experience with units larger than regiments or brigades.¹⁷ Though a significant number did have combat command experience, it was in the numerous small-scale conflicts in which the United States had been engaged in places like Cuba, China, the Philippines, and Mexico. No commanders had experience in the type of warfare being waged on the Western Front.¹⁸ This lack of experience in modern warfare, coupled with a lack of experience in senior leadership, would create problems in the formation of a doctrine that would guide the AEF's fighting strategies. Though Pershing was not totally ignorant of the character of the fighting on the Western Front, his prior experiences in command in Cuba and Mexico would influence his philosophy of command and control. He would be challenged to reconcile the past and present to formulate a doctrine that could adequately prepare his command for combat.¹⁹ As a result, the AEF entered into the fighting on the Western Front with an offensive attitude more appropriate to 1914 than to the battlefield conditions of 1918.

15. Linn, *Echo of Battle*, 113–15.

16. Weigley, "Strategy and Total War," 330.

17. William G. Haan, "The Division as a Fighting Machine: What It Is, How It Prepared from Its Inception to Its Action in Battle, and Its Troubles and Pleasures in Its Hardest Day's Fight, from the Viewpoint of the Division Commander," *The Wisconsin Magazine of History* 4, no. 1 (September 1920): 5.

18. Timothy K. Nenninger, "'Unsystematic as a Mode of Command': Commanders and the Process of Command in the American Expeditionary Forces, 1917–1918," *The Journal of Military History* 64, no. 3 (July 2000): 739.

19. James W. Rainey, "Ambivalent Warfare: The Tactical Doctrine of the AEF in World War I," *Parameters* 13, no. 3 (September 1983): 41.

In addition, the US Army had only a limited understanding of how to command troops on the modern battlefield.²⁰ Combat on the Western Front required trained divisions, corps, and field armies, but without so much as a single division previously in existence, the AEF started out well behind its Allies and enemies. This lack of preparation forced US Army commanders and staffs to learn new and unfamiliar echelons of command rapidly. The operational mindset of the Army remained at the detachment, troop, squadron, and regimental levels of employment.²¹ The Army would need to transform from a regiment-centric constabulary force to one capable of fighting as divisions; corps; and, ultimately, armies on a modern industrial battlefield. The American Civil War had been the last time the Army had had experience in employing such large formations, and much had changed over those intervening 50 years. Before the First World War, the corps had been the historic combined arms unit in the Army. Brigades and divisions were composed purely of a single branch, such as cavalry or infantry.²² Now divisions were expected to operate as the primary combined arms integrating formation.

Reorganization toward a more modern Army had begun in 1913, when Secretary of War Henry L. Stimson directed the General Staff to develop a mobilization plan for the Army. This plan, ultimately known as the Stimson Plan, set out to organize the Army into divisions and brigades. But the plan was never fully implemented. Units remained scattered across various small posts and, as a result, would not join together until mobilized. Division- and brigade-level training was nonexistent.²³ A divisional structure had been approved in 1916, and a provisional table of organization had been published by the War Department in May 1917, but no formal divisions had been created or were immediately available to be sent to France.²⁴ In June 1917, the first division shipped to France, the 1st Infantry Division, had to be cobbled together from previously separate, active Army regiments.

World War I would also be the first war the US Army had fought with a War Department General Staff, general staffs in units in the field, and a small number of officers trained to perform high-level staff functions. As a result, tensions existed between commanders and general staff officers who frequently exceeded their authority. Pershing, as a captain, had been a member of the first Army War College class in 1904.²⁵

Insufficient training and new organizations placed the onus on leaders to provide effective command and control over their units. Effective leaders are developed over time through training, education, and experience; however, the exigencies of World War I did not allow such development, and, as a result, most leaders had to engage in

20. Nenninger, "'Unsystematic,'" 739.

21. James W. Rainey, "The Questionable Training of the AEF in World War I," *Parameters* 22, no. 4 (December 1992): 90.

22. John B. Wilson, *Maneuver and Firepower: The Evolution of Divisions and Separate Brigades* (Washington, DC: US Government Publishing Office, 1998), 19.

23. Wilson, *Maneuver and Firepower*, 31–33.

24. US Army Center of Military History, *United States Army in the World War, 1917–1919* (1948; repr., Washington, DC: US Government Publishing Office, 1988), 1:117.

25. Nenninger, "'Unsystematic,'" 765–66.

on-the-job training. Senior officers had to learn how to fight large formations — divisions, corps, and armies — on a modern industrial battlefield. This job was further exacerbated by a lack of effective junior-level leadership, which pushed more responsibility into the hands of senior division leaders.

Though the AEF's command philosophy advocated decentralized control and mission command, the lack of properly trained junior officers and noncommissioned officers prevented this philosophy from being put into practice. But the nature of combat on the World War I battlefield placed greater demands on the initiative, aggressiveness, and motivation of junior leaders than had been previously experienced. The rapid expansion of the Army generated a requirement for officers and noncommissioned officers well beyond that which had existed in the Regular Army or National Guard. To meet this demand, the Army established three-month officer training camps, but it provided no comparable training program for the noncommissioned officers who had been simply promoted from the ranks. Inadequately prepared for the challenges that awaited them in France, these junior leaders had to learn through experience, provided they lived long enough. The junior leaders' resultant failures reduced the AEF's operational effectiveness in executing the plans and meeting the expectations of their senior leaders.²⁶

Enemy actions required the AEF to be sent into battle well before the forces were ready. The AEF did not have enough time to prepare adequately or address deficiencies before the need arose to commit the forces into battle. British and French demands for American frontline troops in 1918 shaped the formation of the AEF and resulted in the premature commitment of American divisions into combat. The United Kingdom and France were concerned the United States would be unable to raise, equip, and train its Army sufficiently in time to make a decisive impact on the battlefield.²⁷ The forces based their planning, organization, and training on an offensive role for US troops, with the main effort to come in 1919 via an independent field army.²⁸ But conditions on the Western Front necessitated the AEF's commitment sooner than the forces had expected; as a result, they were unprepared. The British and French armies, worn out from nearly four years of attritional fighting, pushed American troops to provide relief. In March 1918, Germany launched a series of offensives that forced Pershing to send the AEF into battle. Initial actions were small in scale, involving only a few divisions, but the forces' operations grew in size and scale between July and September 1918. These operations did not adequately prepare the forces for the command challenges they would experience in the Meuse-Argonne region. In consequence, the US Army experienced a trial by fire.

The AEF confronted problems the other combatants had faced and went through similar doctrinal transformations as the forces came to grips with the deadly realities of waging war in 1914–1915. Between 1916 and 1917, both the Entente powers and the Central Powers had tried, often without success, to devise tactics that would break the

26. Richard S. Faulkner, *The School of Hard Knocks: Combat Leadership in the American Expeditionary Forces* (College Station, TX: Texas A&M University Press, 2012), 6–9.

27. Paul F. Braim, "The Test of Battle: The American Expeditionary Forces in the Meuse-Argonne Campaign, 26 September – 11 November 1918" (PhD diss., University of Delaware, 1983), 34.

28. Timothy K. Nenninger, "Tactical Dysfunction in the AEF, 1917–1918," *Military Affairs* 51, no. 4 (October 1987): 177.

deadlock of the trenches and restore operational maneuver. Fighting on the Western Front devolved into an attritional slugging match partly because of the inability of the attacking forces to coordinate their combined arms, particularly artillery support, effectively. The giant attritional battles of 1916 at Verdun and the Somme River resulted in the sacrifice of a whole generation of Europe's youth.²⁹ As a result of huge casualties, the British and French abandoned massive offensives seeking to achieve a breakthrough and relied instead on limited attacks. Both sides adopted methods that are the genesis of modern combined arms warfare. The British method, "bite and hold," incorporated a combined arms approach using artillery to pursue well-prepared and well-supported attacks. Once it had secured the objectives, the attacking infantry would reconsolidate and prepare for the inevitable enemy counterattack, and then continue the offensive.³⁰

The British and French attempted to pass on their hard-earned battlefield wisdom to their new ally, but the AEF chose to pursue its own doctrine. Instead of viewing the methods of the British and the French as adaptations to changing battlefield conditions, Pershing attributed the methods to exhaustion and loss of aggressiveness. He instead sought to break the paradigm of trench warfare by inculcating an offensive mindset into the US Army. Concluding the trench warfare tactics employed by his Allies would be counterproductive, he decided to adopt an offensively focused open-warfare doctrine.³¹ Pershing believed mobile warfare employing aimed rifle fire would pave the path to victory.³² The forces' leadership placed great credence in the belief that its prior operational experiences made the American infantryman a skilled marksman and scout. The leadership believed these traditional skills marked the AEF with a "special genius" for fighting open warfare.³³ Though offensive operations are necessary to win wars, AEF doctrine did not provide a realistic basis to prepare the forces for the type of fighting they would encounter in the Meuse-Argonne offensive.

Paradoxically, AEF divisions received training in both trench and open warfare. Leaders in the AEF, while acknowledging the existence of trench warfare, viewed it as a temporary condition only to be overcome to return to a war of movement. All of the other combatants viewed trench warfare as more permanent.³⁴ The simultaneous advocacy of open warfare and espousing of the principles of trench warfare resulted in an ill-defined doctrine, referred to by James Rainey as "ambivalent." The contradiction confused commanders, who were uncertain as to the best ways to train and employ their formations. The two doctrinal schools of thought stood as polar opposites, pitting men against machines. Pershing's open-warfare doctrine relied upon the infantryman armed with his rifle and bayonet, whereas trench warfare called for the coordinated

29. Braim, "The Test of Battle," 8-9.

30. Hew Strachan, *The First World War* (New York: Penguin Books, 2003), 183.

31. House, *Toward Combined Arms Warfare*, 36.

32. Strachan, *First World War*, 311.

33. Nenninger, "Tactical Dysfunction," 177.

34. Mark E. Grotelueschen, *The AEF Way of War: The American Army and Combat in World War I* (New York: Cambridge University Press, 2007), 33-34.

employment of firepower, primarily artillery and machine-gun fire.³⁵ Nevertheless, the divisions that trained with the British and French began to form their own opinions of how to fight. The result was a war of ideas within the AEF that was fought between the advocates of open warfare and those who thought the forces should fight according to the principles of trench warfare.³⁶ The AEF would continue to wrestle with this question as it entered into combat in the Argonne Forest.

This lack of preparation and foresight would challenge the forces' ability to provide effective command and control to integrate and converge all elements of their combat power. While the other combatants came to stress the use of combined arms to support the infantry, the US Army only paid this method lip service. American doctrine called for the integration of the infantry with its supporting arms and the employment of fire and maneuver when attacking enemy positions. In practice, AEF attacks were typically executed using lines of infantry advancing over open ground, without the use of cover or concealment and with little use of fire and maneuver and improper employment of supporting arms, such as tanks, machine-guns, and air support.³⁷

Although training was deficient at all levels, it contributed to the forces' inability to function as a combined arms team. Pershing designed infantry divisions to be the main combined arms formation of the AEF, but they were not trained as such. Division commanders could only begin to conduct integrated, division-level training once the bureau and branch chiefs of specialty units believed they had been thoroughly trained in their specific roles. This assembly-line approach, known as the "factory system," developed technical proficiency for specialty units, such as the engineers, the field artillery, and the Signal Corps, but the branch-specific training focus proved detrimental to the building of unit cohesion within the divisions because these elements rarely had the opportunity to train together.³⁸ Artillery was poorly employed as a result. Even less attention was paid to integration with other, newer supporting arms, such as tanks and aviation, especially aerial observation for artillery fire direction. The AEF did not conduct combined training between the infantry and armor before the start of the Meuse-Argonne campaign.³⁹ This lack of training contributed to disjointed attacks and an inability to provide mutual support.

Although lighter-than-air devices (including balloons) had been used episodically before 1914, this war provided aircraft opportunities to participate in large-scale combat. Despite the Wright brothers delivering one of their aircraft to the US Army in 1909, the combat arms of the Army failed to see the plane's potential. The Army relegated control of aviation to the Aeronautical Division of the Signal Corps. In July 1909, an infantryman wrote a provocative article suggesting that "aeroplanes" may soon be able to perform the most important duty of cavalry, which "has been to penetrate [the fog of war] to

35. Rainey, "Ambivalent Warfare," 34-37.

36. Grotelueschen, *AEF Way of War*, 6.

37. Nenner, "Tactical Dysfunction," 178.

38. Rainey, "Questionable Training," 98-99.

39. Coffman, *War to End All Wars*, 313.

locate the heads of the marching columns of the enemy.”⁴⁰ But a *US Cavalry Journal* editorial response disdainfully stated, “[W]e think this article did not deserve serious consideration,” and that this negative opinion should “have barred it from the pages of a journal of another branch.”⁴¹ Between 1914 and 1916, both the Allies and the Central Powers had had an opportunity to explore warfare in the new air domain. By November 1915, the British visionary F. W. Lanchester envisioned military aviation becoming a major fourth arm in land warfare, replacing cavalry for many tasks and having significant roles in naval warfare as well.⁴² As Tami Biddle states, “[N]early every modern mission of aircraft received at least rudimentary trial between 1914 and 1918.”⁴³

In 1917, shortly after Pershing and his newly formed AEF staff arrived in Europe, the chief of staff received a brief from William Mitchell, who was now a major. Mitchell, already in France as an air observer, was a forward-thinking and creative officer who made necessary and early contributions to the American approach to air warfare. Mitchell proposed a future organization of the AEF Air Service that divided aviation into two broad categories: the first, squadrons supporting divisions, corps, and armies of the ground force; and the second, “bombardment and pursuit formations [that] would have an independent mission very much as independent cavalry used to have.”⁴⁴ Mitchell had based his proposal for the initial organizational structure of the Air Service on the more traditional branch organization of cavalry.

But effective coordination between Army ground elements and aviation proved problematic. For a nation that had pioneered aviation, training between the infantry and the US Army Air Service often did not exist. The infantry complained about the absence of American air cover, which left them vulnerable to strafing attacks by marauding German fighters. Major General William Wright, commander of the 89th Infantry Division, commenting on German dominance in the air, characterized the US Army Air Service as useless.⁴⁵ The Air Service also noted dissatisfaction over the quality of liaison between the air and artillery units. Major Louis Brereton, commander, 1st Observation Wing, wrote the main problem was the inexperience of new artillery spotters and the failure of artillery units to notify the Air Service when changing positions.⁴⁶

Later, Mitchell, as the commander, US Air Service, First Army, became obsessed with independently conducted aerial bombing. On October 9, 1918, without any coordination with ground commanders, he ordered over 300 French and US aircraft to attack a

40. John R. M. Taylor, “Cavalry and the Aeroplane,” *Journal of the United States Infantry Association* 6 (July 1909 to July 1910): 84.

41. Ezra B. Fuller, “Editor’s Table,” *US Cavalry Journal* 20, no. 75 (November 1909): 617.

42. F. W. Lanchester, *Aircraft in Warfare: The Dawn of the Fourth Arm* (London: Constable & Co Ltd, 1916), 3–6.

43. Tami Davis Biddle, *Air Power and Warfare: A Century of Theory and History* (Carlisle, PA: Strategic Studies Institute, 2019), 9.

44. Holley, *Ideas and Weapons*, 46–47; and William Mitchell, as quoted in Holley, *Ideas and Weapons*, 47.

45. William M. Wright, *Meuse-Argonne Diary: A Division Commander in World War I*, ed. Robert H. Ferrell (Columbia, MO: University of Missouri Press, 2004), 132.

46. Cooke, *US Air Service*, 156.

suspected German troop concentration massing across the Meuse River at Damvillers, opposing Major General Robert Bullard's III Corps.⁴⁷ This uncoordinated attack irritated Major General Hugh A. Drum, First Army chief of staff. After the war, he wrote,

While . . . aviation may be grouped in a separate branch, the war demonstrated conclusively that in combat the air service, like any other branch, must be a part of the combat team, commanded and led by those commanders whose decisions and orders decided the fate of battles. . . . while our big flight was high in the air . . . one of our corps chiefs of staff complained to me that German airplanes were over our front lines bombing and machingunning [sic] our infantry with serious effect on their morale.⁴⁸

In the AEF final Air Service program of 1918, Mitchell advocated for 110 bomber squadrons out of 358 total, but neglected to increase reconnaissance and close air-support aircraft. (The program also called for 147 pursuit squadrons and 101 observation squadrons.)⁴⁹ But, when the war ended, the AEF Air Service had only 20 pursuit squadrons, 24 observation squadrons, and 1 lone squadron of strategic bombers in combat.⁵⁰

The above problems of air-ground integration exemplified the challenge of conducting combat operations in more than one domain. The natural tendency pre-World War I of the land domain was to seek symmetrical domain control against enemies on land (see figure 2-2).

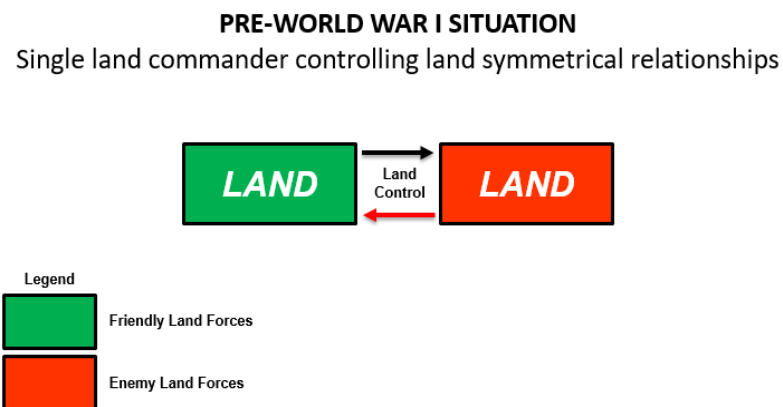


Figure 2-2. Pre-World War I situation

During World War I, the air domain required Pershing to provide mission command over both the land domain and the new air domain as a de facto Joint Force commander. This requirement meant Pershing had to understand rapidly the new multi-domain

47. Mitchell, *Memoirs of World War I*, 265–66.

48. Hugh A. Drum, “Tying Our Wings to the Ground: The Argument against a Separate Air Service,” *The Independent* 114 (March 14, 1925), as quoted in Cooke, *US Air Service*, 191–92.

49. Lengel, *To Conquer Hell*, 314–15, 417–18; and Holley, *Ideas and Weapons*, 145.

50. Holley, *Ideas and Weapons*, 131.

relationships depicted in figure 2-3. Mitchell, as Pershing's frontline air commander, also employed the Air Service to gain air control and perform asymmetrical, long-range bombing, instead of merely providing tactical air support to the corps and divisions, as the commanders of the corps and divisions demanded and expected.

How does a single commander control these multi-domain relationships?

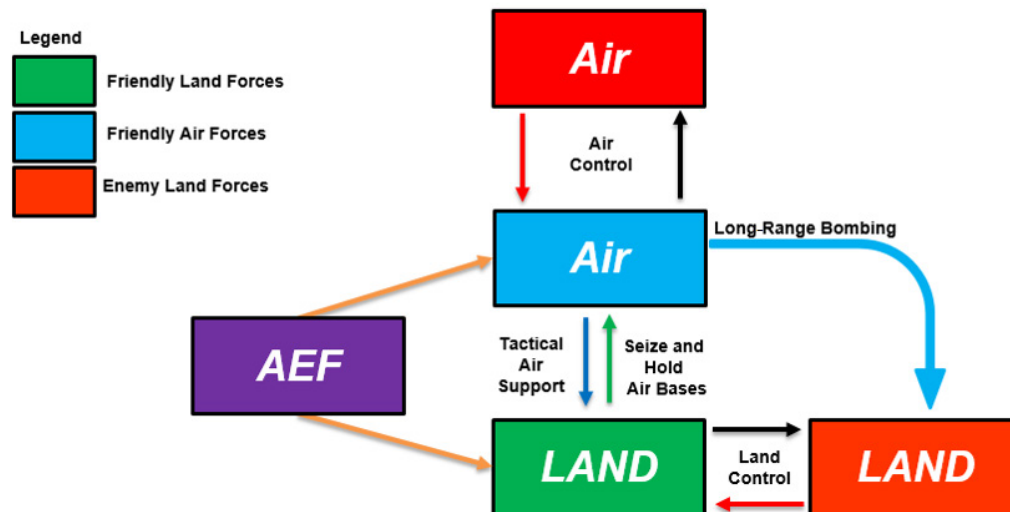


Figure 2-3. Pershing's World War I problem

On October 16—two weeks into the Meuse-Argonne offensive—in the face of disorganization and failure to achieve campaign objectives, Pershing realized something needed to be done. Having served in the dual capacity of commander of both the AEF and First Army, Pershing, in an impressive act of self-assessment, realized he could not effectively fill both roles. He relinquished command of First Army to Lieutenant General Hunter Liggett and created another field army, Second Army, under Lieutenant General Robert Bullard. In essence, Pershing retained command of the theater army, the AEF, while also becoming an army group commander organizationally coequal to his British and French army group counterparts.⁵¹ In addition, to retain control of air-ground operations, he promoted Mitchell to brigadier general to serve as his commander, US Air Service, Group of Armies, AEF. On October 17, while discussing the situation in the Meuse-Argonne region, Mitchell innovatively suggested to Pershing that for the spring of 1919, an infantry division, preferably the 1st, be assigned permanently to his Air Service and equipped with parachutes for dropping the division behind German lines.⁵²

Based upon Liggett's recommendations, Pershing agreed to suspend offensive operations for two weeks to rest, refit, and reorganize.⁵³ This operational pause provided

51. John A. Bonin, "Echelons above Reality: Armies, Army Groups, and Theater Armies/ Army Service Component Commands (ASCCs)," in *Essential to Success: Historical Case Studies in the Art of Commands at Echelons above Brigade* (Fort Leavenworth, KS: The Army University Press, 2017), 253–55.

52. Mitchell, *Memoirs of World War I*, 267–68; and Coffman, *War to End All Wars*, 210–11.

53. Lengel, *To Conquer Hell*, 359–61.

the AEF and its Air Service crucial time to train and absorb lessons learned. On November 1, the AEF resumed its attacks and sustained them until the armistice ended the fighting on November 11, 1918. By that point, the AEF contained some 2 million men in 41 divisions, and its Air Service was growing (see figure 2-4).

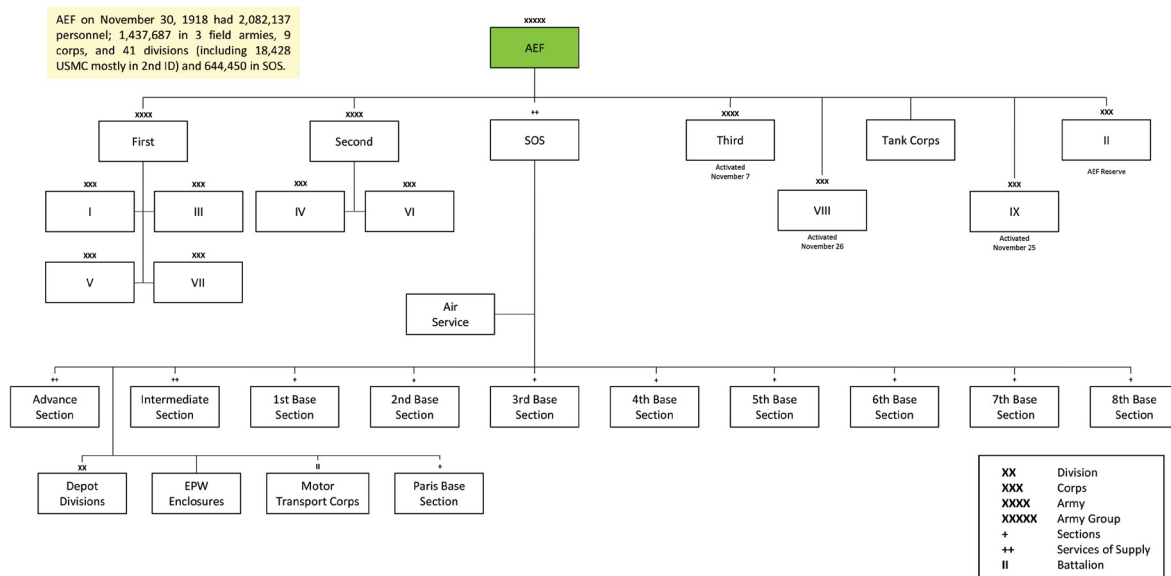


Figure 2-4. American Expeditionary Forces, November 11, 1918

CONCLUSION

The US Army entered World War I in 1917 almost totally unprepared for the large-scale land combat operations it faced in 1918. The Army had neither the educated and experienced senior officers it would need for command or control of its large units nor proven employment doctrine. Initially, the Army also completely lacked doctrine, equipment, and personnel for the new Air Service it would be forced to create and employ. But the AEF displayed a tenacity to persevere in the face of hardship and began to develop into a much more formidable combat organization than the one that had existed at the campaign's outset. Although the forces were not able to fully address the multitude of challenges they faced, had the war continued, the doughboys and aviators would have taken an increasingly dominant role. The forces had significantly improved in both the land and air domains, despite only having been actively engaged in combat for approximately five months.⁵⁴ Pershing, despite having entered the Army of the late-nineteenth century as a horse cavalryman, proved remarkably adaptive to new means of commanding and controlling land combat and the combat that was occurring in an entirely new domain. But Pershing and most other US Army officers primarily saw the

54. Nenninger, "Unsystematic," 766.

potential of aviation conservatively as a supporting arm. Colonel T. D. Milling, chief of the First Army Air Service, stated the commonly shared view that “the Air Service is of value to the military establishment only insofar as it is correlated to the other arms.”⁵⁵ The 1923 postwar board headed by Major General William Lassiter recommended the Air Service (by 1926, the Air Corps) have two types of air units: the first, in support of and attached to ground units; and the second, a semi-independent air unit to attack areas remote from the ground forces.⁵⁶ The silver lining was the AEF proved to be a learning organization, especially in the integration of the new air domain; however, that education in early multi-domain operations came at a high cost.

The First World War also gave rise to airpower zealots, such as Mitchell and the Italian Giulio Douhet, who essentially claimed airpower rendered other forms of fighting redundant.⁵⁷ After his infamous court martial, Mitchell’s wartime memoirs were published in 1928. In the preface, Mitchell elaborates on his views of airpower. He states if war is to occur, “fortunately an entirely new element has come into being, that of air power. Air power can attack the vital centers of the opposing country directly, completely destroying and paralyzing them. Very little of a nation’s strength has to be expended in conducting air operations.”⁵⁸ He continued, “Today, armies and navies are entirely incapable of insuring a nation’s defense. Air power is the great determining influence . . . as concerns national defense . . . [because it] conquers the opposing state in war by paralyzing its nerve centers.” He concluded by exclaiming his faith in airpower: “Those of us in the air have a vision of the future which we believe to be unquestionably correct.”⁵⁹

55. As quoted in Holley, *Ideas and Weapons*, 158.

56. Weigley, *History of the United States Army*, 412–13.

57. For this argument, see Richard Overly, “Introduction,” in *Air Power History: Turning Points from Kitty Hawk to Kosovo*, ed. Sebastian Cox and Peter Gray (London: Frank Cass, 2002), xvii. See also Biddle, *Air Power and Warfare*, 8–21.

58. Mitchell, *Memoirs of World War I*, 4.

59. Mitchell, *Memoirs of World War I*, 5.

CHAPTER 3. THE NEED FOR MULTI-DOMAIN OPERATIONS

Historical examples can provide a useful lens through which to apply previous insights, if not actual lessons learned. The Army's current modernization and transformation effort to prepare for large-scale ground combat operations (LSGCO) is partially a result of the return to a period of peer competition. This new period is not unlike the period after the Vietnam War, when the Army leveraged its development of the AirLand Battle doctrine and the fielding of the Big Five weapon systems as a result of the need to shift in focus from counterinsurgency to conventional warfare to counter the conventional superiority of the Soviet Union, primarily in Europe.¹ The AirLand Battle doctrine of the 1980s can also be seen as an attempt by the Army to regain the close air-ground coordination needed for maneuver warfare. This close coordination was obtained during World War I and continued through World War II.² The coordination had waned after the independence of the US Air Force and the rise of strategic bombing as a US defense panacea.³ But the Army doctrine in AirLand Battle depended on a series of agreements with the Air Force, and was never official Joint doctrine.⁴

The Army's original concept of multi-domain battle is essentially an Information-Age analog to AirLand Battle. The original Army-Marine Corps multi-domain battle white paper stated whereas AirLand Battle focused primarily on two domains, the modern operational environment calls for new concepts for fighting to occur in a coherent manner across all domains. Today, the United States confronts adversaries in the physical domains of air, land, sea, and space, as well as the abstract domains of cyberspace, the electromagnetic spectrum, the information environment, and the cognitive dimension. As a result, US forces must evolve the way they are organized, trained, equipped, and postured to deter and, if necessary, defeat potential adversaries.⁵

AirLand Battle is potentially a good example for instituting organizational change, and present-day parallels do exist. But AirLand Battle should be viewed in context, and it should not be the only historical vantage point. As Brian Linn posits, the Army has been wrong more often than right partly because of the application of narrow, contradictory, and logically suspect thought.⁶ To avoid this pitfall, we must look at our failures as well

1. For contextual discussion of Army doctrine in Field Manual 100-5, *Operations* (1982 and 1986), usually referred to as "AirLand Battle," see Walter E. Kretchik, *US Army Doctrine: From the American Revolution to the War on Terror* (Lawrence, KS: University Press of Kansas, 2011), 204-13; and Jonathan M. House, *Combined Arms Warfare in the Twentieth Century* (Lawrence, KS: University Press of Kansas, 2001), 250-56.

2. Russell F. Weigley, *History of the United States Army* (Bloomington, IN: Indiana University Press, 1984), 581-83.

3. Tami Davis Biddle, *Air Power and Warfare: A Century of Theory and History* (Carlisle, PA: Strategic Studies Institute, USAWC Press, 2019), 33-34.

4. House, *Combined Arms Warfare*, 255-56; and Richard G. Davis, *The 31 Initiatives: A Study in Air Force-Army Cooperation* (Washington, DC: Office of Air Force History, 1987).

5. US Army Training and Doctrine Command (TRADOC) and US Marine Corps Combat Development Command, "Multi-Domain Battle: Combined Arms for the 21st Century," Draft 0.92 (unpublished manuscript, December 1, 2016), PDF file, 2.

6. Brian Linn, *The Echo of Battle* (Cambridge, MA: Harvard University Press, 2007), 9.

as successes. Conrad Crane, in a War on the Rocks article in August 2017, explicitly stated his view that mission command and multi-domain battle do not mix because of the contradiction between the apparently encouraged “disciplined disobedience” of mission command and the “synchronization required against a competent and capable near-peer.”⁷ The experience of the American Expeditionary Forces (AEF) in the First World War provides a relevant historical example of the price soldiers pay because of an inability to prepare properly for and anticipate the requirements of future wars.

Unpreparedness on the part of the United States manifested itself in a number of ways, but of particular relevance were the AEF’s shortfalls in doctrine, leadership, organization, and training that partly resulted from not understanding how the character of war had changed and not being able to develop and employ a combined arms doctrine. But, despite the short duration of American combat operations in World War I, the war provided a sense of compelling urgency to develop and integrate US capabilities in the air. With the emergence of the new domains of space and cyber, we currently lack the same sense of urgency. In addition, we can see in both the new United States Cyber Command and the United States Space Force the normal desire for new organizations to seek institutional autonomy from the more traditional commands and services.

In December 2018, US Army Training and Doctrine Command (TRADOC) published *The US Army in Multi-Domain Operations 2028* as the Army’s operating concept. This concept is intended to serve as the basis for transforming Army doctrine to meet the challenges of twenty-first-century warfare. The concept expands upon the ideas previously explained in *Multi-Domain Battle: Evolution of Combined Arms for the 21st Century* and describes how the Army contributes to the Joint Force’s principal task as defined in the unclassified version of the National Defense Strategy.⁸ Though the present-day US Army is not as disadvantaged as the AEF was, the Army is changing in response to the ever-evolving character of war and its resultant expansion into other domains. Because the mission command approach will be the linchpin that holds the Army’s response together, analyzing the multi-domain operations (MDO) concept and its effect on mission command will be necessary.

THE CHANGING CHARACTER OF WAR

The crucial first step requires a careful understanding of how the face of warfare has changed or, more appropriately, how the character of war in the twenty-first century has evolved. The changing character of war is one of the driving forces behind the development of the MDO concept. This new era of great-power competition is being conducted through the use of layered standoff in the political, military, and economic realms to separate the United States from our partners as the nation’s adversaries seek to achieve their strategic aims short of conflict. In the event of conflict, we can expect adversaries to try to defeat us by separating US forces and our allies in time, space, and function by extending this standoff across the entirety of the modern

7. Conrad Crane, “Mission Command and Multi-Domain Battle Don’t Mix,” War on the Rocks, August 23, 2017, <https://warontherocks.com/2017/08/mission-command-and-multi-domain-battle-dont-mix/>.

8. TRADOC, *The US Army in Multi-Domain Operations 2028*, TRADOC Pamphlet 525-3-1 (Fort Eustis, VA: TRADOC, December 6, 2018), vi.

operational environment. This environment includes several domains and subordinate environments. The traditional physical environment includes the domains of land, sea, and air (figure 3-1).

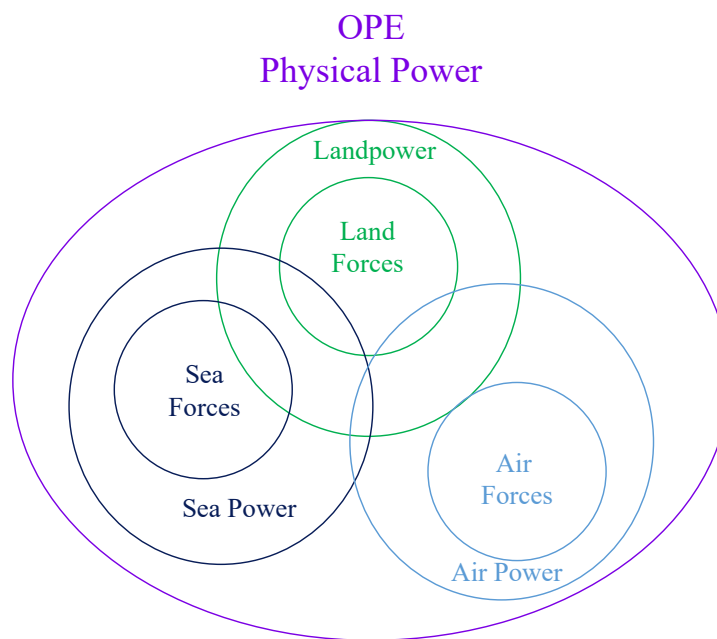


Figure 3-1. Operations in the physical environment

(Modified from William T. Johnsen, *Re-Examining The Roles of Landpower in the 21st Century and their Implications*, USAWC, Strategic Studies Institute, USAWC Press, November 2014, 13)

Operations in the physical environment (OPE) contribute to traditional physical power, often expressed separately as landpower, seapower, and airpower. In addition, operations in the information environment (OIE) consist of operations and informational power emerging from the domains and environments of space, cyberspace, and the information/cognitive domain, as well as Joint electromagnetic-spectrum operations in the electromagnetic operating environment (figure 3-2).⁹

9. TRADOC, *Multi-Domain Operations*, iii.

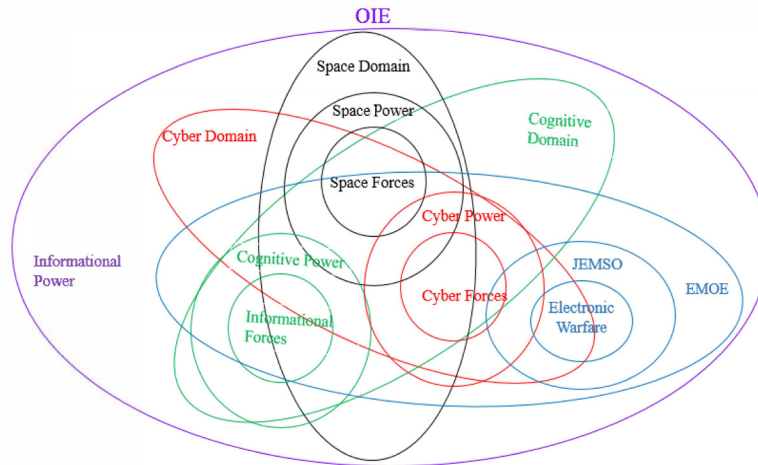


Figure 3-2. Operations in the information environment

Each of these domains/environments have differing characteristics that affect MDO. Buildup/deployment times; persistence, when employed; controls for the effects of these operations; and reset intervals all differ. These characteristics must be mastered by military professionals serving in each of these domains/environments and by Joint and allied staff officers serving at higher integrating headquarters (HQ) (see table 3-1).¹⁰

Table 3-1. Characteristics of land, air, maritime, and information warfare

(Modified from *The US Army in Multi-Domain Operations, 2028*, TRADOC Pamphlet 525-3-1 [Fort Eustis, VA: Headquarters, US Army TRADOC, 2018], C-8)

Domain	Build-up Time (if not already present in theater)	Persistence When Employed	Control of Effects	Reset Interval
Land	Very long (months)	Long (weeks to months)	Can be easily controlled within assigned land boundaries.	Long (days to months)
Air	Short (days to weeks)	Short (hours)	Can be easily controlled within and between JFC JOAs/AORs.	Short (hours to days)
Maritime	Medium (weeks)	Very long (months)	Can be controlled within and between JFC JOAs/AORs.	Very long (weeks)
Information Warfare (cyber/space/IO/EMS)	Short (days)	Very short (seconds to minutes)	Difficult to control within JOAs/AORs; global effects.	Very short (minutes to hours)

10. TRADOC, *Multi-Domain Operations*, C-8.

Understanding and learning how to operate in this increasingly interconnected operational environment may very well be the most important mission command challenge we face. Flavius Vegetius Renatus, in his classic work *De re militari* (*On Roman military matters*) written in the fifth century, emphasized the need to study the military art when he wrote, “He, therefore, who desires peace, should prepare for war. He who aspires to victory, should spare no pains from his soldiers. And he who hopes for success, should fight on principle, not chance. No one dares to offend or insult a power of known superiority in action.”¹¹ This superiority of action has been a cornerstone of the modern US Army; we have prided ourselves since World War I on our prowess in conducting conventional LSGCO. But our adversaries seek to negate our strengths and reduce our ability to project power decisively by both conventional and asymmetric means.

These conventional and asymmetric means have changed the character of war in this stage of the twenty-first century. The 2018 National Defense Strategy highlights technological advancements such as artificial intelligence, hypersonic weapons, and robotics, along with an increase in nonstate actors that are changing the character of war.¹² This point was supported and further emphasized by General Mark Milley, then-chief of staff of the US Army, in his assertion that “ambiguous actors, intense information wars and cutting-edge technologies will further confuse situational understanding and blur the distinctions between war and peace, combatant and noncombatant, friend and foe—perhaps even humans and machines.”¹³ The increased uncertainty about the definition of war is an important factor of consideration.

Though the character of war changes, both the National Defense Strategy and the MDO concept adhere to Carl von Clausewitz’s definition of the enduring nature of war. In defining the nature or unchanging aspects of war, he said, “As a total phenomenon its dominant tendencies always make war a paradoxical trinity—composed of primordial violence, hatred, and enmity, which are to be regarded as blind natural force; of the play of chance and probability within which the creative spirit is free to roam; and of its element of subordination, as an instrument of policy, which makes it subject to reason alone.”¹⁴ This quote distills the definition of the nature of war as we know it today—one composed of violence, unpredictability, and political control. Clausewitz compared war to a chameleon in that war adapts to conform to the specifics of the given case or, said another way, its place and time.¹⁵ He understood all wars are not the same and

11. Flavius Vegetius Renatus, *De re militari* [On Roman military matters], trans. John Clarke (1767; repr., St. Petersburg, FL: Red and Black Publishers, 2008), 52.

12. James Mattis, *Summary of the 2018 National Defense Strategy of the United States of America* (Washington, DC: DoD, January 19, 2018), 2–3.

13. Mark A. Milley, “Chief of Staff of the Army: Changing Nature of War Won’t Change Our Purpose,” October 1, 2016, <https://www.ansa.org/articles/changing-nature-war-wont-change-our-purpose#.W5u5wOcQOI0.email>.

14. Carl von Clausewitz, *On War*, ed. and trans. Michael Howard and Peter Paret (Princeton, NJ: Princeton University Press, 1976), 89.

15. Clausewitz, *On War*, 89.

form from the “ideas, emotions, and conditions prevailing at the time.”¹⁶ Wars are set apart from one another by such things as technology, type of government, military organization, and the culture of the combatants involved—in other words, the aspects of war that change but provide the particular dynamics of a given war. But no matter the time or place, the aspects of war will be characterized by violence, subject to fog and friction, and under political direction.

Though we have retained the Clausewitzian definition of war, our adversaries have taken an approach similar to Sun Tzu’s: “To subdue the enemy without fighting is the acme of skill.”¹⁷ As a result, the MDO concept also attempts to clarify the conceptual space around war and to maintain the distinction between war and other than war; this is known as “the gray-zone conflict.” This idea maintains the enduring nature of war by retaining the centrality of violence. But, in some respects, these so-called gray-zone conflicts challenge the enduring nature of war. Violence will still remain a part of war, but in light of the incorporation of the cyber and space realms, the definition of “violent action” becomes blurred.¹⁸ Gray-zone actions can be considered acts of war, though they lack the application of physical violence—that is, unless violence is substituted with the application of force to compel the enemy to do one’s will. The concept of MDO retains the traditional definition of war by describing these actions as being part of competition below armed conflict.

This approach is not necessarily wrong, as doctrine should, if we are to learn from the experience of the AEF, be unambiguous. The recognition of competition below armed conflict and unconventional aspects of war represents a big departure from previous concepts. In the past, we have tended to myopically focus on the LSGCO aspect of warfare at the expense of the asymmetric or counterinsurgency ranges of conflict. The challenge in adopting an all-encompassing approach will be in overcoming this predilection to allow for effective mission command across the range of military operations. We will need to ensure we are able to maintain proficiency at and familiarity with both conventional and irregular warfare.

THE EVOLUTION OF JOINT AND COMBINED ARMS

A second key aspect of MDO is it represents the next stage in the evolution of the concept of Joint and combined arms warfare. This concept has existed for hundreds of years and has only increased in importance, coming fully into its own in the twentieth century. Joint and combined arms warfare must be effected at lower echelons as well.¹⁹ Whereas in the AEF the lowest combined arms formation was the division, today it is the brigade or even below brigade. The side that can best coordinate its resources and forces to accomplish functions on the battlefield has always had the advantage. This rule has not changed; it has only increased in scope, scale, and complexity. Just as the

16. Clausewitz, *On War*, 580.

17. Sun Tzu, *The Art of War*, trans. Samuel Griffith (New York: Oxford University Press, 1963), 77.

18. Rosa Brooks, “Fighting Words: Has the Nature of ‘War’ Changed since the Days of Clausewitz?,” *Foreign Policy*, February 4, 2014, <https://foreignpolicy.com/2014/02/04/fighting-words/>.

19. House, *Combined Arms Warfare*, 3–5.

AEF learned the cost of only paying lip service to combined arms integration, we must recognize and understand this challenge today.

Joint doctrine currently identifies Joint functions as related capabilities and activities placed into the seven basic groups of command and control, information, intelligence, fires, movement and maneuver, protection, and sustainment to help Joint Force commanders synchronize, integrate, and direct Joint operations.²⁰ The Army now recognizes all of these groups except information as warfighting functions (WfFs). The Army does include information as an element of combat power (see figure 3-3).

The MDO concept seeks to overcome the problem of layered standoff through the rapid and continuous integration of all domains of warfare to deter and prevail as we compete short of armed conflict. If deterrence fails, then Army formations, operating in concert with other elements of the Joint Force, seek to penetrate and disintegrate enemy anti-access and area denial systems; exploit the resulting freedom of maneuver to defeat enemy systems, formations, and objectives and to achieve strategic objectives; and consolidate gains to force a return to competition on terms more favorable to the United States, our allies, and our partners. The MDO concept aims to enable this strategy by evolving the force around the following core tenets.

1. Calibrated force posture combines position and the ability to maneuver across strategic distances.
2. Multi-domain formations possess the capacity, endurance, and capability to access and employ capabilities across all domains to pose multiple and compounding dilemmas on the adversary.
3. Convergence achieves the rapid and continuous integration of all domains across time, space, and capabilities to overmatch the enemy.²¹

Implementing MDO will require increased Jointness of the force at lower levels, and a mission command approach to command and control must seek to lower the barriers that impede the achievement of such synergy.

MULTI-DOMAIN OPERATIONS AND MISSION COMMAND

Previously, Army doctrine in the 2012 versions of Army Doctrinal Publication (ADP) 6-0 and Army Doctrine Reference Publication 6-0 on mission command had been a source of confusion. “Mission command had become the practical synonym for command and control, a warfighting function (WfF), a system of systems, and a philosophy providing authority and direction to Army forces.”²² The revised ADP 6-0, *Mission Command: Command and Control of Army Forces*, published in July 2019, sought to clarify both the logic and the language because in this revision, mission command is only the Army’s

20. Joint Chiefs of Staff (JCS), *Joint Operations*, Joint Publication (JP) 3-0, chg. 1 (Washington, DC: JCS, 2018), III-1.

21. TRADOC, *Multi-Domain Operations*, iii.

22. Stephen Townsend et al., “Reinvigorating the Army’s Approach to Mission Command: It’s Okay to Run with Scissors (Part 1),” *Military Review*, April 2019, <https://www.armyupress.army.mil/journals/military-review/online-exclusive/2019-ole/march/reinvigorating-mc/>.

approach to command and control.²³ Set against the backdrop of the changing face of war and the expansion of Joint and combined arms warfare, the mission command approach must adapt the ways in which the Army provides command and control. The proposed definition of MDO is “operations conducted across multiple domains and contested spaces to overcome an adversary’s (or enemy’s) strengths by presenting them with several operational and/or tactical dilemmas through the combined application of calibrated force posture; employment of multi-domain formations; and convergence of capabilities across domains, environments, and functions in time and spaces to achieve operational and tactical objectives.”²⁴ Thus, the challenge for mission command, as the Army’s approach to command and control, is to determine the ways in which commanders, supported by their staffs, can combine the elements of command and the elements of control to understand situations, empower subordinates, make decisions, decentralize action, and accomplish missions in MDO. Mission command provides the conduit for the successful execution of MDO. Figure 3-3 depicts the Army’s approach to command and control and its centrality to the other Army WfFs from the July 2019 revision of ADP 6-0.

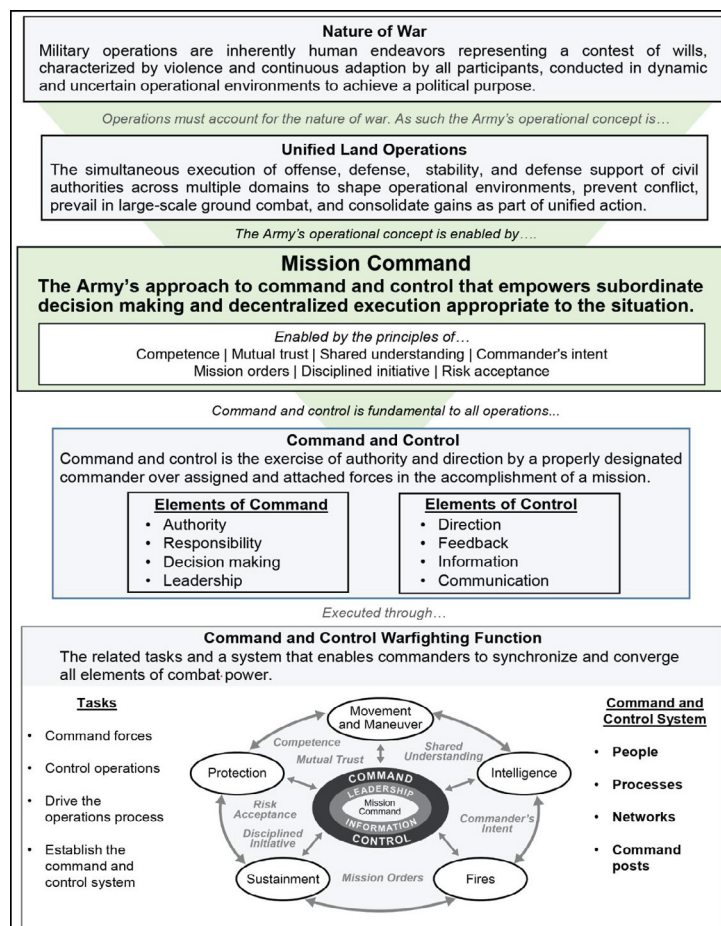


Figure 3-3. The Army’s approach to command and control: ADP 6-0

(Reprinted from Headquarters, Department of the Army [HQDA], Mission Command: Command and Control of Army Forces, ADP 6-0 [Washington, DC: HQDA, 2019], x)

23. Townsend et al., “Reinvigorating the Army’s Approach.”

24. Townsend et al., “Reinvigorating the Army’s Approach.”

The bottom part of the figure shows the centrality of mission command to the command and control WfF and reflects the integration and convergence of all elements of combat power that must occur across all, or at least multiple, domains. To provide the means to execute MDO effectively, the command and control system will require improvements in organizational, doctrinal, training, and leadership development.

Command and control HQs are warfighting units in MDO that will shape the initial response and fire the first shots in the information environment during competition. At the strategic and operational levels, these HQs will set the conditions for tactical operations to occur. In light of our competitors' preference for achieving a *fait accompli* as a means to negate our ability to respond, we will, as former chairman of the Joint Chiefs of Staff (JCS) General Joseph Dunford stated, need to "make decisions at the speed of relevance."²⁵ Accomplishing this task will require an enhanced and broader need for combined arms maneuver, operations at echelon, and convergence of cross-domain capabilities.²⁶ These objectives will need to be accomplished in an ever-expanding battlespace well beyond the relatively linear area of operations that challenged the AEF. Today's commanders will need to synchronize the employment of capabilities and resources that may not reside or even operate physically in theater, but that play a critical part of the operation. Thus, MDO is not a mere expansion of AirLand Battle, which focused on only two domains operating in concert within the same area of operations.

MULTI-DOMAIN OPERATIONS OPERATIONAL FRAMEWORK

The MDO operational framework provides an expanded physical, virtual, and temporal perspective and accounts for the ability of future adversaries to contest US forces in all domains to achieve effects both in the adversaries' immediate region and, in some cases, at strategic depth. This operational framework accounts for an extended strategic, operational, and tactical battlespace and aids in identifying the points at which multi-domain capabilities are required across a campaign.

The concept of MDO describes friendly forces' actions across domains as being linked in time, function, and physical space to defeat the adversary's systems using three campaign activities: competition below armed conflict; armed conflict; and a return to competition below armed conflict, which occurs when two or more actors in the international system have incompatible interests, but neither seeks to escalate to open conflict. Armed conflict occurs when the use of violence is the primary means by which an actor seeks to achieve its political outcomes. A return to competition below armed conflict occurs when fighting ceases and one or both combatants cannot achieve a decisive result. Spaces or areas in the extended MDO operational framework are deep fires (strategic and operational), deep maneuver, close, tactical support, operational support, and strategic support (see figure 3-4). This operational framework has four layers: physical, temporal, virtual, and cognitive. Both the MDO concept in TRADOC Pamphlet 525-3-1 and the echelons above brigade (EAB) concept in TRADOC Pamphlet 525-3-8 postulate how future Army EAB formations – working together – might overlay

25. Joseph Dunford, "The Character of War and Strategic Landscape Have Changed," *Joint Force Quarterly* 89 (2nd Quarter 2018): 3.

26. TRADOC, *Multi-Domain Operations*, ix–x.

on the MDO operational framework to help determine capabilities (including authorities) required at echelon, across the competition continuum, and throughout each layer of the framework to see, understand, decide, shape, strike, and endure to win in LSGCO and achieve lasting outcomes.

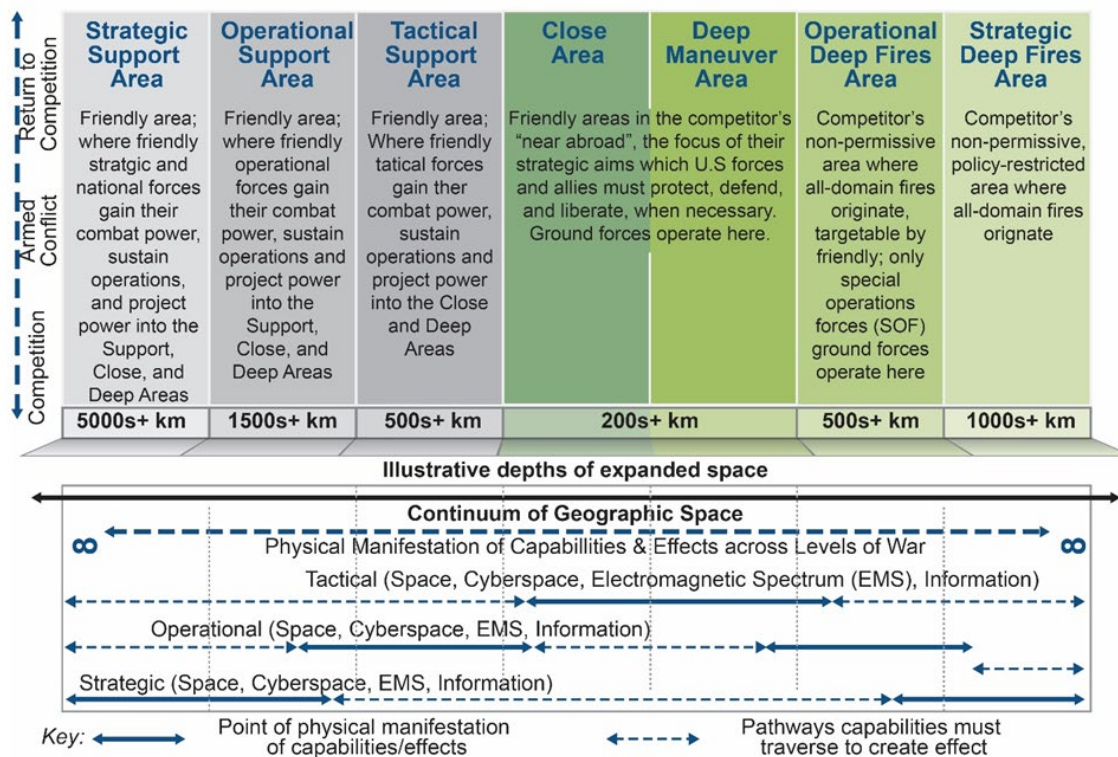


Figure 3-4. Multi-domain operations operational framework

(Reprinted from US Army Training and Doctrine Command [TRADOC], *The US Army in Multi-Domain Operations*, 2028, TP 525-3-1 [Fort Eustis, VA: TRADOC, 2018], 8)

The operational framework in figure 3-4 illustrates the breadth and depth of activities, spaces, distances, and interrelationships for which future MDO must account. Though the framework may appear linear and static, it is not. In fact, these areas are defined primarily by conditions, and, at times, some areas may be nonexistent. For example, in the close area, friendly and enemy formations, forces, and systems are in imminent physical contact. When friendly and enemy forces are not in imminent physical contact, the close area of the expanded battlespace collapses into a simpler construct. In this way, the conceptual boundaries within the MDO operational framework ebb and flow over time.

The above framework from both TRADOC Pamphlet 525-3-1 and TRADOC Pamphlet 525-3-8 appears to be only a minor update to the two-dimensional frameworks previously depicting AirLand Battle. Perhaps MDO needs both a more three-dimensional depiction and a framework that places more emphasis on OIE. These requirements will be important because, like strategic and special operations commands, space and

cyber forces and commands will have global effects, including the capability to attack an adversary's homeland directly and therefore not be fully controlled by combatant commanders with forward geographic areas of responsibility. But those same forward combatant commanders may need new authorities for improved conduct of more traditional cognitive activities (such as deception and psychological operations) as well as Joint electromagnetic-spectrum operations (including electronic warfare) within their assigned boundaries. In addition, United States Northern Command will remain responsible for the coordination of all aspects of continental homeland defense (see figure 3-5).

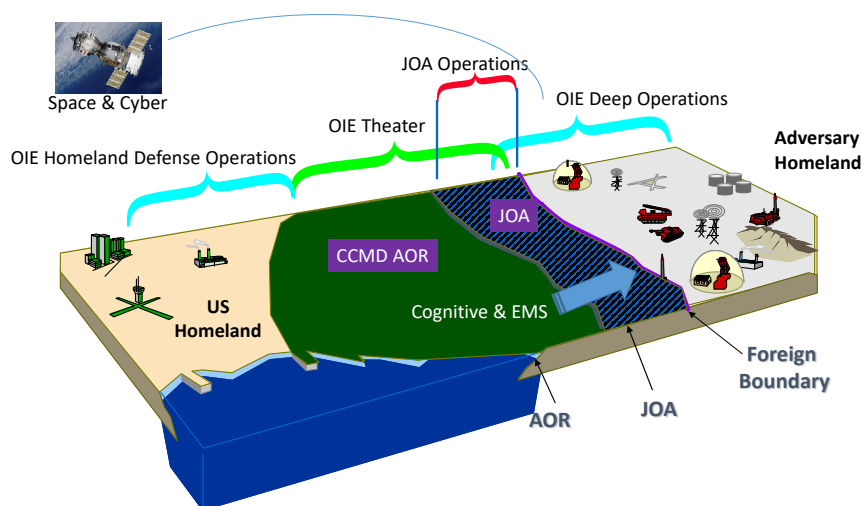


Figure 3-5. Multi-domain operations in the information environment framework

Emerging Joint doctrine addresses the challenge of campaigning at the global and theater levels across the competition continuum. In this context, a combatant command campaigns continuously across the conflict continuum to achieve national strategic objectives. The concept of MDO addresses campaigning across the competition continuum by focusing on three campaign activities: competition below armed conflict, armed conflict, and a return to competition below armed conflict (see figure 3-6).

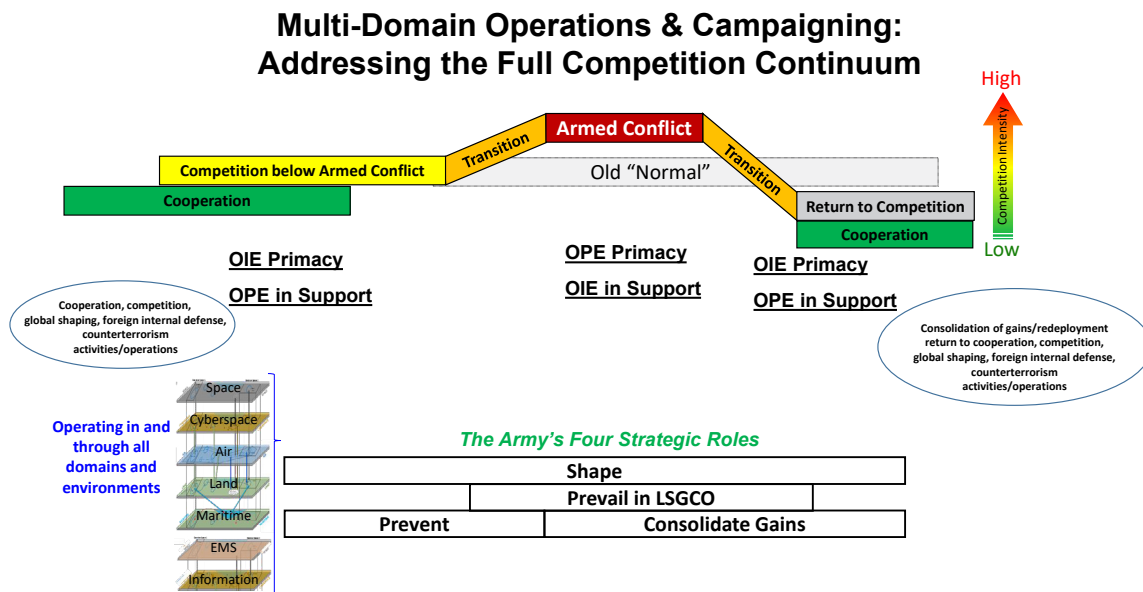


Figure 3-6. Multi-domain operations: addressing the full competition continuum
(Modified from TRADOC, *US Army Concept: Multi-Domain Combined Arms Operations at Echelons above Brigade 2025–2045*, TRADOC Pamphlet 525-3-8 [Fort Eustis, VA: TRADOC], 12).

As depicted above, the Army must operate in and through all domains and environments as it provides the four strategic roles of shape, prevent, prevail in LSGCO, and consolidate gains. To accomplish these roles, the Army must provide capabilities for both OPE and OIE. But, during cooperation and competition below armed conflict and the return to competition, OIE may represent the primary activities, with OPE playing a supporting role. During more traditional armed conflict, these relationships may be reversed, with OPE becoming prime and OIE supporting.

Inherent in MDO is the recognition that forces and capabilities by necessity will also be provided by other services, agencies, and nations. We have gone beyond combined arms battle to an increasingly Joint, interagency, and multinational fight across multiple domains. Enabling MDO will require the mission command approach to command and control to move away from independent operations and toward synergistic and, where appropriate, interdependent operations. Achieving the requisite synergy and harmonization will require a change in mindset from a vertical focus on receiving and unilaterally accomplishing tasks from the higher commander to a focus on working much more closely with our horizontal mission partners. This shift must be reflected in increased interoperability and a comprehensive team approach. This task is one of the most important Joint commanders are facing, and, because of the strategic environment, the task needs to be performed correctly from the beginning. This task is risky because mission success will rely upon increased dependence on capabilities that Army commanders do not own or control. Commanders must be willing to accept the need

for this interdependence.²⁷ These considerations require a careful examination of the structure of our command and control system to identify the changes that must be made to facilitate mission command in support of MDO.

US Army Concept: Multi-Domain Combined Arms Operations at Echelons above Brigade 2025–2045 (TRADOC Pamphlet 525-3-8) describes the ways in which EAB formations might be structured and employed in the future, including the changes and capabilities required to meet the Landpower demands of the future operational environment and prospective threats.²⁸ One of the new echelons the EAB concept for MDO identifies is the requirement for threat-focused field armies to provide credible deterrence; execute multi-domain competition against near-peer threats; and enable rapid transition to, and execution of, large-scale, multicorps ground combat operations designed to relieve the operational burden on the theater army and facilitate focused opposition to the threat within a Joint operations area. This requirement is especially valid because of the personnel reductions recently directed at the theater army structure.

The central idea is for Army EAB formations to gain and maintain the initiative by converging multi-domain capabilities at echelon and through the depth and breadth of the extended battlefield to develop and maintain a more accurate understanding of the operational environment and threats, continuously compete below the threshold of conflict, rapidly transition to conflict when necessary, discover or create multiple enemy vulnerabilities, exploit windows of superiority at a quick tempo through cross-domain maneuver, and continuously consolidate gains to achieve enduring outcomes. In preparing for conventional war, a valid and driving consideration is the field army facilitates a very specific LSGCO requirement to control multiple corps. The roles and functions of EAB HQs should be further examined to understand the structural changes necessary for conducting mission command for MDO.

In light of the increased interdependence on Joint, interagency, and multinational capabilities in MDO, the current Joint command and control organization and structure constrain the ability for such an examination to occur. In determining the proper organization and structure, many considerations must be pondered, some of which are at odds with one another. The twenty-first century promises to bring a further increase in the capabilities, complexity, mobility, and diversity of military forces. These increases will be further complicated by a growth in specialized troops, units, functions, and technology.²⁹ One question to consider is: Which domains require a dedicated functional component and which organizations can be placed in supporting roles? See figure 3-7. Doctrinally, cyber and space commands only plan on providing either integrated planning elements or a director, space forces, not actual components.³⁰

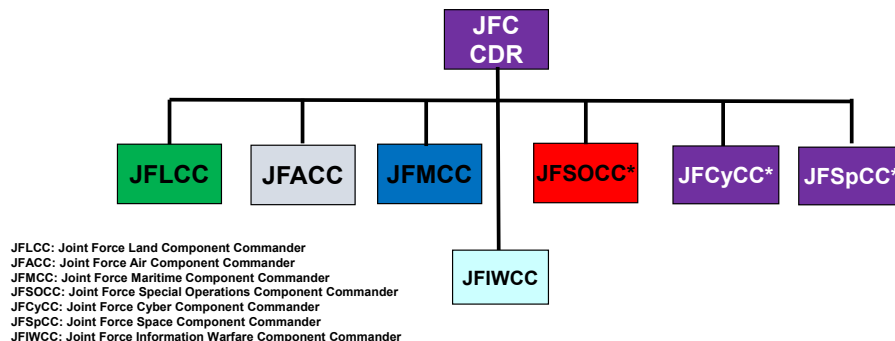
27. Joint Staff J7, *Insights and Best Practices Focus Paper: Interorganizational Coordination*, 4th ed. (Suffolk, VA: Joint Staff J7, March 2013), 20.

28. TRADOC, *US Army Concept: Multi-Domain Combined Arms Operations at Echelons above Brigade 2025–2045*, TRADOC Pamphlet 525-3-8 (Fort Eustis, VA: TRADOC, 2018), 1.

29. Martin van Creveld, *Command in War* (Cambridge, MA: Harvard University Press, 1985), 2.

30. See JCS, *Cyberspace Operations*, JP 3-12 (Washington, DC: JCS, June 8, 2018), IV-12–IV-15; and JCS, *Space Operations*, JP 3-14, rev. ed. (Washington, DC: JCS, April 10, 2018), 36.

MDO JFC Organizational Options



- JTF is a Joint Force as designated by the Secretary of Defense, a combatant commander, a subordinate unified commander, or an existing JTF commander (CDR).
- Functional components may be on an area or functional basis.

* May be placed in support by a functional combatant commander; command relationships will be determined by establishing commander.

Figure 3-7. Multi-domain operations Joint Force commander organizational options

A determination must be made whether the MDO Joint Force commander needs a Joint Force cyber or space component commander with the assets, capabilities, or functions to help the former rapidly plan, coordinate, and execute operations. A determination must also be made whether a Joint Force information warfare component commander will be assigned to focus on conducting more traditional activities, such as deception and psychological operations in the cognitive domain. In addition, if a Joint Force information warfare component commander is present with significant assets, can smaller, discrete, forward-oriented cyber and space capabilities be integrated by him or her? The Army is considering establishing a theater information warfare command that could serve as the basis for a Joint Force information warfare command. Dr. John A. Bonin originated the concept of a theater information superiority command while serving on Task Force Modularity in 2004. He updated this concept, now known as the “theater information warfare command,” and the concept was used in mission command limited objective experiments in 2019. Other valid considerations include span of control (if not complexity), survivability, redundancy, and dispersion. The goal is to flatten the organization as much as possible, but achieving this effect may not be possible in light of these considerations. A high enough degree of flexibility to organize and meet mission requirements should also be factor. The command and control function must be optimized to leverage and integrate all domains and keep our adversaries off-balance, thereby allowing us to gain advantage over them and retain the initiative. The ability to integrate functions and technology to enable the decision-making process is critical. Lastly, changes to the US command and control structure and organization should be carefully considered because they may create confusion or interoperability problems with our essential multinational partners.

Regardless of the structure of the Joint MDO organization, having an interconnected Joint staff to support the commander and plan and control training and operations

is critical. This MDO staff structure could include the traditional “J” directorates, as defined in Joint Publication (JP) 3-33, *Joint Task Force Headquarters*, but with J3 becoming the coordinating staff officer for OPE while a new coordinating staff officer, the J7, becomes responsible for OIE.³¹ Both officers would operate in the multi-domain operations cell (discussed more fully in chapter 5) under the supervision of the chief of staff. This structure would enable coordinating staff officers to focus more on the seven Joint functions, with the J7 focused on information (see figure 3-8).

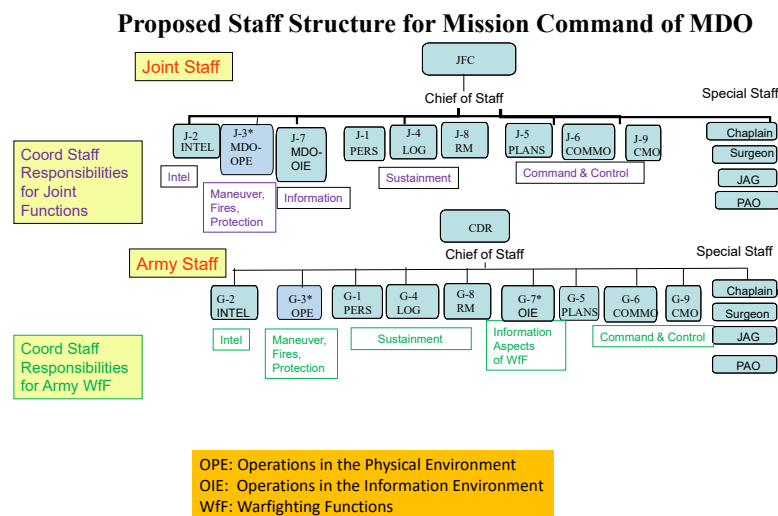


Figure 3-8. Proposed staff structure for mission command of multi-domain operations

A perfect organizational structure need not be sought because familiarity and training can alleviate structural deficiencies. The experience of the AEF provides a valuable lesson. The ability to provide effective command and control hinges upon understanding the organization and functions of the command and control system. Though the conduct of warfare is often an ad hoc affair, a degree of commonality and familiarity must be present, and the conduct must be guided by doctrine and reinforced through training.

Leaders must be trained to execute mission command in the MDO environment. The extended distances across an area of responsibility and the prevalence of multiple US, coalition, and interorganizational partners magnify the complex challenges of integration and communications and the need for collective cooperation. As formations will likely encounter varying degrees of degraded communications because of threat attacks against command and control infrastructure, commanders and their formations must be comfortable continuing to operate within the higher commander’s intent to achieve objectives semi-independently. Operating under these conditions will require the employment of the proper level of command, the appropriate amount of control, and the fostering of initiative action to ensure overall success.³² The need to conduct decentralized operations guided by commander’s intent will require the transfer of trust and confidence as well as comfort with the level of risk this transfer will entail. We

31. JCS, *Joint Task Force Headquarters*, JP 3-33 (Washington, DC: JCS, January 31, 2018).

32. TRADOC, *Multi-Domain Combined Arms Operations*, 27–28.

must develop leaders who can thrive in the face of ambiguity and complexity; be agile, informed, open-minded, and innovative; and respond decisively. We must emphasize initiative and action at the lowest level while ensuring leaders' actions are synchronized with strategic objectives. Leaders and staffs will need to understand the challenges associated with the application of MDO during competition versus those in war. Tactical actions can have strategic implications. Done right, MDO can deter adversaries and prevent wars by presenting multiple dilemmas across all domains in competition. But a wrong step in the information environment can just as easily create a war. The mission command approach is essential to reducing the possibility of unintended, catastrophic consequences. Also, this approach provides the best use of limited resources without micromanaging or overcentralizing, such as avoiding a fixation on higher HQ being directly involved in individual kills of remotely piloted vehicles. Then again, "when there are limited resources, there must be some degree of centralized prioritization."³³

CONCLUSION

To meet the mission command challenges of the twenty-first century, the US Army must understand the impacts and challenges of two key factors: the changing character of war and the challenges associated with the integration of Joint and combined arm formations and capabilities (including those of partners and allies) across multiple domains. Although the central approach of mission command to empower subordinate decision making and decentralize execution is still valid, changes to organization, doctrine, leader development, and training must be implemented with respect to the command and control WfF to facilitate MDO. Commanders and their staffs must adapt to the changing battlefield or competitive space and recognize each situation will be different.

The success of commanders and their staffs will require we think critically, creatively, and innovatively about the mission command changes that need to occur, including challenging our traditions and culture when appropriate. The MDO concept document calls for professional discourse and experimentation to refine and adapt. These tasks are a good starting point for the military to engage in professional discourse and critical thinking and reconcile its various points of view to avoid applying the wrong lessons from the "echo of battle."³⁴ Mission command and command and control doctrine, organization, training, and leadership will need to change to enable the understanding and synergy across domains necessary to allow us to maintain our competitive edge. The Army and Joint doctrine communities must convert multi-domain and all-domain concepts into understandable doctrine promulgated throughout the force. Future conflicts will afford us even less time to adjust and adhere to these principles. Our execution will not be perfect, but we want to get it as close to perfect as we can.

33. Joint Staff J7, *Interorganizational Coordination*, 15.

34. Linn, *Echo of Battle*, 243.

CHAPTER 4. ANALYZING MISSION COMMAND PRINCIPLES IN SUPPORT OF MULTI-DOMAIN OPERATIONS SHORT OF ARMED CONFLICT

The Army's multi-domain operations (MDO) doctrinal concept places a unique set of demands on senior military leaders as they seek to integrate and synchronize the elements of national power as well as converge the effects of all domains to achieve national security objectives. Senior military leaders pursue foreign policy objectives on behalf of the United States, its allies, and its partners by, with, and through this integration and convergence to positively influence the international security environment. This influence becomes even more critical during operations short of armed conflict, when the Army's strategic tasks are, primarily, to shape and prevent. To accomplish these tasks, the Army must provide capabilities for operations in both the physical and information environments. The latter includes, but is not limited to, inform and influence activities, cyber defense, civil-military operations, countersurveillance, and electromagnetic-spectrum and space support. During cooperation and competition below armed conflict and the return to competition, operations in the information environment (OIE) may be the primary activities, with operations in the physical environment (OPE) playing a supporting role. Three factors need to be considered. First, these types of operations, planned and executed with interagency and coalition partners, highlight the importance of establishing mutual trust and the need for shared understanding. Second, operations at the strategic level emphasize the importance of senior military commanders empowering subordinates and enabling initiative. Third, conducting MDO short of armed conflict heightens the risk of adversary miscalculation and the threat of escalation into armed conflict, thereby requiring senior military leaders to identify, fully understand, and accept risk when pursuing national security objectives.

There is and always will be strategic competition. You are either winning or losing, present tense. Seldom will conflict result in a permanent win or loss. The linear depiction of peace to war and back again must be revised to reflect the cyclical nature of war where there are only positions of relative advantage.¹

Mission command provides senior military commanders and leaders a command and control approach tailored for MDO short of armed conflict. This chapter evaluates and synthesizes the application of the seven mission command principles (competence, mutual trust, shared understanding, commander's intent, mission orders, disciplined initiative, and risk acceptance) in support of MDO at the strategic level and provides insights for senior leaders to consider when addressing the challenges of MDO short of armed conflict.²

1. David G. Perkins, "Multi-Domain Battle: The Advent of Twenty-First Century War," *Military Review*, November-December 2017, <https://www.armyupress.army.mil/Journals/Military-Review/English-Edition-Archives/November-December-2017/Multi-Domain-Battle-The-Advent-of-Twenty-First-Century-War/>.

2. Headquarters, Department of the Army (HQDA), *Mission Command: Command and Control of Army Forces*, Army Doctrinal Publication (ADP) 6-0 (Washington, DC: HQDA, 2019), 1-7.

UNDERSTANDING THE COMPETITION CONTINUUM: OPERATIONS SHORT OF ARMED CONFLICT

“Competition is older than warfare itself—it is the original politics.”³ The *Joint Concept for Integrated Campaigning* describes three levels of the competition continuum: cooperation, competition short of armed conflict, and armed conflict.⁴ The Joint concept expands on competition short of armed conflict by describing it as “a competitive relationship between the US and another strategic actor on a specific issue in which the use of armed force is prohibited or severely restricted.”⁵ According to General Joseph Votel, the former United States Central Command commander, the competition continuum “can be characterized by intense political, economic, informational, and military competition more fervent in nature than normal steady-state diplomacy, yet short of conventional war.”⁶ Michael Mazarr, a former professor and associate dean of academics at the National War College, further codifies below armed conflict as the “pursuit of political objectives through calculated and integrated campaigns to achieve specific and often quite ambitious goals.”⁷ An often overlooked example from World War I is the Allied and US military interventions in northern Russia and Siberia to safeguard various interests and in opposition to the Bolsheviks.⁸

Recent trends and events in the international security environment point toward a new global dynamic marked by revisionist or status quo states seizing and exploiting opportunities to compete below the threshold of armed conflict to achieve strategic aims and maintain global dominance. Notably, these events are happening across multiple domains—land, air, sea, cyber, and space—allowing state and nonstate actors to pursue national interests without engaging in armed conflict. One of the most striking examples is the Russian Federation’s annexation of Crimea in 2014, which provided Russia a competitive advantage over the United States and its NATO allies. This unprovoked action violated international order and the territorial integrity and sovereignty of Ukraine and enabled Russia to achieve its national goal of gaining access to the Black Sea. Access to the Black Sea enables Russia to project power into other regions and strengthen its reemergence as a global power. The annexation also created significant friction and

3. Kelly McCoy, “In the Beginning, There Was Competition: The Old Idea behind the New American Way of War,” April 11, 2018, <https://mwi.usma.edu/beginning-competition-old-idea-behind-new-american-way-war/>.

4. Joint Chiefs of Staff (JCS), *Joint Concept for Integrated Campaigning* (Washington, DC: JCS, March 16, 2018).

5. Kelly McCoy, “Old Idea.”

6. Joseph L. Votel et al., “Unconventional Warfare in the Gray Zone,” *Joint Force Quarterly* 80 (1st Quarter 2016), 101–9.

7. Michael J. Mazarr, “Struggle in the Gray Zone and World Order,” *War on the Rocks*, December 22, 2015, <https://warontherocks.com/2015/12/struggle-in-the-gray-zone-and-world-order/>.

8. Richard W. Stewart, ed., *American Military History* (Washington, DC: Center of Military History, 2010), 2:58.

ambiguity among NATO allies, particularly as NATO envisioned integrating Ukraine as a new member nation in the alliance.⁹

Less provocative, but equally as problematic, examples include China's successful February 2018 antisatellite ballistics test, which demonstrated its capability to employ weapons in the space domain.¹⁰ This action was the second successful antisatellite test conducted by China in the last decade, a feat only previously achieved by the United States and Russia. That same year, a CBS News report revealed a North Korean organization stole millions of dollars by infiltrating the networks of multiple international banks operating in more than 11 countries.¹¹ Purportedly, these attacks ultimately provided North Korea the means to offset sanctions imposed by the United States and other nations and to gather intelligence to further pursue the country's strategic objectives. The report went on to describe these attacks as part of a broader pattern of state-sanctioned cyber activities, causing the United States to identify North Korea, along with Russia, China, and Iran, as one of the most significant global cyber threats to date.¹²

MISSION COMMAND AND MULTI-DOMAIN OPERATIONS SHORT OF ARMED CONFLICT

Given the above descriptions of operations short of armed conflict and the competition zone, senior military commanders must execute command and control in support of MDO by leveraging the principles of mission command and command and control warfighting function (WfF) tasks to achieve national security objectives. As a command and control approach, mission command empowers subordinate leaders and emphasizes the importance of creating cohesive and reciprocal relationships based on trust and shared understanding among subordinates.¹³ Seven principles underscore mission command: competence, mutual trust, shared understanding, commander's intent, disciplined initiative, mission orders, and risk acceptance. The command and control WfF, which consists of tasks such as command forces and control operations and a system containing elements such as people and processes, enables commanders to synchronize and converge all elements of combat power.¹⁴ Another of the tasks is to drive the operations process through the activities of understand, visualize, direct, lead, and

9. Olga Larsen, "The Crimean Annexation by Russia in 2014" (master's thesis, Norwegian University of Life Sciences, 2016).

10. Jeffrey Lin and P. W. Singer, "China Shot Down Another Missile in Space," *Popular Science*, February 2018, <https://www.popsoci.com/china-space-missile-test>.

11. Matthew Pennington, "North Korean Hackers Stole Over \$100 Million in Online Bank Heists: Security Experts," *Global News*, October 3, 2017, <https://globalnews.ca/news/4512712/north-korea-online-bank-heists/>.

12. Associated Press, "How North Korea's Ever-Bolder Cyberattacks Target Banks," *CBS News*, October 3, 2018, <https://www.cbsnews.com/news/how-north-koreas-ever-bolder-cyberattacks-target-banks/>.

13. Martin E. Dempsey, "Mission Command White Paper" (white paper, JCS, Washington, DC, April 3, 2012).

14. HQDA, *Mission Command*, viii.

assess.¹⁵ These tasks allow a senior military commander to, among other requirements, clearly communicate the intricacies of the environment from the leader's perspective and the potential friction points confronting the organization.

Among the mission command principles, mutual trust, shared understanding, disciplined initiative, and risk acceptance are most applicable in the context of MDO, particularly because they apply to the conduct of MDO short of armed conflict. By nature, these four principles are interconnected and, when analyzed collectively, provide senior military leaders a means to ensure unity of effort, create and sustain synergy, and adapt operations accordingly.

Mutual Trust

A commander's ability to gain and maintain mutual trust in a mission partner environment is one of the many challenges senior military leaders face when conducting MDO. The very foundation of mutual trust is anchored in the assumption shared values, beliefs, and norms are synonymous with shared or common desires. According to Jean-Jacques Rousseau, an eighteenth-century philosopher, trust is "a psychological state comprising the intention to accept vulnerability based upon positive expectations of intentions."¹⁶ Though many definitions of trust exist, Rousseau's characterization seems most applicable to mission command as a command and control approach because the definition links behavior to trust as a result of shared understanding.

Shared experiences and authentic interactions naturally foster mutual trust; conversely, spurious or false interactions quickly undermine relationships, causing mistrust and a misalignment of goals. Strong relationships among senior leaders, other mission partners, and subordinates emerge through positive interactions, thereby resulting in increased trust. Senior leaders have the inherent responsibility of creating an efficacious environment that facilitates positive subordinate, peer, and coalition and interagency mission partner relationships both internal and external to the leaders' organizations. Leaders must also be willing to listen to others, seek to understand diverse interpretations of the operational environment, and aggressively find ways to move past points of friction that are detrimental to establishing and maintaining trust.

The ability to establish mutual trust at the strategic level can prove more challenging in comparison to the tactical and operational levels because strategic-level organizations are diverse in terms of organizational construct, composition, rank, and experience.¹⁷ As a result, establishing mutual trust at the strategic level takes time because trust is rooted in shared experiences, authentic interaction between individuals, shared understanding of overarching goals, and the associated risks related to those goals.

Developing mutual trust when conducting operations below the threshold of armed conflict is imperative, particularly given the risk of adversary miscalculation and the

15. HQDA, *Mission Command*, viii.

16. Roy J. Lewicki and Beth Polin, "Trust and Negotiation," in Hillary Anger Elfenbein, *Handbook of Research on Negotiation*, ed. Mara Olekalns and Wendi L. Adair (Cheltenham, UK: Edward Elgar Publishing, 2015), 162.

17. Joseph L. Votel, "Commander's Briefing to the Army War College Class of 2019" (speech, US Army War College, Carlisle Barracks, PA, February 3, 2019).

threat of escalation into armed conflict. This requirement becomes even more daunting in a coalition environment. Coalition partners bring a wealth of knowledge and a litany of different perspectives to managing complex problems, and, for this reason, the cross-pollination of ideas and the need for shared understanding remain paramount. But differences in cultural beliefs, national values, and interests necessitate the need for greater clarity when conducting coalition and partnered operations. Similarly, the need to create shared understanding when evaluating risk and leader actions and identifying a common, desired, strategic end state is essential to mission success. Furthermore, senior leaders must understand how individual and organizational biases can hinder decision making when operating with mission partners.

Shared Understanding

Shared understanding among mission partners allows senior military leaders to nest strategic objectives with national interests through consensus building. Building and maintaining consensus with subordinates and mission partners allows organizations to create shared understanding, which in turn enables empowerment and timely decision making. This degree of shared understanding expands a senior leader's level of awareness of the environment, thereby enabling the organization to become more attentive to decisions and the resulting consequences in the operational environment.

Votel described this type of leadership interaction with subordinates and partners as "command and feedback," a process in which commanders overcommunicate their perspectives, both vertically and horizontally, to facilitate shared understanding.¹⁸ Through this process, mission partners and subordinates genuinely start to learn and understand the true meaning of shared understanding, or what Votel calls "the alignment of ideas."¹⁹

Shared understanding also increases the speed at which strategic decisions occur when countering adversarial actions. But if shared understanding is convoluted by ambiguity, then confusion results and strategic risks are amplified. Therefore, leaders must help to reduce friction by adding clarity to an already overly complex environment through the activities of understand, visualize, describe, direct, lead, and assess.²⁰

Senior military leaders involved in planning and executing MDO below the threshold of armed conflict must create shared understanding with mission partners of a number of factors of influence, including national interests, the nature of the problem, and national-level constraints or caveats on the use of military force. A failure to create and sustain shared understanding of these factors can create friction and misunderstanding at multiple echelons and negatively impact the effective use of military force.

In a mission partner environment, nations working together in response to complex global challenges often have divergent national interests with varying degrees of intensity and can experience difficulty achieving consensus on the nature of the problem. Though the sources of conflict related to a strategic problem vary, the impact or effect of

18. Votel, "Commander's Briefing."

19. Votel, "Commander's Briefing."

20. HQDA, *Mission Command*, 2-24.

those factors on a nation's interests can fundamentally change the nature of the problem and create challenges for military planners during the development of military strategy and operational plans to achieve national objectives.

This dynamic becomes particularly challenging if a nation is a member of a long-standing alliance (like NATO) because the nation's desire to maintain the integrity and legitimacy of the alliance might conflict with the perceived need to act in concert with and in support of the desires of other allies. Glenn Snyder, one of the most prominent scholars on international relations, describes this strategic circumstance as entrapment and abandonment, in that a state actor may become entrapped in the interests of another state actor over fear of that actor abandoning it in other times of crisis.²¹ For example, divergent national interests between NATO allies in relation to recent conflict in Libya combine to explain the perceived degree of initial reluctance on the part of the United States to support the intervention. Libya is often viewed by the United States through the lens of other important national interests in the greater Middle East region, such as terrorism, human and drug trafficking, and failed or failing governance.²² Although these types of conditions pose a threat to US national interests, the intensity level of those interests in Libya is relatively low for the United States. Conversely, for Italy, Libya is of paramount concern (significant national interest) politically, economically, and socially, given Tripoli's geographic proximity to Italy and the influx of refugees from Libya into Italy.²³ Accordingly, divergent national interests between Italy and the United States explain the different roles each nation has fulfilled in the context of Libya, in that the United States has assumed more of a supporting role in comparison to Italy's leadership role.

In addition to being cognizant of divergent national interests, senior leaders must gain a shared understanding of different national-level restrictions that govern the use of military force among partner nations. Often, the application of these caveats is consistent with national interests—that is to say, the intensity of interests will likely underscore the application of the caveat. In an article titled "National Restrictions in Multinational Military Operations," author Patrick Mello describes three types of restrictions or caveats: structural, procedural, and operational.²⁴

Structural restrictions are the most rigid form of caveats and are often codified in a partner nation's constitution or mandated in law. These types of restrictions can limit or prevent the use of military force without an internationally recognized mandate, such as a UN resolution. Nations may also require the establishment of internationally recognized organizational frameworks, such as NATO or the EU, before committing military forces and capabilities in support of coalition operations.

Procedural restrictions center on a nation's governing processes for the authorization of military force. For example, the use of military force in many nations may be bounded

21. Glenn H. Snyder, "The Security Dilemma in Alliance Politics," *World Politics* 36, no. 4 (July 1984): 2.

22. Karim Mezran and Arturo Varvelli, *Foreign Actors in Libya's Crisis* (Milan: Istituto per gli Studi di Politica Internazionale, July 24, 2017), 13–23.

23. Mezran and Varvelli, *Foreign Actors*, 13–23.

24. Patrick A. Mello, "National Restrictions in Multinational Military Operations: A Conceptual Framework," *Contemporary Security Policy* 40, no. 1 (July 2018).

by constitutional requirements or governmental practices that require permission or approval by a legislative or other governing party. Importantly, these processes and procedures vary greatly among most democratic nations, and, accordingly, creating a shared understanding of these procedures is an important precursor during the planning portion of military operations. In the United States, for example, the War Powers Act, which limits the president's authority to commit US military capabilities, falls into this procedural category.

The last type of restriction is the operational category, more commonly referred to as "caveats." This category includes a nation's rules of engagement on the use of military force and has the most tangible impact on the development of operational plans and strategies. For example, some nations limit the employment of military forces to defensive operations or static security to mitigate the risk of losing political support for a specific operation. Other caveats include limitations on the types of munitions employed by military forces, the instances in which deadly force is authorized, and the handling of enemy prisoners of war. Importantly, all nations place restrictions or caveats on the use of military force; as a result, senior leaders must create a shared understanding of those caveats and leverage the capabilities of all mission partners, as opposed to viewing caveats in a negative or pejorative manner.

Disciplined Initiative

Enabling initiative during the conduct of MDO below the threshold of armed conflict is challenging for senior leaders. A senior military leader's ability to promote initiative requires subordinates' activities and goals to be precisely aligned with national strategy, including a mutual appreciation of the associated risks. Through the alignment of goals and ideals, subordinates are empowered to act based on a leader's intent, as opposed to haphazardly responding to an adversary's actions. Subordinates and mission partners require a degree of autonomy to make decisions in the best interest of broader strategic outcomes; however, these decisions must be commensurate with the subordinates and mission partners' level of responsibility. Decisions exceeding one's level of authority must be vertically and horizontally communicated to mitigate adverse effects in other domains and the possibility of adversary miscalculation.

At the national strategic level, enabling initiative during operations short of armed conflict is a risky proposal given the heightened risk of escalation into armed conflict. As a result, political and senior military leaders may revert to a more centralized or directive, command and control type of approach during these types of operations. But enabling initiative and empowering subordinates within the confines of a well-articulated intent and a shared understanding of the strategic context allow senior leaders to operate "at the speed of the problem" and to exploit emerging opportunities. At the strategic level, senior military commanders tangibly enable initiative through the delegation of authorities and clearly established command relationships and through the allocation of resources and capabilities at the appropriate echelon.

Senior military commanders and their staffs must become knowledgeable about and understand how to leverage the types of mission-essential authorities available. Next, commanders and their staffs must determine how those authorities can best enable

disciplined initiative and create shared understanding vertically between subordinate commands and horizontally with mission partners on the best ways to use those authorities in the context of operations short of armed conflict.

Traditionally, military-centric authorities at the strategic level are inherent in the large and diverse category of authorities provided for in Title 10 of the United States Code and in the case of combatant-level commanders, as expressed in the Goldwater-Nichols Act of 1986. Two of the most commonly used authorities are direct liaison authorized, more commonly known as “DIRLAUTH,” and coordinating authority. These authorities provide subordinates the freedom to coordinate mission requirements with other stakeholders before and during the execution of planned operations and, importantly, to enable subordinates to build relationships, deconflict operational friction, and create shared understanding of the operational environment, risks, and friendly unit capabilities.

At the strategic level, a commander’s understanding of authorities must expand beyond traditional military-centric authorities outlined and described in Joint doctrine. In a mission partner environment, understanding authorities related to interagency and coalition partners and how those authorities affect operations across multiple domains is critical. As such, the need to fully integrate mission partners early during planning processes is critical. Similarly, senior commanders must understand how national-level policies and laws also serve as authorities. For example, National Security Presidential Memorandum 13 recently granted the secretary of defense greater authority over the use of offensive cyber capability in response to recent trends in cyberattacks against US entities. Importantly, senior leaders must understand that many critical capabilities that enable subordinates to act decisively across multiple domains in many cases are tightly managed national-level assets, thereby limiting their delegation and employment at echelons below the corps level. This challenge is even more significant below the threshold of armed conflict. Accordingly, the synchronization of these types of assets across echelons is critical.

In addition to authorities, senior military commanders enable initiative and empower subordinates through the establishment of clear command relationships. Most commonly, senior commanders use three broad types of command relationships to enable disciplined initiative: operational control, tactical control, and supporting to supported command. Among these command relationships, the supporting to supported command relationship fits well into the philosophy of mission command and is heavily dependent on the establishment of mutual trust, shared understanding, and the ability of the supporting commander to anticipate the subordinate commands’ emerging needs. Strong supporting to supported command relationships provide subordinate commands the ability to exercise initiative, enable flexibility, and quickly adapt to rapidly changing strategic and operational conditions. By establishing a supporting to supported command relationship, critical capabilities are not fixed within a certain command relationship, as is the case in an operational control or tactical control relationship. Rather, the critical capabilities can be dynamically provided in a timely manner. A mutual supporting command relationship may be a preferred method of employing the mission command approach because it allows for maximum initiative for both commands.

In comparison to a supporting to supported command relationship, operational control provides commanders, via authority, broad control over capabilities and allows commanders to employ those capabilities in support of operations without significant delay or detailed coordination between commands based on emerging requirements. Conversely, tactical control limits the employment of capabilities within the context of a specific tactical task or mission.

Finally, senior military leaders empower subordinates through the allocation of resources and capabilities as appropriate to empower subordinates to enable and shape operations quickly and operate “at the speed of the problem.” In the context of MDO short of armed conflict, commanders and staffs must assess the situation and determine the echelon at which critical capabilities must reside. These capabilities include, but are not limited to, air space control and coordination, intelligence collection, electromagnetic-spectrum assets, and the communications architecture and personnel required to employ these types of capabilities.

Risk Acceptance

Accepting risk can be defined as “a deliberate exposure to potential injury or loss when the commander judges the outcome in terms of mission accomplishment as worth the cost.”²⁵ Senior leaders accept risk when an organization pursues an action despite the hazards and the potential for loss to achieve the desired outcome. To accept risk, senior leaders must create a shared understanding of potential friendly and adversarial actions, the probability of success or failure, and the resulting consequences of both potential outcomes. The dyadic relationship between mutual trust and shared understanding allows leaders to accept risk while pursuing national objectives. A senior military leader’s ability to accept risk remains problematic when conducting MDO short of armed conflict because the opportunity for adversary miscalculation is grossly amplified, which can cause subordinate leaders and mission partners to become indecisive. As such, senior military leaders and their subordinates must clearly understand the implications of their actions and the ways in which those actions could prove counterproductive to national strategy or result in adversary miscalculation.

Senior military leaders also require an extensive amount of latitude and authority when conducting operations below the threshold of armed conflict. Through effective communication and use of the Joint planning process, senior military leaders can empower their subordinates and accept risk when codified strategic parameters are in place. Senior military leaders must also determine where and how risks are to be managed as well as by whom in relation to domains and echelons. Furthermore, senior military leaders must be willing to assume increased risk to enable subordinates to pursue national objectives short of armed conflict. Votel described this leadership requirement as “the zone of risk management” and the point at which senior military

25. Douglas M. McBride Jr. and Reginald L. Snell, “Applying Mission Command to Overcome Challenges,” *Army Sustainment* 49, no. 1 (January–February 2017).

leaders are prepared to underwrite risk based on mutual trust, mission requirements, and the strategic environment.²⁶

Votel's command and feedback decision-making tool can also be used to manage the complexities of risk through open and proactive communication and by exhibiting trust, which ultimately results in increased subordinate autonomy. This type of autonomy, coupled with authentic interactions between leaders and subordinates, often fosters a willingness by both subordinates and leaders to accept risk.

At the strategic level, and particularly in the context of operations short of armed conflict, risk identification, management, and mitigation broadly center on the probability of success of a given course of action or decision, the resulting consequences, and the ways in which those consequences vary between different stakeholders in relation to interests and strategic outcomes. As such, traditional risk management processes such as the composite risk management and the operational risk management processes, which center more on identifying hazards to the force, environmental factors, subordinate experience levels, and ways to mitigate those hazards, are not independently sufficient in relation to risk in the context of MDO short of armed conflict. These types of operations require senior leaders to expand their analysis and understanding of risk to include how risks are layered or linked between echelons and domains.

In broad terms, the idea of layered risk centers on understanding how a risk identified in one domain also poses risks to operations within other domains and between echelons. For example, as military planners consider options for the use of cyber capabilities to counter adversary actions that threaten friendly electromagnetic-spectrum access, the planners must understand the risk those options pose across all domains and echelons. Equally as important is the need to analyze and assess the feasibility of allocating resources and delegating authorities for the employment of military and other national-level capabilities at echelons below the combatant command or Joint task force level. This type of analysis is essential when considering the degree of acceptable empowerment to provide during operations below the threshold of armed conflict.

CONCLUSION

As state and nonstate actors seek to increase their relevance, they will continue to operate below the threshold of armed conflict. Historically, these actions have not warranted a military response from the United States, a pattern which encourages adversaries to continue pursuing nonlethal and asymmetric means to achieve their strategic objectives. Operations below the threshold of armed conflict continue to present many challenges for senior military leaders and national security professionals concerned with the defense of the nation. Near-peer adversaries such as Russia and China continue to oppose the United States, its allies, and its partners by undermining established international norms to achieve their strategic objectives in various parts of the world. These adversaries are very skilled at executing these operations. As such, senior military leaders must become proficient at applying the principles of mission command when conducting MDO—especially, OIE below armed conflict.

26. Lafran Marks, *Challenges Facing Combatant and Joint Force Commanders* (Carlisle, PA: US Army War College, February 9, 2019), 5.

The international security environment described throughout this study places a premium on a senior military leader's ability to apply the principles of mission command—specifically, fostering mutual trust, creating shared understanding, executing initiative, and accepting risk in support of MDO short of armed conflict. At its core, the mission command approach remains predicated on empowering subordinates, regardless of the level and construct of the organization. Often, senior military leaders find themselves leading extremely diverse organizations, making the application of these principles even more challenging.

As senior military leaders and planners wrestle with the challenge of integrating and synchronizing MDO short of armed conflict, the development of an MDO synchronization process or system enabled by the mission command principles of creating shared understanding, enabling disciplined initiative, and accepting risk is warranted. This type of process also better enables commanders to drive the planning and execution process through the activities of understand, visualize, describe, direct, lead, and assess. At a minimum, the process should include

1. the alignment of actions and operations within and across designated domains with the national strategic objectives of all mission partners;
2. the identification of the appropriate echelon or headquarters responsible for command and control of the action;
3. the delegation of required authorities and the allocation of resources required to enable the action;
4. the commander's critical intelligence requirements needed to support and enable key decisions related to the action; and
5. the identification of risks and how those risks are layered between and across domains.

CHAPTER 5. ENHANCING MISSION COMMAND IN MULTI-DOMAIN OPERATIONS: THE MULTI-DOMAIN OPERATIONS SYNCHRONIZATION PROCESS

The Army and Joint Force require a new, integrating operational process for executing multi-domain operations (MDO) from cooperation to competition and large-scale ground combat operations (LSGCO). This chapter describes the essential characteristics for a new integration process, the multi-domain synchronization cycle (MDSC). The proposed MDSC is an integration process that cognitively looks across all domains in specific increments of time. A commander's intent specific to a certain time period drives the process of determining appropriate actions and the allocation of resources within the MDO framework to create convergence at echelon. Cyclically repeating the MDSC maintains a persistent and unified effort in achieving overarching campaign objectives while incorporating changes in the operational environment (OE) with each subsequent iteration of the cycle. The MDSC functions at echelons above brigade (EAB), primarily at the Joint task force (JTF), Joint Force land component command, and Army service component command or theater army headquarters (HQ) level.

CONCEPTUALIZING A MULTI-DOMAIN OPERATIONS INTEGRATION PROCESS

The proposed MDSC is an integrating staff process that habitually synchronizes and coordinates directly with operational-level HQs. Because MDO requires coordination and synchronization across domains and, therefore, with other services, Army elements involved in cross-domain and multiservice coordination will likely need to adopt the same type of integration process as their parent HQs. As the Army further develops concepts for future formations such as operational-level and theater-level fires commands that include cross-domain capabilities and coordination responsibilities, these organizations must adopt the same MDO integration processes as their parent HQs.

One of the primary tenets of MDO, the convergence of capabilities by echeloned formations drives the need for a new integration process. The Army MDO concept states, "Convergence is rapid and continuous integration of capabilities in all domains, the [electromagnetic spectrum], and information environment that optimizes effects to overmatch the enemy through cross-domain synergy and multiple forms of attack all enabled by Mission Command and disciplined initiative."¹ The challenges facing commanders is gaining this convergence and establishing HQs at various echelons and in different services to synchronize and coordinate efforts.

Army Doctrinal Publication (ADP) 5-0, *The Operations Process*, describes integration processes for Army operations. But no integration process has been developed to enable commanders and staffs to implement fully the tenets of MDO. Commanders and staffs must look across the entire Joint Force to leverage MDO capabilities that do not reside within their component or force structure, up to and including those owned by global combatant commanders or national-level assets or authorities. This circumstance is particularly true in the context of competition below armed conflict.

1. US Army Training and Doctrine Command (TRADOC), *The US Army in Multi-Domain Operations 2028*, TRADOC Pamphlet 525-3-1 (Fort Eustis, VA: TRADOC, December 6, 2018), vii.

The Army MDO concept identifies the need to improve current processes if the Joint Force is to achieve the necessary convergence. According to US Army Training and Doctrine Command (TRADOC) Pamphlet 525-3-1, the Joint Force currently relies on the “episodic synchronization of domain-federated solutions.” But the Joint Force will need to develop the capacity to “conduct continuous and rapid integration of multi-domain capabilities enabled by mission command and disciplined initiative against near-peer threats in the future.”² The need to synchronize continuously and rapidly and integrate the efforts of various echelons and services presents a challenge that could overwhelm current staff processes; thus, the development of a new integration process is justified.

According to ADP 5-0, staffs facilitate synchronization, coordination, and integration by establishing and following the unit’s battle rhythm.³ The problem lies with the Joint Force’s lack of a standardized battle rhythm. By adopting the MDSC, commands would follow the same overarching logic and order to their events, even if they operated at different tempos. A standardized cycle with the same number of steps or phases becomes easier to synchronize, even when organizations use different increments of time as their base measures. One unit may execute a 24-hour daily increment cycle, while another may use a 10-day one, but the units will coordinate and synchronize effectively because they are able to nest their battle rhythm and the timing of inputs, outputs, and deliverables. Therefore, the first key characteristic of the MDSC is it must be cyclical and follow specified time increments. Shortening or lengthening the time increments according to the pace of operations provides flexibility.

The Joint air tasking cycle (JATC) provides an example of a similar process. Doctrinally, the JATC produces an air tasking order (ATO) that covers a 24-hour period of operations and is planned, executed, and assessed with a 5-day battle rhythm. That rhythm, based on 24-hour time increments, supports full-scale major combat operations. For example, based on one of the authors’ experiences, a numbered air force not currently overseeing 24-hour air combat operations produces a 2-week-long ATO to cover the requirements of steady-state missions necessary to meet an enduring mission. Within that 2-week ATO, a smaller, mission-specific ATO based on a 24-hour period can be developed to support a training exercise. Meanwhile, elsewhere in an area of responsibility, a numbered air force, with fewer assets but greater potential threat, may choose to execute a 7-day ATO in support of its steady-state missions, but may rapidly transition to a 24-hour ATO in support of major training exercises or based on a provocation.

Because of the JATC’s well-defined cyclical nature, even when various echelons of HQs operate in different time periods, they still effectively synchronize and coordinate efforts. An appropriate analogy would be an alarm clock: the second, minute, and hour hands move at separate speeds, but they inevitably align once per cycle for a concerted effect (such as chiming at the top of every hour). Different air operations centers (AOCs) can effectively nest their JATC cycles with each other because they all follow the same battle rhythm, even if their time periods scale up or down as their current OE dictates.

2. TRADOC, *Multi-Domain Operations*, x.

3. Headquarters, Department of the Army (HQDA), *The Operations Process*, Army Doctrinal Publication (ADP) 5-0 (Washington, DC: HQDA, July 31, 2019), 1–14.

In comparison, most Army HQs cannot easily nest battle rhythms across echelons, particularly adjacent commands not under operational control or tasking authority. Considerable “coordination fratricide” occurs as commands try to operate their own unique battle rhythms. Adopting a common, cyclical, integrating MDO process would greatly enhance coordination and synchronization. In practice, the highest echelon of command sets the minimum frequency or tempo of the MDSC, such as a 10- or 15-day time increment, within the combatant command (CCMD), JTF, or theater-level component command. Subordinate echelons may choose to execute the cycle in smaller time increments based on their operational needs, but they would not adopt a time increment for their MDSC that was longer than their higher echelon’s time increment.

The MDO integration process does not have to include all cross-functional organizations, such as boards, bureaus, centers, cells, and work groups from every warfighting function (WfF). To preserve the free execution of mission command principles at each echelon of command, an integration process for MDO potentially has just enough common coordination points necessary for creating synergy and convergence. The HQ activities and functions most driven by the tenets of MDO (calibrated force posture, multi-domain formations, and convergence) should provide the basic parameters for determining whether a cross-functional organization belongs within the cycle of an MDO integration process.⁴

Army MDO introduces the concepts of time and cycles to achieve convergence of capabilities at the right time and place. The MDO concept outlines five elements—preparation time, planning and execution time, duration time, reset time, and cycle time—to visualize a capability cycle that describes when and how often a capability is available for use.⁵ Additionally, four domain capability cycles must be carefully managed. The ground, air, maritime, and enduring virtual weapons (cyberspace, space, and electronic warfare) cycles have varying time frames specific to each capability. Commands must balance these different capabilities’ cycles to have them converge in time and space.⁶ Additionally, some low-density capabilities are only used when and where they have the highest payoff.

KEY CHARACTERISTICS OF A MULTI-DOMAIN OPERATIONS INTEGRATION PROCESS

An MDO integration process has four key characteristics. The first characteristic is a cycle based on specific increments of time set by the commander. The second key characteristic is each increment of time has an updated commander’s intent specific to that time period. As noted above, the convergence of capabilities in MDO is enabled by mission command and disciplined initiative. An MDO integration process is commander-centric, not staff-centered, and focused on obtaining specific outputs. The MDO frameworks envision that subordinate echelons may operate semi-independently

4. TRADOC, *Multi-Domain Operations*, 17.

5. TRADOC, *Multi-Domain Operations*, C-7.

6. TRADOC, *Multi-Domain Operations*, C-7–C-8.

in command-and-control-degraded environments and must operate effectively within the higher commander's intent.⁷

The driving of synchronization and coordination efforts by commander's intent is not new; key parts of an HQ battle rhythm are times at which commanders vocalize guidance and intent. But ensuring everyone receives and understands the latest guidance and intent routinely challenges staffs. The best means by which to accomplish this goal is to issue commander's intent formally within each iteration of the MDO integration process. The basic framework for an MDSC describes this issuance process.

The third key characteristic necessary for an effective MDO integration process is it must operate effectively across the competition continuum and not just for LSGCO. Appendix E of TRADOC Pamphlet 525-3-1 outlines the linkages between the Army's MDO and Joint concepts.⁸ The linkage between Army MDO and the *Joint Concept for Integrated Campaigning* is particularly important. The Joint concept's central idea is the Joint Force must continually campaign across the cooperation and competition spectrum below armed conflict in addition to executing major combat operations.⁹ Additionally, appropriate authorities are pushed down so formations can leverage cyberspace and electromagnetic-spectrum capabilities to shape the information space. The total of these activities creates cognitive uncertainty in an adversary, allowing the Joint Force to achieve gains in the competitive space.¹⁰

The fourth key feature of a proposed MDO integration process is it must integrate the full range of Army force activities with multi-domain activities guided by the Joint targeting cycle (JTC) and the JATC by adopting a similar, time-based approach to a plan, execute, and assess operations process. The JTC and JATC are well-nested and mutually supporting, operational-level processes used to integrate capabilities from multiple services and across domains.¹¹ The use of these two cycles will continue to govern the synchronization and coordination of many of the capabilities (intelligence, surveillance, and reconnaissance; fires; electronic warfare; space; cyber; etc.) that compose MDO. The two cycles are also always being used within the theater AOC to determine day-to-day operations, regardless of the environment. Converging capabilities to generate cross-domain synergy and layered options, the central idea of the Army MDO concept, will require a common paradigm for thinking about when actions occur and where the force is at any moment in time.

Army forces refer to the current time or day in relation to a linear time line and using a specific reference point, such as "C-Day," "D-Day," or "H-hour." The JATC uses a different time-telling construct for air components than Army forces use. Within an AOC, everything operates on a common cycle. Time is not just the current day on

7. TRADOC, *US Army Concept: Multi-Domain Combined Arms Operations at Echelons above Brigade 2025–2045*, TRADOC Pamphlet 525-3-8 (Fort Eustis, VA: TRADOC, December 6, 2018), 27–28.

8. TRADOC, *Multi-Domain Operations*, E-1–E-2.

9. See Joint Chiefs of Staff (JCS), *Joint Concept for Integrated Campaigning* (Washington, DC: JCS, March 16, 2018), v–vi.

10. TRADOC, *Multi-Domain Operations*, 29, 35.

11. JCS, *Joint Air Operations*, Joint Publication (JP) 3-30 (Washington, DC: JCS, July 25, 2019), III-15–III-17.

the linear time line; it is also the current cycle day for a given ATO. The JATC battle rhythm construct (figure 5-1) serves as an excellent template for common references to actions in time. In this template, planning, coordination and synchronization, and execution and assessment occur concurrently and continuously.¹² At any given time, five ATOs are in an active stage of development, execution, or assessment within a single, operational-level HQ.

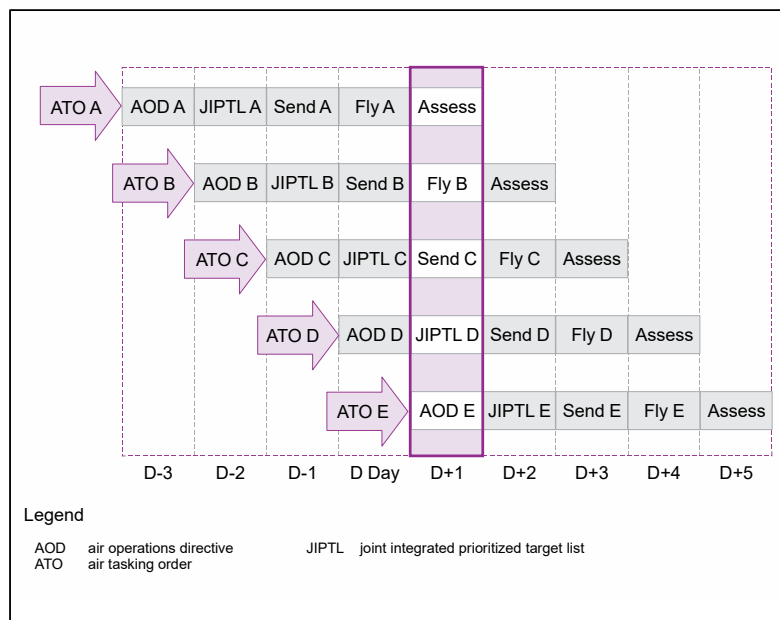


Figure 5-1. Joint air operations center air tasking order battle rhythm

(US Joint Chiefs of Staff, *Joint Air Operations*, Joint Publication 3-30 [Washington, DC: US Joint Chiefs of Staff, 2019], III-21)

Staffs at HQs executing the Army operations process and the JATC essentially perform the same actions: planning, executing, assessing, and then repeating as necessary. Currently, the process Army HQs use and the process AOCs use diverge considerably because the JATC is very time-oriented, whereas the Army focuses on the timing of conditions-based events. But, to generate cross-domain synergy effectively, a Joint Force or Army HQ must adopt a similar, time-based, cyclic operations process as well as the ability to visualize and manage cognitively multiple concurrent iterations of the cycle.

To gain cross-domain synergy for the Joint Force, Army MDO HQs need to understand the JATC and engage the AOC staff teams executing it at the appropriate time in the cycle. A good MDO integration process mirrors the JATC in cognitively managing multiple concurrent, time-based iterations of a cycle. In addition, a good MDO integration process follows similar procedural steps, in effect supporting the mutual parallel planning, execution, and assessment of operations within the common time reference. Furthermore, a good MDO integration process incorporates all four key

12. JCS, *Joint Air Operations*, III-20–III-21.

characteristics described above in a time-based cycle, nested with the JATC, driven by commander's intent, and applicable across all frames on the competition continuum. The next section outlines an example of an Army MDO integration process using the MDSC.

THE MULTI-DOMAIN SYNCHRONIZATION CYCLE FRAMEWORK

The MDSC represents the effective and efficient employment of available cross-domain capabilities for synergistic effects toward achieving the Joint Force commander (JFC) and component commander's operational objectives. This process provides an iterative, cyclic process for the planning, apportionment, allocation, coordination, synchronization, and tasking of cross-domain capabilities within the guidance and intent of the commander. The cycle accommodates and responds to changes in the OE, tactical situation, or JFC guidance and intent and requests for support from other component commanders. Many of the MDSC stages and deliverables are not new or unfamiliar; rather, they are aligned and organized differently in sequence or pacing to enable coordination and synchronization more effectively.

In ideal conditions, the air component's AOC and land component's Joint Force land component command, theater army, and field army HQs execute the JATC and MDSC processes in parallel. The Joint Force HQ adopts the process to integrate and converge non-DoD, interagency, and multinational capabilities into a full multi-domain concept of operations (MDCO). Maritime component HQs may or may not adopt a process like the MDSC; however, many maritime component capabilities are already scheduled, synchronized, and coordinated via the JATC process. Therefore, this chapter focuses primarily on air and land component processes.

The proposed framework functions best when the JATC and MDSC are using a common base increment of time for the operating period (24-hour, 5-day, or 10-day period based on OE conditions) and when the battle rhythms of each HQ are in sync and share common turnover times. The two components should synchronize and coordinate with each other throughout the process, with direct liaison authorized. The Army battlefield coordination detachments and air and missile defense command elements colocated with the AOCs serve as key facilitators and executors of synchronization, coordination, and liaison. But to fully maximize the tenets of MDO, these organizations must receive additional liaison officers (LNOs) (such as corps, divisions, marine forces, or coalition partners) or have more decision-making authority.

The MDSC enables commanders and staffs to improve the day-to-day execution of operation-level warfighting by identifying and leveraging opportunities for the convergence of capabilities to generate cross-domain synergy and multiple options for the commander. The MDSC does not replace the current staff integration processes, such as the military decision-making process. The planning within the MDSC is not a substitute for the detailed planning processes already in use by C/J/G5 divisions (plans) or C/J/G35 divisions (future operations). The process aids in establishing or confirming triggers and conditions; identifying the necessary support from other domains or components; and determining the necessary enabling tasks, control measures, and requirements in a given operating period. Additionally, the MDSC focuses on the near term and the time horizons of current operations.

Like the JATC, the MDSC process begins once CCMD and theater-level component campaign plans have been completed and issued. Cooperation and competition include component campaign plans, theater cooperation plans and exercise programs, and contingency plans. Crisis action planning should produce at least a partial outline of potential component-level contributions to theater-specific flexible deterrent options, flexible response options, strike options, or direct-action options the CCMD commander wishes to maintain in readiness, if not fully formed plans or standard operating procedures to support these initiatives. For large-scale armed conflict, the command initiates a numbered operations plan, and Joint planning groups develop necessary branches, sequels, and contingency plans.

The commander establishes the duration of the current operation period based on his or her assessment of the OE, consultations with a higher JTF/CCMD commander and fellow component commanders, and recommendations from staff. During major combat operations or large-scale conflicts, the current operation period will likely be 24 hours. When the theater is engaged in steady-state operations, the operations time horizon may increase to 3, 5, 7, or 10 days. During a crisis or contingency in a specific portion of the theater, the commander can direct either the entire theater or a mission-specific crisis action team to operate within a faster-paced, shorter-duration operation period. All steps of the MDSC last for the same duration as the current operation period for a consistent, synchronous battle-rhythm cycle, and the MDSC ultimately produces an MDO order (MDOO) that covers actions occurring within the current operation period, much like the JATC results in an ATO that covers a specific time period.

Within the JATC, ATOs are referred to using sequential one- or two-letter designations to denote each ATO's current operation period relative to a linear time line of ongoing operations. For example, ATOs AA, AB, and AC would correspond to D-Day, D+1, D+2, etc. The MDSC adopts a similar time construct in which ATO AA and MDOO AA refer to the same time period on a linear, sequential, D-Day-style time line or calendar. For simplicity, this chapter uses a 24-hour period, unless otherwise stated in a specific example.

The MDSC is a six-stage process that mirrors each stage in the JATC. These stages are: (1) commander's intent, objectives, effects, and guidance development; (2) target and message development; (3) MDCO development; (4) MDOO production; (5) execution; and (6) assessment. The current operation period refers to the time duration specific to stage 5 (execution), and the length of the current operation period dictates the battle rhythm cycle for the entire MDSC. The MDSC follows a battle rhythm comparable to the JATC in that multiple iterations of the cycle are occurring concurrently. Figure 5-2 provides a graphical representation of a 24-hour-based MDSC battle rhythm.

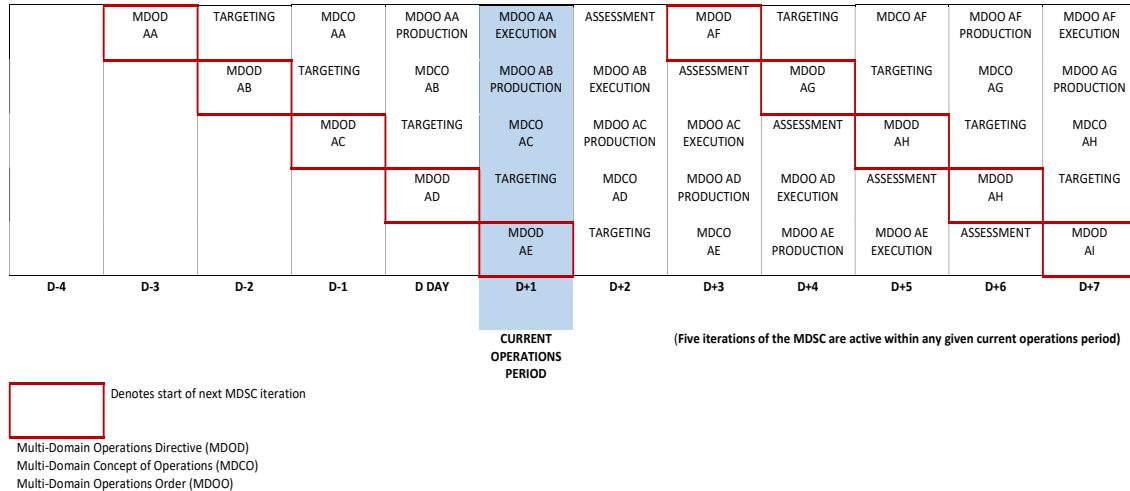


Figure 5-2. Notional, 24-hour-based multi-domain synchronization cycle battle rhythm

A description of each stage of the MDSC and its alignment with the comparable JATC stage follows. Descriptions of the JATC stage are based on chapter 3 of Joint Publication (JP) 3-30, *Joint Air Operations*.¹³

Stage 1: Commander's Intent, Objectives, Effects, and Guidance Development

The first stage

- provides an iterative update to the commander's intent based on the current assessment of the OE;
- incorporates updates to guidance, objectives, priorities, weight of effort, available capabilities, etc., as they apply to the next operation period in development;
- identifies the intermediate objectives that are the focus of operations during the applicable time period and the means the commander wishes to use to achieve the objectives;
- provides purpose and the desired end state or effect for cross-domain capabilities the commander wishes to employ, taking into consideration any limitations or constraints on availability for a given capability; and
- provides updates to potential risk considerations and guidance on the apportionment and allocation of resources in support of prioritization and weighting of effort.

The JFC makes apportionment decisions based on component recommendations and ensures priority of effort for domain capabilities remains consistent with campaign objectives. In MDO, the JFC can provide apportionment guidance for any domain capability in which capacity is a finite, limiting factor to determine how to divide that

13. JCS, *Joint Air Operations*, III-18–III-26.

capacity between mission types and objectives. The space, cyberspace, electromagnetic spectrum, and information domains have similar, finite capacities the JFC must consider apportioning to ensure effective employment. Within this stage of the MDSC, domain capabilities in support of land domain objectives receive further priority of effort and priority of support guidance for planning and employment by the ground component. The flexible and adaptable reallocation of cross-domain capacities is crucial to the successful execution of MDO. This stage only provides general planning guidance for the commander's desired allocation of capabilities between priorities and efforts; detailed refinement occurs in later stages.

The output of the first stage of the MDSC is the MDO directive (MDOD), which is disseminated throughout the staff and to adjacent and subordinate HQs. This dissemination facilitates disciplined initiative and parallel planning and empowers LNOs in their synchronization and coordination efforts across echelons, domains, and services, especially where coordination frequently involves a process of bargaining or competing for finite resources. An updated MDOD results in a staff better equipped to make smart usage of limited domain capabilities at the most appropriate time and place for maximum effect.

Stage 2: Developing Subordinate Objectives, Targets, and Messages

During this stage, the staff executes the necessary steps of the JTC—establishing linkages among objectives, desired effects, and potential targets and methods—and incorporates the output into the MDSC. The MDSC does not change how Army HQs execute their roles in the JTC and the supporting battle rhythm. But receiving an MDOD improves the prioritization of targeting efforts, especially because shortfalls in advanced target development capacity and the resources for and means of putting effects on target often exist. Target development incorporates the development of themes, messages, and narratives for nonkinetic targeting and nonlethal effects. During cooperation and competition, all actions by the ground component constitute strategic messaging. Therefore, this stage of the MDSC is not solely the province of the fires WfF.

During this stage, planners consider all WfFs and the impact of their actions on the strategic and operational messaging and narratives the commander wishes to advance. This stage includes the development of actions intended to influence the cognitive domain of allies and adversaries. Examples of such actions are flexible deterrent options and flexible response options, which involve multiple domains and WfFs and are executed to achieve such strategic and operational objectives as deterring adversaries, denying domain terrain to competitors, and reassuring allies.

This stage also includes the identification of the movement and maneuver, posturing, and positioning of force actions needed to enable effective targeting, delivery of effects, or leveraging of cross-domain capabilities. The US Navy outlines such a scenario in its littoral operations concept, in which ground maneuver by US Marine Corps forces is necessary to seize terrain and set preconditions for securing avenues of approach for naval forces to complete the destruction of an adversary's anti-access and area denial

network.¹⁴ Identifying that such a shaping operation is necessary to bring other domain capabilities to bear on a particular target set occurs during the target and message development phase; detailed planning occurs later.

Stage 3: Multi-Domain Concept of Operations Development

During the MDCO development stage, the staff produces and gains approval for an MDCO. Like the master air attack plan, the MDCO matches available resources and capabilities to targets or actions in support of messages. An MDCO is a comprehensive, holistic look at all cross-domain actions planned for or likely to occur within the given operation period. Major operations planned outside of the MDSC, such as corps or division combined arms maneuver operations, form the base of the MDCO, with cross-domain enabling and supported and supporting actions added in to create a cohesive, integrated, multi-domain scheme of maneuver and concept of support. An MDCO describes all major actions and activities from across domains and synchronizes them in time and space within the given operation period. Planners consolidate the output from the various WfF cross-functional organizations in the development of the MDCO.

The MDCO and master air attack plan must be planned in parallel so the staffs in each HQ maintain shared understanding of the others' intended concepts of operations. Therefore, the development of an MDCO is highly dependent on input from LNOs from domain, service, coalition/allied, and subordinate units. In addition to graphical depictions of the concept of operations, the MDCO includes proposed synchronization, coordination, and/or execution matrices. The matrices include proposed triggers (based on either time or conditions) for committing cross-domain capabilities as well as designating necessary authorities to the appropriate echelon or unit for execution specific to that time period. Once drafted, the commander approves the MDCO, which then becomes the basis for the development of detailed orders.

Stage 4: Multi-Domain Operations Order Production

In this stage, staffs refine the approved MDCO and produce detailed orders. The MDSC output in this stage is an MDOO in the form of a fragmentary order. A fragmentary order provides the necessary tasks to subordinate units and coordinating instructions to execute the MDCO, along with finalized, updated matrices, checklists, overlays, and annexes. Before the command disseminates the MDOO in its final form, LNOs work with planners to resolve any conflicts or contradictions with the ATO or other orders and ensure a shared understanding has been established among organizations. The command publishes the MDOO, allowing units enough time to conduct their own mission planning.

Stage 5: Execution

This stage involves the concurrent execution of the MDOO and the ATO for the given time period. The commander, either directly or via the G3 (operations), oversees

14. Department of the Navy and US Marine Corps, *Littoral Operations in a Contested Environment* (Washington, DC: Department of the Navy and US Marine Corps, 2017), 10–14.

the execution of the MDOO facilitated by the HQ's command and control or operations center. During operations, changes in OE dynamics require on-the-spot changes to the MDOO. The focal point for MDOO changes during execution is the HQ's operations center, and the commander or chief of staff may designate the establishment of an MDO cell (MDOC) within the operations center to centralize oversight, coordination, and decision-making recommendations.

The MDOC displays, monitors, and updates the common operating picture for the various domain capabilities, including the status, readiness, availability, and capacity of pertinent domain capabilities and platforms. The MDOC is therefore equipped with the necessary mission command systems and database access. The MDOC integrates with the dynamic targeting portion of the JTC and the necessary representatives of WfF, component, and domain capability staffs. The MDOC may use an existing structure, such as the division's Joint air-ground integration cell, as its base, and then receive augmenters as necessary to oversee MDO activities.

At the JTF/CCMD, theater, and field army level, the MDOC must be enduring rather than ad hoc, with a designated officer in charge to coordinate its activities. Commanders may direct the consolidation of representatives of domain capability staffs from various EABs into a single MDOC at a JTF/CCMD or theater army level, potentially colocating the MDOC with the AOC. For redundancy and continuity of operations, combatant commanders should also establish MDOCs in the Joint Force land component command and Joint Force maritime component command functional components and at multiple echelons for large-scale combat operations against near-peer competitors and where forward-positioned forces require more empowerment in the exercise of disciplined initiative within their areas of operations or responsibility.

Stage 6: Assessment

Assessment of the effectiveness of the MDOO occurs during and after execution and must be planned for in the preexecution stages of the MDSC. Measures of performance and measures of effectiveness developed during planning form the basis of MDO assessments, but new guidance within the MDOD may require modifications to or identification of new measures not covered in the original plans. The MDOO, which may include specific tasks in support of assessing a domain capability's effectiveness within the MDOO operation period, requires commanders to have a holistic and comprehensive understanding across domains.

To assess MDO sufficiently, HQs will require expanded assessment capability in terms of personnel and information system databases. Assessment teams will require interoperability between components' systems and more robust modeling and predictive analysis tools and systems than are currently available. Using such tools enhances the system warfare approach upon which MDO is explicitly based.¹⁵ Though it marks the end of an iteration of the MDSC, assessment is a continuous, ongoing process that drives planning and decision making.

Overall, the MDSC is an effective integration process for enabling the mission command of MDO. But current HQ structures are not suitably manned to execute the

15. TRADOC, *Multi-Domain Combined Arms Operations*, 32–33.

MDSC construct. In MDO, Army HQs must send and receive additional component and domain capability liaisons, regardless of whether the HQ adopts the MDSC process. Realigning the current manning positions within an operations center to create an MDOC is likely not possible without creating deficiencies elsewhere. To support the regular preparation and publication of an MDOD, MDCO, and MDOO, the G35 (future operations) divisions will require more WfF planners.

The Joint Force should also adopt one of the AOCs' best attributes, ATO managers, to facilitate the overall execution of the MDSC. The AOC assigns a manager as each ATO is initiated; this person is responsible for the ATO as it makes its way through the entire JATC process. The manager provides continuity as the ATO is handed off from one AOC division to the next and serves as the primary point of contact in the process. The manager ensures the JATC process stays on track, working out disagreements or conflicts that may arise between teams to maintain shared understanding. As such, managers are indispensable for the smooth functioning of a time-based cycle. Based on the experiences of one of the authors, often the manager is the lead planner for the development of the master air attack plan for the ATO. During the execution of their assigned ATOs, the managers serve as the battle major and sit next to the combat operations division chief (a G3 current operations division chief equivalent) to assist in ATO execution oversight and to make adjustments in reaction to dynamic changes in the OE. Managers participate in the assessment phase, consolidate recommendations for the next air operations directive, and ensure the proper archiving of ATO materials during all steps of the process.

The Army does not have a similarly designated staff action officer that maintains the continuity of a plan following the passing of the plan from one staff division to the next. Given the complexity of MDO, the Joint Force and Army HQs using the MDSC must use an MDOO manager as the lead planner and staff action officer for each iteration of the MDOO. The benefits of a designated point of contact for maintaining continuity of MDOO development and execution from start to finish are worth the additional manpower requirements.

CONCLUSION

The Joint Force needs an integration process that enhances the ability of EAB HQs to plan, coordinate, synchronize, and execute MDO effectively. Such a process must take a periodic and cyclic approach in which a revised commander's intent specific to the given time period drives each iteration. The process is suitable for execution across the spectrum of competition and conflict to enable the incorporation of various domain capabilities into the day-to-day operational execution of the overarching campaign or operations plan while following a timing and structure similar to the JATC to foster greater mutual understating, planning, and synchronization efforts, resulting in converging capabilities that generate cross-domain synergy.

The MDSC provides a suitable integration process for enabling mission command of MDO. The MDSC does not replace current staff procedures; rather, the cycle is an additional process that increases effectiveness in the development, synchronization, and coordination of an MDCO. The six-stage process mirrors each stage in the JATC and follows a comparable battle rhythm. Commander's intent and guidance in the form of

an MDOD drive the objective, targeting, and message development processes. The result is an MDCO that ties everything together into a cross-domain scheme of maneuver for supporting, enabling, and shaping actions. A suitably equipped and manned MDOC within an HQ's operations center oversees the dynamic execution of the MDOO while continuous assessment informs the next iterations of the cycle.

The MDSC has great potential to enhance mission command of MDO and enable staffs to execute its tenets effectively. The MDSC framework provides a solid starting point for experimentation. As HQs validate MDO concepts, the Army must introduce the MDSC as an integration process to assess the cycle's effectiveness. Outcomes from exercises can provide experiential data to support the adoption of the MDSC as a best practice or even the cycle's incorporation into doctrine. Even if commands did not adopt a version of the MDSC, experimentation would drive improvements to other MDO processes and best practices.

CHAPTER 6. MISSION COMMAND AND MULTI-DOMAIN OPERATIONS: SENIOR LEADER DEVELOPMENT IMPLICATIONS

The application of mission command principles in support of multi-domain operations (MDO) for armed conflict and operations short of armed conflict requires a well-developed set of senior leader competencies. This requirement is clear at the strategic and high operational levels, where senior leaders routinely integrate and synchronize military capabilities with other elements of national power and with mission partners to achieve national security objectives. This chapter examines the senior leader competencies needed to apply mission command in support of MDO. The competencies described in this chapter enable senior leaders to translate strategic (political) goals into military objectives and effectively communicate military advice to senior military and civilian leaders toward the development of policy and strategy affecting national security.¹ Recommendations on senior leader competencies are offered for senior professional military education (PME) leaders and curriculum developers.

Educated Army and Joint leaders, such as General Pershing in World War I, have provided the nation with a marked advantage over most adversaries and competitors. An integral part of this success is due to world-class leader development processes that imbue leaders with the competencies needed to adapt and win in complex security environments. These processes will become even more critical as the US military faces complex challenges in the current and emerging global security environment, which is highlighted by a nuanced state of constant competition.

JOINT PROFESSIONAL MILITARY EDUCATION

In fall 2019, General Mark Milley, chairman of the Joint Chiefs of Staff (JCS), initiated a new trajectory for Joint PME, including talent management. He initiated this policy because the profound and rapidly changing character of war and conflict in the twenty-first century compels the US military to transform its leader development to maintain the competitive advantage of the United States and successfully prepare for emerging ways of war. The aim of this initiative was the development of Joint warfighters who can think strategically, critically, and creatively; apply military power to inform national strategy; conduct globally integrated operations; and fight under conditions of disruptive change. This curriculum covers the conduct of Joint warfighting, at the operational to strategic levels, as all-domain, globally integrated warfare, including the ability to integrate allied and partner contributions.²

A potential way to implement this initiative would be to establish more specific PME and Joint PME, multinational, and interagency educational goals for all officers across their educational time lines by company grade, junior field grade (majors), senior field grade (colonels), and general/flag officer. These professional goals would be in the categories of branch and system specifics, service combined arms, Joint-domain/

1. US Army War College, *Theater Strategy and Campaigning Course Directive* (Carlisle, PA: US Army War College, 2018), 3.

2. Mark Schreiber, "Joint Professional Military Education" (PowerPoint presentation, 64th Joint Doctrine Planning Conference, Suffolk, VA, November 7, 2019).

multi-domain (all-domain) operations, multinational operations, and interagency and interorganizational activities. These recommended professional goals would be progressively enabled, from encouraging intellectual curiosity to initiating familiarity, to develop expertise, as shown in figure 6-1.

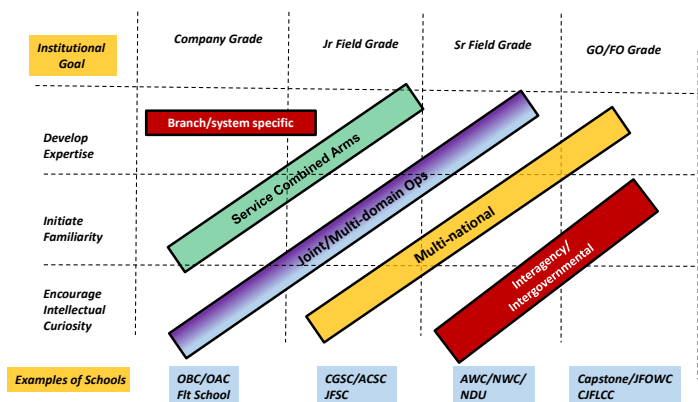


Figure 6-1. Education for multi-domain operations competencies

Descriptions of the roles senior leaders will fill may prove useful in determining the competencies they will need in applying mission command principles in support of MDO. In 2013, the US Army War College identified two categories of senior leader roles—persistent and mission-specific—with each category further divided into four roles. Persistent roles include steward of the profession, networked leader, resilient leader, and critical and reflective thinker. Mission-specific roles include strategic adviser and communicator, strategic planner, strategic theorist, and senior leader operating at the strategic level. The competencies examined and analyzed in this study are more relevant to the four mission-specific roles.³

In broad terms, competencies comprise knowledge, skills, attributes, and capacities that enable a leader to integrate and synchronize the elements of national power with mission partners and lead diverse organizations in a complex international security environment. This essential senior leader requirement is inherent in all of the above-mentioned senior leader roles. Given the context of MDO short of armed conflict, the inherent risk of miscalculation, and the threat of escalation, this study advocates senior leaders develop in-depth knowledge of the following areas: (1) geopolitics; (2) the use of military power to support national security objectives; and (3) theories of miscalculation and escalation. Equally as important is the need to develop strong communication, consensus building, negotiation skills, and cross-cultural competence. Collectively, these types of competencies allow senior leaders to apply mission command principles to plan, coordinate, and execute MDO at the strategic level.

3. Thomas P. Galvin, "Welcome to the Seminar" (lecture, US Army War College, Carlisle, PA, January 2018).

Geopolitics

Geopolitics is the analysis of modern-day international affairs through the study of history, geography, and culture. Understanding geopolitics provides senior leaders with a deeper and more comprehensive understanding of factors that influence state behavior and conflict between nation-states and allows the leaders to understand the nature of complex problems better. For example, though the modern-day conflict between Russia and Ukraine is in many ways linked to the threat of NATO expansion and Russia's desire to retain its naval base in Crimea, history, geography, and culture play a prominent role in thoroughly understanding this conflict.

Understanding geopolitics also allows senior leaders to create theoretical frameworks that describe the past and its relation to current security challenges and to envision a range of possibilities for the future. This analysis is an important precursor to the development of a range of military options that, when integrated with other elements of national power, provide options for achieving national security objectives. Knowledge gained through the study of geopolitics is also important because senior leaders strive to create shared understanding between mission partners on international security challenges, options for managing them, and the risks associated with those options.

The Use of Military Power

In an article titled "Military Power and the Use of Force," author John Troxell posits, "As important as military power is to the functioning of the international system, it is a very expensive and dangerous tool of statecraft."⁴ The article notes decisions pertaining to the use of military force "may be the most fateful a state makes."⁵ The thoughts conveyed by Troxell highlight the importance of senior leaders understanding the uses of military power, its limitations, and its associated risks.

As strategic advisers to senior national security professionals and policy makers, senior military leaders must first understand the US constitutional framework for the use of military force, which specifically codifies civilian authority over military authority and provides US citizens power through elected officials in determining conditions for the employment of military power. Strategic advisers must also understand how military force is best used to achieve military objectives short of armed conflict. In considering the use of military force, six methods warrant examination: defeat, coerce, deter, compel, reassure, and dissuade.

In its purest form, the term "defeat" denotes a physical effect on an adversary through the employment of violence. But the threat of military force can defeat an adversary if the threat causes the adversary to abandon a course of action. The threat of military force can also eliminate a course of action in response to an unacceptable risk. States use military power to coerce an adversary to accede or agree to its demands, and they use military force short of armed conflict to coerce the decision making of an adversary.

4. John F. Troxell, "Military Power and the Use of Force," in *US Army War College Guide to National Security Policy and Strategy*, ed. J. Boone Bartholomees Jr., 2nd ed. (Carlisle, PA: Strategic Studies Institute, June 2006), 1.

5. Troxell, "Military Power and the Use of Force," 1.

Coercion consists of two subcategories: deterrence and compellence. States can use deterrence to persuade an adversary not to engage in certain actions or behaviors that pose a threat to another nation's interests. One of the best examples of deterrence is the US and Soviet Union mutually assured destruction strategy and the respective policies that guided it. Employing a strategy of deterrence can be problematic because success hinges on the absence of a specific action by an adversary, and thus is difficult to assess. In addition, deterrence is risky because predicting an adversary's perception of or response to a coercive act is difficult, which heightens the risk of miscalculation or escalation into armed conflict.

States use compellence to persuade an adversary or change its behavior and decision making. Compellence differs from deterrence in that states typically execute it in response to an action to compel the adversary to reverse the action. An example of compellence is the United States' efforts to persuade Iran to forego plans to develop its nuclear-weapon program.⁶

The final two categories related to the use of military force to support operations short of armed conflict are reassurance and dissuasion. Though the direct target of threats to use military force is typically an adversary, nation-states use the threat of military force to reassure allies and partners of their commitment to countering perceived and actual threats. This method allows states to honor long-standing treaty obligations and other binding agreements arising from official policy statements and national security-related documents. Similar to reassurance, dissuasion persuades others from engaging in activities that pose a risk to a nation-state. For example, resourcing substantial force structure growth or significant investments in technologies that ensure overmatch in relation to adversaries can persuade or influence others not to engage in competition with a specific nation. The use of military force or the development of enhanced and robust military capabilities, when combined with the employment of soft power, such as diplomacy, is a viable option for nation-states that wish to maintain a competitive advantage over adversaries.

As strategic advisers and planners consider options for the use of military force to support national security objectives, they must also understand the range of potential consequences related to those options. The current decision by the United States to withdraw from the Intermediate-Range Nuclear Forces Treaty illustrates this dynamic. Russia and other nation-states may respond to or perceive the United States' policy decision in several ways. Will Russia interpret this action as a precursor to the United States hastening the advancement of its nuclear capability and hasten the advancement of its own capability in response? Will China perceive the decision as a threat to its national security interests? Fortunately for military planners and senior leaders, theories of escalation, miscalculation, and provocation provide senior leaders a window into understanding the complexities surrounding these types of questions.

Miscalculation and Escalation

Strategic planners and advisers must understand the inherent risks of executing MDO short of armed conflict and how ambiguity can cause unintended consequences,

6. Troxell, "Military Power and the Use of Force," 7.

particularly given the anarchical nature of the global security environment. Understanding these risks is an important prerequisite to applying the mission command principle of accepting risk. One of the most basic theories or ideas that aids in understanding this dynamic is the security dilemma, which suggests actions taken by one actor to bolster its own security interests may be perceived as a threat by other actors, and the resulting misunderstanding could lead to unwanted crisis escalation.⁷ Misperceptions about an action can cause a nation-state to feel threatened, even if the action was not intentionally provocative or directed against that state specifically.

As senior leaders wrestle with the security dilemma, they must also consider theories and ideas such as the logic of provocation, which suggests state behavior during a crisis, whether real or perceived, may aggravate an adversary, thereby increasing the risk of miscalculation and the threat of escalation into armed conflict, rather than resulting in the adversary conceding to the demands of the aggressor nation.⁸ Aiding in this analysis are recent advances in the study of a range of dispositional and situational factors at both the individual and state levels that provide a framework for senior leaders to use when considering the ramifications of using force to achieve national security objectives. These factors include risk preferences, impatience and anger, higher perceived reputational costs, national honor, the political risk of backing down, and the political risk of escalation.⁹

The knowledge examined above provides senior leaders with the ability to understand the complexities associated with conducting MDO short of armed conflict and allows them to provide well-informed advice on the use of military force. This knowledge also allows senior leaders to apply interpersonal competencies or skills in their roles at the strategic level to create shared understanding between mission partners and enable initiative in subordinates.

INTERPERSONAL COMPETENCIES

One of the most significant challenges senior leaders encounter as they plan and execute MDO below the threshold of armed conflict is the need to create and sustain shared understanding of the operational environment (OE), desired outcomes, and the best options for achieving those outcomes, and to identify and understand comprehensively the risks inherent in the pursuit of those options. In contrast to leadership at the tactical and operational levels, where interaction between subordinates and leaders usually occurs face-to-face, strategic-level leadership often involves less frequent physical contact between stakeholders, which can complicate communication. Other factors that affect the ability to create and sustain shared understanding among mission partners are divergent national interests, ambiguity in interpreting the OE, and differences in cultural understanding. The combined effect of these factors highlights the

7. Hyun-Binn Cho, "Tying the Adversary's Hands: Provocation, Crisis Escalation, and Inadvertent War" (PhD diss., University of Pennsylvania, 2018).

8. Cho, "Tying the Adversary's Hands."

9. Cho, "Tying the Adversary's Hands."

need for senior leaders to become skilled in building consensus, communicating, and negotiating, and to develop cross-cultural competence.

Consensus building is often narrowly defined as agreement; however, absolute unanimity seldom occurs, particularly between senior leaders, staff organizations, and diverse mission partners. The convergence of multiple perspectives, divergent interests, and cultural differences in open and honest dialogue and discussion creates a more comprehensive understanding of complex problems. This level of understanding between mission partners, though difficult to achieve, results in a range of different ideas and options for characterizing complex problems and generating options to manage those problems that would otherwise go unnoticed. Astute senior leaders work hard to reach this level of understanding through open and honest communication among mission partners and to have the courage and candor to debate contentious and difficult issues in pursuit of the best options.

Building consensus and creating shared understanding among mission partners also depend on a senior leader's ability to communicate effectively. An essential aspect of communicating is the ability to listen to and carefully consider diverse points of view. These skills require senior leaders to apply well-developed critical thinking techniques that allow them to evaluate information while maintaining awareness of their own biases and assumptions. Senior leaders must also be intellectually curious and humble, yet willing to challenge other perspectives in pursuit of a more comprehensive understanding of complex problems. Intensely and deliberately listening to other perspectives allows senior leaders to apply discretionary judgment when developing clear intent and issuing mission orders.

Effective communication implies a dyadic relationship whereby listening and conveying ideas, guidance, intent, and orders are mutually important. The synthesis of listening and conveying clear and well-informed intent and guidance allows leaders to drive the operations process by understanding, visualizing, describing, and directing actions during MDO. Importantly, as leaders communicate ideas and guidance, their ability to influence and persuade key audiences is essential. These skills allow senior leaders to communicate interests and political and military objectives more effectively to mission partners or negotiate differences on behalf of their organizations or nations.

One of the defining qualities of a mission partner or Joint interagency and intergovernmental environment is the absence of clear lines of authority; as a result, senior leaders must negotiate effectively to reach agreements with diverse stakeholders while maintaining positive relationships. While planning and executing MDO short of armed conflict, senior leaders negotiate a range of important aspects of national security, including divergent interests, differences in national-level policies, the delegation of authorities and command relationships, and acceptable uses of mission partner capabilities within and across domains. The ability to negotiate is a critical requirement in creating and sustaining shared understanding between diverse mission partners during MDO short of armed conflict.

Given the diverse nature of a mission partner environment and the continuous requirement to create and sustain shared understanding, senior military leaders must possess a well-developed degree of cross-cultural competence. Cross-cultural competence consists of the (1) knowledge, (2) skills, and (3) affects and motivations that

enable individuals to adapt effectively in cross-cultural environments. Cross-cultural competence contributes to intercultural effectiveness, regardless of the given intersection of cultures.¹⁰

In an article titled “The Cultural Imperative for Professional Military Education and Leader Development,” authors Allison Abbe and Stanley Halpin argue common approaches to cultural education that focus on language, region-specific cultural training, and general cultural training, while important, are not sufficient in developing the leader skills required for operating and leading in a mission partner environment. For example, general cultural training, which entails the examination of different cultural dimensions and shared patterns of beliefs, practices, values, and preferences between nation-states, is important in preparing a leader to operate in a mission partner environment, but it does not provide leaders the agility to adjust behavior in response to these types of differences.¹¹ These programs can often lead to prescriptive lists of what to do and what not to do and tend to dismiss the importance of understanding culture and its relevance in better understanding one’s own culture and improving one’s self-awareness.

Given this gap, Abbe and Halpin identify specific traits, knowledge, skills, and abilities that significantly contribute to effective leadership in cross-cultural environments. Knowledge begins with an awareness of one’s culture and progresses to an understanding of the sources and consequences of a given culture, thereby enabling a more comprehensive understanding of culture and cultural differences. This type of knowledge is enabled through the development of skills that provide a leader the ability to regulate behavior in cross-cultural settings and the intellectual capacity to assume the perspective of or empathize with people from different cultures. The final aspect of cross-cultural competence is leader affect and motivation, which includes attitudes toward foreign cultures and the degree of motivation to effectively interact within a given culture.¹²

RECOMMENDATIONS

As outlined by former Secretary of Defense James Mattis in the 2018 National Defense Strategy, the DoD’s enduring mission is to provide the combat-credible military forces needed to deter war and protect the security of our nation; to be prepared to win, should deterrence fail; and to reinforce diplomacy by providing the president and US diplomats military options to ensure they negotiate from a position of strength. But these goals are unachievable if senior leaders lack understanding of the environment and certain basic competencies.

Though the leadership requirements model provides a solid base of attributes and competencies for leaders operating at all levels of war, the model must adapt to encompass the competencies necessary for effective operation at the strategic level.

10. Allison Abbe, Lisa M. V. Gulick, and Jeffrey L. Herman, *Cross-Cultural Competence in Army Leaders: A Conceptual and Empirical Foundation*, Study Report 2008-01 (Arlington, VA: US Army Research Institute for the Behavioral and Social Sciences, October 2007), 12.

11. Allison Abbe and Stanley Halpin, “The Cultural Imperative for Professional Military Education and Leader Development,” *Parameters* (Winter 2009–10), 21.

12. Abbe and Halpin, “The Cultural Imperative,” 24–25.

After over a decade of war, Army leaders have become skillful warfighters. But greater emphasis must be placed on developing Army leaders with an in-depth knowledge of geopolitics, the use of military power, and theories of miscalculation and escalation; strong communication, consensus building, and negotiation skills; and cross-cultural competence to enable the application of mission command to support MDO at the strategic level. The following broad categories are used to describe general desired learning outcomes for identified competencies, and table 6-1 applies Bloom's taxonomy as a framework to describe desired learning outcomes (specific to officers) across the PME spectrum for the types of competencies described in this chapter.¹³

- Knowledge: The recall of specifics, methods, and processes, or of a pattern, structure, or setting.
- Comprehension: A type of understanding or apprehension such that the individual knows what is being communicated and can make use of the material or idea being communicated without necessarily relating it to other material or understanding its fullest implication.
- Application: The use of abstractions in particular and concrete situations.
- Analysis: The breakdown of communication into its constituent elements or parts such that the relative hierarchy of ideas is made clear and the relationship between the ideas is made explicit.
- Synthesis: The assembling of elements and parts into a comprehensive whole.
- Evaluation: The forming of judgments about the value and applicability of material and methods for a given purpose.

Table 6-1. Professional military education competencies

Competency	Pre-commissioning	BOLC/JO ¹	CCC ²	ILE ³	SSC/GO/FO ⁴
Geopolitics	N/A	Knowledge	Apply	Analyze/Synthesize	Synthesize/Evaluate
Uses of Military Force	N/A	Comprehend	Apply	Analyze/Synthesize	Synthesize/Evaluate
Security Dilemma Theory	N/A	Comprehend	Apply	Analyze/Synthesize	Synthesize/Evaluate
Miscalculation, Escalation, Provocation	N/A	Knowledge	Apply	Analyze/Synthesize	Synthesize/Evaluate
Build Consensus	Comprehend	Apply	Analyze	Analyze/Synthesize	Synthesize/Evaluate
Communication	Comprehend	Apply	Analyze	Analyze/Synthesize	Synthesize/Evaluate
Negotiation	Comprehend	Apply	Analyze	Analyze/Synthesize	Synthesize/Evaluate

13. Benjamin S. Bloom, ed., *Taxonomy of Educational Objectives* (Boston: Addison-Wesley, 1956).

Table 6-1. (continued)

Competency	Pre-commissioning	BOLC/JO ¹	CCC ²	ILE ³	SSC/GO/FO ⁴
Critical Thinking	Comprehend	Apply	Analyze	Analyze/ Synthesize	Synthesize/Evaluate
Cross-Cultural Competence	Comprehend	Apply	Analyze	Analyze/ Synthesize	Synthesize/Evaluate
¹ “BOLC/JO” refers to Army Basic Officer Leadership Course/other services’ junior officers. ² “CCC” refers to the Army Captains Career Course or other service equivalent. ³ “ILE” refers to Army Intermediate Level Education or other service equivalent for officers ranked 0-4. ⁴ “SSC/GO/FO” refers to senior service college/general officer/flag officer courses for officers ranked 0-5 and up.					

CONCLUSION

This chapter recommends the development of an integrated curriculum across all levels of PME programs that is designed to achieve terminal learning outcomes that enable all military officers to operate and lead effectively during the conduct of MDO through the application of mission command. This development would require establishing more specific PME and Joint PME goals for all officers across their educational time lines by company/junior grade, field grade, and general/flag officer. These professional goals would be in the categories of branch and system specifics, service combined arms, Joint-domain/multi-domain (all-domain) operations, multinational operations, and interagency and interorganizational activities. These recommended professional goals would be progressively enabled, from encouraging intellectual curiosity to initiating familiarity, to develop expertise. In addition to these MDO-specific goals, greater emphasis must be placed on developing Army leaders with in-depth knowledge of geopolitics, the use of military power, and theories of miscalculation and escalation; strong communication, consensus building, and negotiation skills; and cross-cultural competence to enable the application of mission command to support MDO at the strategic level.

CHAPTER 7: IMPLICATIONS AND RECOMMENDATIONS

As it did with the integration of aircraft into warfare during World War I at the dawn of the twentieth century, the US military must create a sense of urgency to integrate the space, cyber, and information aspects of warfare rapidly in the twenty-first century. Traditional operations in the physical environment (OPE) must be seamlessly converged with newer operations in the information environment (OIE). The Army's emerging multi-domain operations (MDO) concept places new challenges on the Army's doctrine for mission command. Mission command requires commanders to have the ability to understand, visualize, communicate, and assess key decisions, risks, and critical intelligence and information requirements across multiple domains and between and within echelons. Equally as important, commanders must create, ensure, and sustain shared understanding of decision making. Risk analysis and critical intelligence and information requirements set conditions that empower subordinate leaders, enable disciplined initiative, and influence decentralized operations in the context of MDO.

In addition, senior military leaders must become proficient at applying the principles of mission command across the conflict continuum and when conducting MDO below armed conflict. During cooperation and competition, OIE may be even more important than OPE. The international security environment places a premium on a senior military leader's ability to foster mutual trust, create shared understanding, execute initiative, and accept risk in support of MDO short of armed conflict. At its core, the mission command approach remains predicated on empowering subordinates, regardless of the level and construct of the organization.

As senior military leaders and planners wrestle with the challenge of integrating and synchronizing MDO short of armed conflict, the development of an MDO synchronization process or system enabled by the mission command principles of creating shared understanding, enabling disciplined initiative, and accepting risk is warranted. This type of process also better enables commanders to drive the planning and execution process through the activities of understand, visualize, describe, direct, lead, and assess. At a minimum, the process should include: (1) the alignment of actions and operations within and across designated domains with the national strategic objectives of all mission partners; (2) the identification of the appropriate echelon or headquarters (HQ) responsible for command and control of the action; (3) the delegation of required authorities and the allocation of resources required to enable the action; and (4) the commander's critical intelligence requirements needed to support and enable key decisions.

But, not unlike the current US Air Force doctrine, MDO may also require centralized control of select capabilities, such as space and cyber. As such, new frameworks for understanding MDO command relationships and staff structures are required to ensure continuous collaboration between commanders and across domains throughout planning and execution that creates and sustains shared understanding of key decisions, associated risks, and commander's critical intelligence requirements. In addition to the traditional J/G3 for OPE, a separate coordinating staff officer J/G7 for OIE is required under the chief of staff. New types of functional commands—capable of providing direct support to other components and general support to the force as a whole, such as a Joint

information component command or an Army theater information warfare command—are also needed.

In addition, a new multi-domain synchronization cycle (MDSC) should be implemented at select HQs. The MDSC is a six-stage process that mirrors each stage in the Joint air tasking cycle (JATC). These stages are: (1) commander's intent, objectives, effects, and guidance development; (2) target and message development; (3) multi-domain concept of operations (MDCO) development; (4) MDO order (MDOO) production; (5) execution; and (6) assessment. Finally, the implications of MDO with specific attributes and competencies for senior leader professional military education (PME) and Joint PME must be addressed at each level of officer education by the entire US military. These professional goals for all officers (company/junior grade, field grade, and general/flag officer) include branch and system specifics, service combined arms, Joint-domain/multi-domain (all-domain) operations, multinational operations, and interagency and interorganizational activities that should be progressively enabled, from encouraging intellectual curiosity to initiating familiarity, to develop expertise. In addition to these MDO-specific goals, greater emphasis should be placed on developing Army and Joint leaders with in-depth knowledge of geopolitics, the use of military power, and theories of miscalculation and escalation; strong communication, consensus building, and negotiation skills; and cross-cultural competence to enable the application of mission command to support MDO at the operational and strategic levels.

SPECIFIC RECOMMENDATIONS

Specific recommendations are as follows.

- Joint Force: Develop a multi-domain/all-domain concept that can be rapidly promulgated as doctrine across all Joint Publications (JPs) and used to educate the Joint Force.
- Joint Force: Implement a new staff structure that includes a coordinating staff officer J7 for OIE.
- Joint Force: Develop doctrine and structure for a Joint information component commander to converge Joint capabilities in the information environment.
- Joint Force: Develop an MDO synchronization process or system that is reproducible at multiple HQs and can effectively converge the capabilities of all domains.
- Joint Force: Implement a Joint PME program for field-grade and above officers that has targeted levels of knowledge for multinational and interagency proficiency and is aligned with MDO.
- Army: Mature the MDO concept and implement updated Army doctrine derived from the concept.
- Army: Implement a new staff structure that includes a coordinating staff officer G7 for OIE.
- Army: Develop an operational and organizational design for a theater information warfare command to converge Army capabilities in the cyber, information, space, and electromagnetic-spectrum domains and environments.

- Army: Implement a new Army PME program that supports MDO and is nested within the new Joint PME program for all officers, beginning with precommissioning.
- Army and Joint Force: Develop a better conceptualization of how to conduct MDO below armed conflict to shape and prevent armed conflicts.
- Army and Joint Force: Establish in doctrine and structure an MDOO manager as the lead planner and staff action officer for each iteration of the order.
- Defense establishment: Understand the role of all service-provided forces across all operational domains and environments and resist single-domain solutions from bureaucratically motivated zealots.

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