

Culture Clash: Army and Air Force Culture Concerning Multi-Domain Operations

A Monograph

by

LTC Eric C. Joachim
US Air Force



School of Advanced Military Studies
US Army Command and General Staff College
Fort Leavenworth, KS

2021

Approved for public release; distribution is unlimited

REPORT DOCUMENTATION PAGEForm Approved
OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing this collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports (0704-0188), 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. **PLEASE DO NOT RETURN YOUR FORM TO THE ABOVE ADDRESS.**

1. REPORT DATE (DD-MM-YYYY) 30-03-2021		2. REPORT TYPE MASTER'S THESIS		3. DATES COVERED (From - To) JUNE 20-MAY 21	
4. TITLE AND SUBTITLE Culture Clash: Army and Air Force Culture Concerning Multi-Domain Operations				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S) LTC Eric C. Joachim				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) U.S. Army Command and General Staff College ATTN: ATZL-SWD-GD Fort Leavenworth, KS 66027-2301				8. PERFORMING ORG REPORT NUMBER	
9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES) ADVANCED MILITARY STUDIES PROGRAM				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION / AVAILABILITY STATEMENT Approved for Public Release; Distribution is Unlimited					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT In the winter of 2018, the United States Army wrote <i>The U.S. Army in Multi-Domain Operations 2028</i> , the first stage in their doctrinal evolution to incorporate fundamental shifts in the future character of war. However, in the summer of 2020, the United States Air Force crafted their framework for future operations in the <i>Department of the Air Force's Role in Joint All-Domain Operations</i> . While there is significant overlap between the two documents, one pivotal divergence exists in the command and control of multiple domains. This command and control discrepancy exists because of the differences in organizational culture between the Air Force and the Army. Within the Air Force, four key drivers set the conditions for how the organization views command and control in the future conflict: technology, operational insecurity, power allocation methods, and an inclination for centralized control. In contrast, the Army has five fundamental motivators that set their foundational views on command and control: a conductor's mentality, interdependence, modularity, exposure, and mission command. This study acknowledges a future joint doctrinal publication on multiple domain command and control is inevitable. However, organizational cultural differences between the Air Force and Army will still exist. For any doctrine to be useful in the future, we must understand our own culture and how it influences us and the other branches' culture in the Department of Defense.					
15. SUBJECT TERMS Multi-Domain Operations, Army, Air Force, Organizational Culture					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT	b. ABSTRACT	c. THIS PAGE			19b. PHONE NUMBER (include area code)
(U)	(U)	(U)	(U)	36	913 758-3300

Standard Form 298 (Rev. 8-98)
Prescribed by ANSI Std. Z39.18

Abstract

Culture Clash: Army and Air Force Culture Concerning Multi-Domain Operations, by Lt Col Eric C. Joachim, 36 pages.

In the winter of 2018, the United States Army wrote *The U.S. Army in Multi-Domain Operations 2028*, the first stage in their doctrinal evolution to incorporate fundamental shifts in the future character of war. However, in the summer of 2020, the United States Air Force crafted their framework for future operations in the *Department of the Air Force's Role in Joint All-Domain Operations*. While there is significant overlap between the two documents, one pivotal divergence exists in the command and control of multiple domains. This command and control discrepancy exists because of the differences in organizational culture between the Air Force and the Army. Within the Air Force, four key drivers set the conditions for how the organization views command and control in the future conflict: technology, operational insecurity, power allocation methods, and an inclination for centralized control. In contrast, the Army has five fundamental motivators that set their foundational views on command and control: a conductor's mentality, interdependence, modularity, exposure, and mission command. This study acknowledges a future joint doctrinal publication on multiple domain command and control is inevitable. However, organizational cultural differences between the Air Force and Army will still exist. For any doctrine to be useful in the future, we must understand our own culture and how it influences us and the other branches' culture in the Department of Defense.

Contents

Abstract	iii
Contents.....	iv
Acknowledgements	v
Abbreviations	vi
Figures.....	vii
Introduction	1
Section 1	5
Section 2.....	16
Section 3	25
Summary and Recommendations.....	32
Bibliography.....	34

Acknowledgements

Special thanks to my family for supporting me through this monograph endeavor. I want to thank Dr. John Curatola for his guidance, advice, and navigation while writing this monograph. Next, I would like to express thanks to COL Jurgen Prandtner for his tireless dedication to my education and professional development. Finally, I want to thank the staff and faculty at the Advanced School of Military Studies. It was an amazing year for me, one that I will never forget.

Abbreviations

AMSP	Advanced Military Studies Program
ASC	Air Support Command
ATO	Air Tasking Order
AO	Area of Operation
CGSOC	Command and General Staff Officer Course
BCT	Brigade Combat Team
EMS	Electromagnetic Spectrum
ITO	Integrated Tasking Order
JADC2	Joint All-Domain Command and Control
JP	Joint Publication
JTF	Joint Task Force
LSCO	Large Scale Combat Operations
MDMP	Military Decisions Making Process
MDO	Multi-Domain Operations
MDTF	Multi-Domain Task Force

Figures

Figure 1. Synchronization of Disparate Planning Timelines for Converged Effects.....	6
Figure 2. MDO Solutions.....	7

Introduction

The Art of War is simple enough. Find out where your enemy is. Get at him as soon as you can. Strike him as hard as you can, and then move on.

—General Ulysses S. Grant

Operation Torch launched on 8 November, 1942 and marked a period of growing pains for the Allied forces.¹ General Dwight D. Eisenhower led the operation with the strategic purpose of opening a second front in Europe. In Tunisia, the Allies' original aim was to trap the German Afrika Korps in Tripolitania between Montgomery's advancing Eighth Army and Lieutenant-General Kenneth Anderson's First British Army. Eisenhower quickly realized the disorganization within the Allied Forces.² This situation led to a humiliating defeat at Kasserine Pass, with Allied forces beginning to question American fighting ability.³ At this point of the campaign, the fundamental breakdown was the command and control coordination between II Corps and XII Air Force Air Support Command (ASC). The root cause of the coordination troubles between the two commands was a lack of common interpretation for *Field Manual 31-35 Aviation in Support of Ground Forces*.

On 9 April, 1942, the War Department published *Field Manual 31-35 Aviation in Support of Ground Forces*. The air support doctrine was flawed in that it provided conflicting guidance on the command and control of the air. At first read, Section I of the manual suggests that the air support commander controls air missions. Specifically, the field manual stated: "Aviation units may be designed in support of a major ground force. The control is centralized in an air support commander who assigns the attack missions as the needs of the ground(s) develop."⁴ This excerpt implies that the air commander controls the air domain and provides

¹ Carlo D'Este, *Bitter Victory: The Battle for Sicily, 1943* (New York, NY: E.P. Dutton, 1988), 53.

² *Ibid.*, 56.

³ *Ibid.*, 58.

⁴ US Department of the Army, Field Manual (FM) 31-35, *Aviation in Support of Ground*

enablers to the ground scheme of maneuver as required. However, the manual later presents conflicting guidance that the decision of targeting for an aircraft rests with the commander of the ground army since they will have the best situational awareness of targeting priorities.⁵ This guidance implies that the ground commander controls the air domain and the assets affecting that commander's area of operation (AO). These doctrinal inconsistencies created confusion in early 1943 during Operation Torch.

Uncertainty for the Americans on managing the air domain began in late January when the French were facing a fierce German attack and requested air reconnaissance support from XII ASC.⁶ Major General Lloyd Fredendall, commander of the US II Corps, denied the request citing II Corps had no responsibilities in that area.⁷ Subsequently, on 31 January, 1943 German Ju 87 "Stuka" aircraft struck an American truck convoy near Maknassey, Tunisia inflicting severe damage and casualties. This mayhem led American and British ground commanders to insist that air assets set up "air umbrellas" to protect ground forces and be used as airborne artillery to support the ground scheme of maneuver.⁸ This idea ran contradictory to the vision of Major General Carl Spaatz, the commander of the Allied Air Force. General Spaatz argued that the air domain should attack airfields, tank parks, unarmored convoys, and other targets that held a more significant long-term consequence for the enemy.⁹ Unfortunately, Fredendall refused to agree to any of the points made by Spaatz, and XII ASC became overburdened trying to provide umbrellas while also attempting to escort attack aircraft.¹⁰ Because of this air mismanagement, XII ASC

Operations (Washington, DC: Government Publishing Office, 1942), 3.

⁵ US Department of the Army, Field Manual (FM) 31-35, 11.

⁶ Shawn Rife, 73.

⁷ Ibid.

⁸ Ibid., 72.

⁹ Ibid.

¹⁰ Ibid., 73

suffered severe losses to protect a wide front.¹¹ Later in February, on a single cover mission, six P-40s and four P-39s encountered twenty Ju 87s and eight Bf 109s. This encounter led to the destruction of five P-40s and only a single Ju 87.¹² Over time, this air management game plan eroded XII ASC's position and allowed the Luftwaffe to operate with virtual impunity. The Luftwaffe's success eventually gave German Field Marshal Erwin Rommel the ability to strike Allied Forces at Kasserine Pass, killing 6,000 Allied troops.¹³

Historically, the Air Force and Army have been at odds about the application of warfighting domains. Specifically, conflicting command and control philosophies between the two services have been a contention point between the services. A lens to frame this difference in command and control is a vignette from Operation Torch, specifically Kasserine Pass. This valuable case study highlights the devastating results of a mismanaged air domain command and control structure. Additionally, these lessons learned can help shape the employment of emerging domains in the 21st century.

Given the Kasserine Pass vignette, similarities can be seen today with the Air Force's and Army's divergent views on the employment of multiple domains in Large Scale Combat Operations (LSCO). Analyzing how the two services view Multi-Domain Operations (MDO), this paper will use each service's most recent MDO document, *The U.S. Army in Multi-Domain Operations 2028* and *Department of the Air Force Role in Joint All-Domain Operations*. Based on this paper's analysis of the two documents, there is an overlap between the two concepts. However, an important divergence exists between the two frameworks on how they view command and control of the domains. Furthermore, competition and conflict have changed, reinforcing the Air Force and Army's need to have a synergistic approach to command and

¹¹ Shawn Rife, 73.

¹² Ibid.

¹³ Ibid.

control. But why does this divergence exist? The reason is primarily a cultural difference between the Air Force and Army on how they view command and control within their organizations.

Understandably, both the Air Force and Army have developed a strong organizational culture. This type of strong culture is a product of strong agreement about what is valued combined with high intensity with which those values are held.¹⁴ This can produce "silos" where poor communication and coordination between the two organizations exist.¹⁵ A critical step for these two organizations to move forward in joint warfare, especially MDO command and control, is to understand their own culture and the other services culture. However, it is not the intent of this paper to say that Air Force and Army culture should be the same. Quite the opposite, the military culture should allow for similarities and depend upon differences.¹⁶ Nevertheless, these organizational cultural differences should still enable the members to find a common shared framework for employing MDO assets.

This monograph will address several issues concerning MDO. A review of Air Force and Army MDO concepts is required before reconciliation can be discussed. Furthermore, examining the service's organizational culture is needed to contextualize the divergence between the two services. Once that framework is established, this paper will focus on how that organizational culture drives a difference in MDO command and control. Finally, there will be a summation of the findings and recommendations on the way forward for the Air Force and Army.

¹⁴ Mary Jo Hatch, *Organizational Theory: Modern, Symbolic, and Postmodern Perspectives* (Oxford, England: Oxford University Press, 2013), 161.

¹⁵ Ibid.

¹⁶ Mary Jo Hatch, *Organizational Theory: Modern, Symbolic, and Postmodern Perspectives* (Oxford, England: Oxford University Press, 2018), 193.

Section 1

On 18 September, 1947 the Air Force separated from the Army and became its own military branch. Over the years, the Air Force-Army relationship experienced friction, particularly over the concept of command and control. While Air Force and Army doctrines have matured to solidify the air domain command and control structure, a new dispute over command and control emerged. This command and control clash stems from fundamental differences on the employment of multiple domains in competition and direct arms conflict. The outcome is that the Air Force and Army have divergent MDO command and control concepts.

The problem begins with the Army and Air Force publishing their visions of MDO. In 2018 the Army published *The U.S. Army in Multi-Domain Operations 2028*. Just two years later, the Air Force publishes their concept of MDO in *Department of the Air Force Role in Joint All-Domain Operations*. A critical difference between these two documents is how they view command and control of multiple domains. The Air Force principally considers MDO command and control using an Integrated Tasking Order (ITO). With this construct, the Air Force plans to take all the domains within a theater, place them on an ITO and then converge the effects of multiple domains, as seen in Figure 1.

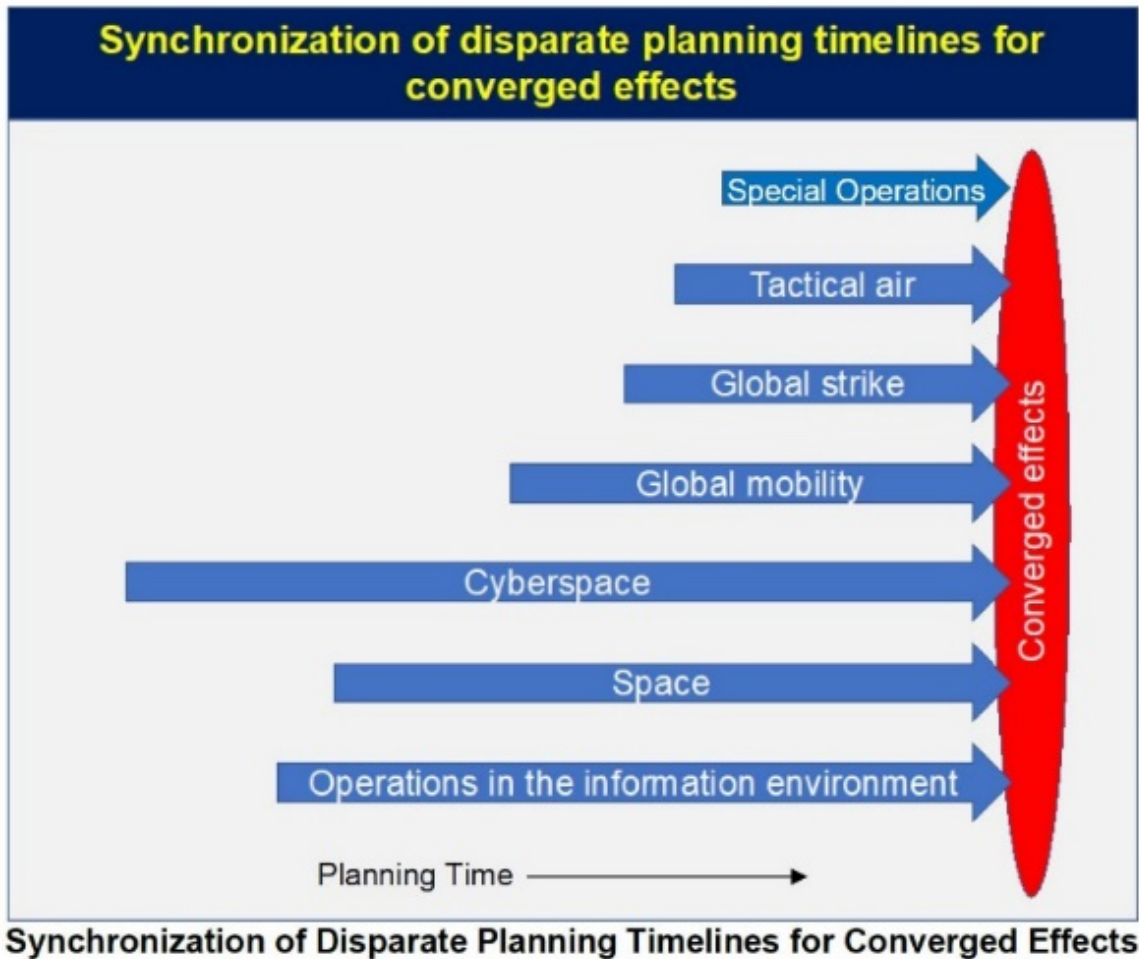


Figure 1. Synchronization of Disparate Planning Timelines for Converged Effects. US Department of the Air Force, Annex 3-1, *Department of the Air Force Role in Joint All-Domain Operations* (Washington, DC: Government Printing Office, 2020), 17.

Conversely, the Army views MDO as an enabler to compete, penetrate, dis-integrate, and exploit an adversary's military network. Furthermore, the Army foresees MDO command and control by echelon, with each level controlling different MDO enablers. Figure 2 shows a generic example of how the Army plans to command and control multiple domains.

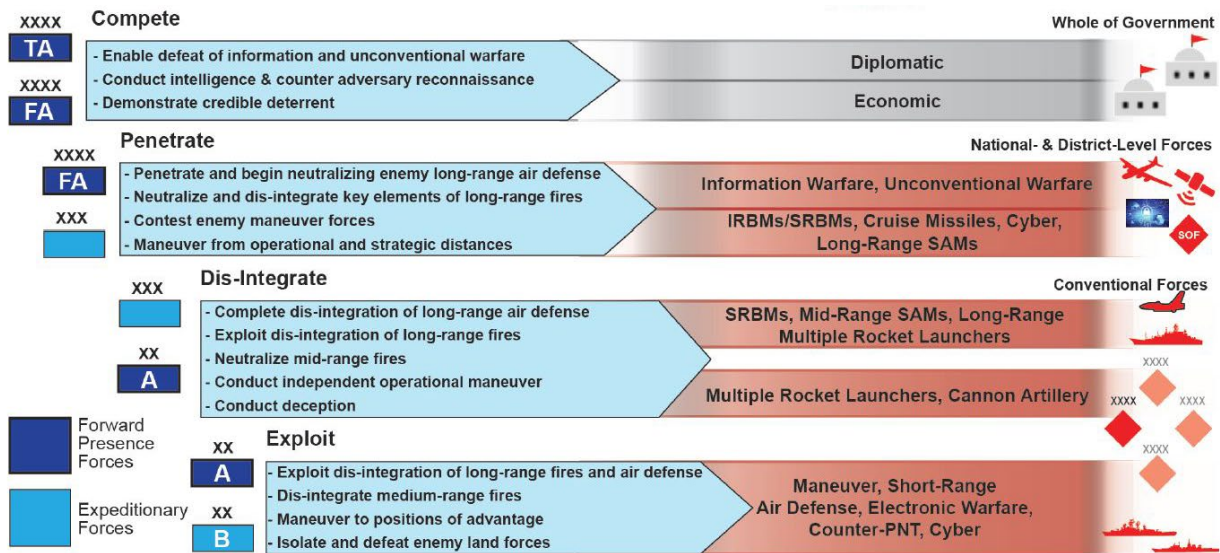


Figure 2. MDO Solutions. US Department of the Army, TRADOC Pamphlet 525-3-1, The U.S. Army in Multi-Domain Operations 2028 (Washington, DC: Government Printing Office, 2018), 26.

These divergent views on command and control will certainly cause discord between the two services in LSCO. However, the first problem is simply understanding what MDO is.

What is MDO?

There is no official joint definition of MDO, which leads to a substantial problem in understanding the concept. Even more troublesome, there is no joint definition of a domain. *Joint Publication (JP) 3-0* uses the word domain within the context of the operational environment but does not explicitly define what a domain is. Since there is no joint definition, the Air Force has attempted to define a domain in their doctrine and writes that "a domain is a sphere of activity or influence with common and distinct characteristics in which a force can conduct joint functions."¹⁷ For clarity, this paper will use the Air Force definition of a domain. In addition to the complexities of domain meaning, the Air Force and Army have also constructed their own definitions of MDO.

¹⁷ US Department of the Air Force, Annex 3-1, *Department of the Air Force Role in Joint All-Domain Operations* (Washington, DC: Government Publishing Office, 2020), 2.

Due to the lack of a standard MDO description, the Air Force and Army have proactively defined their visions of MDO. The Air Force defines MDO as "the joint force's action in multiple domains integrated into planning and synchronized in execution, at speed and scale needed to gain advantage and accomplish the mission."¹⁸ Additionally, the Air Force views MDO as being interconnected, interdependent, as well as contested.¹⁹ Within this context, the Air Force sees a need to achieve convergences of multiple domains to present an adversary with numerous dilemmas.²⁰ From the Air Force's perspective, this idea of convergence is nested within MDO and will allow the joint force to operate inside the adversary's decision-making cycle.²¹

In *The U.S. Army in Multi-Domain Operations 2028*, the Army identifies MDO as a concept to "fight across all domains, the electromagnetic spectrum (EMS), and the information environment and echelon."²² Fighting across all domains will require the Army to leverage the tenets of calibrated force posture, multi-domain formations, and convergence.²³ These tenets, especially convergence, are then executed or delegated by echelon from the theater army level down to the brigade. These two distinct visions of MDO may appear to be merely a difference in the lexicon. However, there is one joint function of significant divergence between the two concepts of MDO, and that is command and control. Furthermore, the Air Force believes that a Joint All-Domain Command and Control (JADC2) Center is the solution to the command and control problem in MDO.

¹⁸ US Department of the Air Force, Annex 3-1, 5.

¹⁹ Ibid., 2.

²⁰ Ibid.

²¹ Ibid.

²² US Department of the Army, TRADOC Pamphlet 525-3-1, *The U.S. Army in Multi-Domain Operations 2028* (Washington, DC: Government Publishing Office, 2018), 5.

²³ Ibid., v.

Air Force MDO Command and Control Concept

The Air Force views JADC2 as the art and science of decision-making to rapidly translate decisions into actions.²⁴ Additionally, the Air Force uses JADC2 to leverage capabilities across all domains incorporating mission partners to achieve an operational and informational advantage in both competition and conflict.²⁵ The Air Force believes that it takes too long for each service to do its command and control and sees a need for joint command and control.²⁶ Furthermore, because the Air Force typically operates at the strategic level of conflict, it is comfortable having command and control fall under a common umbrella. To achieve this vision of joint command and control, the Air Force calls for centralized control and decentralized execution. These two aspects can further be broken down by discussing control first.

The Air Force envisions control as a JADC2 Center connecting distributed sensors, shooters, and data from all domains to the joint force.²⁷ This JADC2 Center can then integrate planning to synchronize convergence in time, space, and purpose.²⁸ For the Air Force, this joint control center has four fundamental tenets: sense, plan, decide, and act. For the sensing portion, the Air Force foresees a fully networked system relying on each interconnected sensor.²⁹ Next, that information is fused at the JADC2 Center with automated synthesis and turned into situational awareness. That multi-domain intelligence is then distributed to commanders and continuously adapting to the operational environment. This multi-domain picture allows commanders to plan, provide the intent, and force prioritization.³⁰ However, it does not call for a

²⁴ US Department of the Air Force, Annex 3-1, 5.

²⁵ Ibid.

²⁶ Kimberly Underwood, "Getting to Joint Warfighting," Signal, AFCEA, last modified November 13, 2019, accessed October 10, 2020, <https://www.afcea.org/content/getting-joint-warfighting>.

²⁷ US Department of the Air Force, Annex 3-1, 6.

²⁸ Ibid.

²⁹ Ibid., 5.

³⁰ Ibid., 7.

single commander to provide specific orders but rather for commanders to convey intent and for subordinates to act on that intent.³¹ Next, the Air Force views all domain warfare as being time-limited. Therefore, the Air Force sees a need for a JADC2 Center to maintain tempo and flexibility across all domains.³² This concept is how the Air Force views the control portion of centralized control. For the decentralized execution, the Air Force imagines an ITO.

The ITO is a critical part of the Air Force's JADC2 concept because it enables the JADC2 Center to achieve decentralized execution via mission-type orders. The Air Force imagines placing the entire joint force into a planning cycle similar to an Air Tasking Order (ATO) planning cycle. The first part of this planning cycle identifies domains across the joint force to achieve effects for the Joint Force Commander. Using the Joint Force Commander's apportionment decision, forces are allocated to meet the intent and objectives.³³ This ITO methodology allows for forces and capabilities, with different planning timelines, to synchronize time and space effects across the joint force. With this process, the Air Force believes that convergence will be achieved.³⁴ In summation, the Air Force views MDO command and control as centralized control and decentralized execution. However, this concept is contradictory to the Army's vision of MDO command and control.

Army MDO Command and Control Concept

The Army views MDO command and control as a method to control MDO enablers, which will allow the ground force freedom of maneuver. They consider each echelon, from the field army to the brigade, as controlling different multi-domain formations. Furthermore, the Army views command and control happening at the operational level of war. With this command and control methodology, the Army will attempt to achieve convergence, which they define as

³¹ US Department of the Air Force, Annex 3-1, 7.

³² Ibid., 16.

³³ Ibid., 18.

³⁴ Ibid., 17.

"the rapid and continuous integration of all domains across time, space, and capabilities to overmatch the enemy."³⁵ Underpinning this concept is the Army's idea of mission command and disciplined initiative at all warfighting echelons.³⁶ Because of this delegation of multi-domain formations by echelon, the Army generally views perfect synchronization as unobtainable due to operational constraints.³⁷ However, this MDO command and control method is preferable from the Army's perspective because it allows for a higher tempo when the Army deems it necessary.³⁸ A way to understand this concept is to break down each echelon's command and control responsibilities from the field army down to the brigade level.

The Army MDO concept begins at the field army echelon. The field army is the forward presence and the top-level MDO command and control authority from the Army's vantage point. Furthermore, the field army establishes the multi-domain command structure and control measures for converging capabilities. This type of planning and preparation creates options for convergence and generates opportunities for the subordinate unit, the corps.

Corps are expected to be the expeditionary forces in MDO.³⁹ Therefore, corps are responsible for multi-domain command and control to achieve convergence, but only within its area of operation.⁴⁰ Specifically, the Army states that the corps will be responsible for converging joint fires to include cyberspace capabilities.⁴¹ Finally, the corps create conditions for multi-domain convergence at lower echelons by allocating resources to division.

³⁵ US Department of the Army, TRADOC Pamphlet 525-3-1, iii.

³⁶ Ibid.

³⁷ Ibid., C-7.

³⁸ Ibid.

³⁹ Ibid., 22.

⁴⁰ Ibid.

⁴¹ Ibid., 22.

As stated within *The U.S. Army in Multi-Domain Operations 2028* document, divisions are likely to command and control multi-domain formations based on the corps' allocation.⁴² Additionally, if the division is the main effort, the corps will allocate significant multi-domain enablers to that division.⁴³ Further expectations of the division are to converge multi-domain assets to shape the battlespace for brigades. To do this, the division will likely integrate with a Multi-Domain Task Force (MDTF). This command and control mechanism is still in the testing phase. However, the vision is to combine an artillery brigade with an augmented headquarters, a joint intelligence, cyberspace, electronic warfare, and space component.⁴⁴ This concept will tie into the final echelon of multi-domain command and control, the individual brigades.

The critical aspect of brigade multi-domain command and control is its access to multi-domain intelligence and scheme of maneuver. Brigades are expected to converge their organic capabilities but also be multi-domain capable.⁴⁵ Furthermore, brigades are unlikely to have control over multi-domain enablers but instead execute higher echelons' multi-domain plans to enhance their scheme of maneuver. In summary, the Army views their MDO forces as an element of the joint force with a command and control system by echelon from the field army down to the brigades.

Air Force and Army MDO Command and Control Key Difference

The vital difference between the Air Force and Army's MDO command and control concepts is asset allocation. The Air Force wants centralized control and decentralized execution, whose mechanism is a central authority for controlling MDO of the entire Joint Task Force (JTF). That central authority will then perform the apportionment of those MDO assets and delegate them via an ITO. The Army views MDO assets by echelon, with each level of the Army

⁴² US Department of the Army, TRADOC Pamphlet 525-3-1, 23.

⁴³ Ibid.

⁴⁴ Ibid., F-1.

⁴⁵ Ibid., 23.

controlling different MDO assets. This divergent view of command and control between the two services is problematic, as this paper has shown in the Kasserine Pass vignette. However, there is a counterargument that this divergent view on MDO command and control is not critical.

Counterargument and Rebuttal

The primary counterargument that the Air Force and Army do not need to develop synergistic MDO command and control doctrine is that they already execute joint operations in multiple domains. The Army employs multiple domains when they perform an air assault. Moreover, the Air Force and Army conduct joint operations with Air Force close air support enhancing the Army ground scheme of maneuver. However, this argument fails to consider three emerging trends that will reshape how the Air Force and Army will execute in LSCO. These three emerging trends are increased tempo, global sensors and fires, and artificial intelligence. The most significant of these three is increased tempo.

The tempo of future competition and warfare will require a new way of MDO command and control for the Air Force and Army. The information domain is one lens to view how hyperactive combat could be. However, leveraging this domain is not a new concept. Case in point, information warfare was used by the US during the Revolutionary War. During that war, American agents inserted forged documents into British diplomatic packets to convince the British that the American Army was far more extensive.⁴⁶ Unfortunately, that was a slow and methodical process that conflicts with the needs of today's Army to influence the information domain within minutes. The Army has a vision of "The Golden 5 Minutes", where the Army can identify adversary propaganda and position its narrative to counter that propaganda.⁴⁷

⁴⁶ Brian Nichiporuk, *U.S. Military Opportunities: Information-Warfare Concepts of Operation*, ed. Zalmay M. Khalilzad and John P. White (Santa Monica, CA: RAND Corporation, 1999), 182.

⁴⁷ Sydney J. Freedberg Jr., "The Golden 5 Minutes": The Need For Speed In Information Warfare," *Breaking Defense, Breaking Media*, October 21, 2019, accessed January 5, 2021, <https://www.breakingdefense.com/2019/10/the-golden-five-minutes-the-need-for-speed-in-information-war/>.

Regrettably, the current joint command and control structure does not enable this type of speed. Moreover, the Army's actions in this information domain could have adverse indirect effects for the entire Joint Force. A new way of doing MDO command and control is needed to achieve tempo in future competition and conflict. Additionally, the Air Force and Army's global sensors and fires will also create a need for an update to MDO command and control doctrine.

The second supporting claim for the need of MDO command and control is that each service has assets that extend well beyond its domain's reach. There is a trend for numerous technological developments to extend beyond what current command and control architecture can support. This reach is exemplified in the Army's development of long-range hypersonic fires ranging between 1,500 and 2,000 kilometers.⁴⁸ This emerging technology would be useful to other domains, such as the Navy's maritime scheme of maneuver. A new way of command and control is needed to leverage assets that can fire well outside a field army's area of operation. The final area that will require a new way to think about MDO command and control is artificial intelligence.

The last point driving the need for MDO command and control is the emergence of artificial intelligence in warfare. Artificial intelligence can change the character of war with big data capability and human-machine teaming. "Big data" will give the military the ability to link multiple sensors and provide rapid situational awareness to the warfighter. For example, the Navy is attempting to link online shipping data, high-resolution or multispectral cameras, infrared, synthetic aperture radar, and electromagnetic emission information to find and track ships automatically.⁴⁹ Information will be rapidly available to the warfighter, which will drive the need for faster command and control processes. Second, human-machine teaming will give the

⁴⁸ Sydney J. Freedberg Jr., "Army Seeks New Mid-Range Missile Prototype By 2023," *Breaking Defense*, Breaking Media, September 8, 2020, accessed December 10 2020, <https://www.breakingdefense.com/2020/09/army-seeks-new-mid-range-missile-prototype-by-2023/>.

⁴⁹ Cortez A. Cooper III, Christian Curriden, Logan Ma, Lindsey Polley, and J.D. Williams, *Chinese Views on Big Data Analytics* (Santa Monica, CA: RAND Corporation, 2020), 34.

warfighter the ability to quickly link sensors and shooters. For example, Lockheed Martin is demonstrating a manned F-16 teamed with an unmanned F-16. This teaming allows for quicker sensor integration and automatic ground-attack missions.⁵⁰ Human-machine teaming will soon occur between multiple domains, driving the need for a new way of command and control.

Summary

The Air Force and Army have divergent views on MDO command and control. Each service sees MDO command and controls future based on published documents that openly state their respective positions. This divergence brings up why each service has a different perspective on employing assets in multiple domains. As noted early, the cultural differences between the two services are central to why the Army and Air Force view MDO command and control differently. It is essential to understand each organization's cultural drivers because if a new joint MDO command and control document is published, there will still exist underlying cultural differences. The first step to alleviate this tension is to understand the culture, starting with the Air Force.

⁵⁰ “Have Raider Demo,” Lockheed Martin, accessed 12 October, 2020, <https://www.lockheedmartin.com/en-us/capabilities/autonomous-unmanned-systems/unmanned-military-case-study-have-raider-demo.html>.

Section 2

The Air Force and Army each have their own unique organizational culture. Neither is right or wrong, but each is undoubtedly different. However, what is organizational culture? Edgar Schein, in his article *Coming to a New Awareness of Organizational Culture*, defines organizational culture as the following:

Organizational culture is the pattern of basic assumptions that a given group has invented, discovered, or developed in learning to cope with its problems of external adaptation and internal integration, and that have worked well enough to be considered valid, and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relations to those problems.⁵¹

There are two critical reasons why understanding the organizational culture related to MDO command and control is essential. First, understanding the organizational culture within our respective services will help us understand our cognitive biases on how we frame the solution to MDO command and control. Second, understanding other services' organizational culture will help us gain a shared understanding when discussing MDO command and control.

According to this author, the Air Force has four driving elements influencing how they view MDO command and control. The Air Force is generally technologically focused, operationally insecure, has its version of power allocation, and favors centralized control. Each of these elements has a specific role in affecting the Air Force's vision of MDO command and control. However, of the four driving characteristics, the most potent effect on the Air Force is technology.⁵²

⁵¹ Edgar H. Schein, "Coming to a New Awareness of Organizational Culture," *Sloan Management Review* 25, no. 2 (Winter 1984): 3.

⁵² Carl H. Builder, *The Masks of War: American Military Styles in Strategy and Analysis* (Baltimore, MD: The Johns Hopkins University Press, 1989), 28.

Technologically Focused⁵³

The Air Force has a vision for MDO command and control that leverages new technology, specifically the JADC2 Center. The Air Force perceives this JADC2 Center as the cornerstone of their MDO command and control concept. Furthermore, the Air Force views the JADC2 Center as a weapons system on the cutting edge of technological development and will allow the joint force to operate inside the enemy's decision-making cycle.⁵⁴ Therefore, it should not be surprising that the Air Force gravitates to using new technologies to solve an operational problem. This attraction is because the Air Force has an organizational culture-derived around technological superiority over competitors.⁵⁵ The Air Force's history, artifacts, and mentality can be seen in the organizational culture of technology. History must be considered first since it impacts the artifacts and mentality.

A service centered around emerging technologies, particularly the airplane, is what makes the Air Force unique.⁵⁶ The concept of creating a force built around a new technology has permeated how the force operates today. While other services, such as the Army, have hundreds of years of tradition about employing combat arms, the Air Force has a short history. Additionally, one of the reasons for the Air Force's establishment was to exploit emerging technological developments in the air domain. This history has created an environment where the Air Force is comfortable leveraging technology to drive operational actions vice doctrine. For example, the Airpower doctrine published by the Air Force is only three pages long.⁵⁷ In contrast,

⁵³ Jeffrey W. Donnithorne, "Culture Wars: Air Force Culture and Civil-Military Relations," *The Drew Papers*, no. 10 (2013): 28.

⁵⁴ JADC2 is a concept that attempts to connect all military services into a single network. The JADC2 center fuses the battle managers, information, networks, artificial intelligence. It may exist as a single physical location, or it may exist on a cloud server with multiple physical locations. Regardless, an Air Force officer will typically refer to this type of organization as a weapons system.

⁵⁵ Jeffrey W. Donnithorne, "Culture Wars," 28.

⁵⁶ Carl H. Builder, *The Masks of War*, 28.

⁵⁷ US Department of the Air Force, Volume 1 Basic Doctrine, *Airpower* (Washington, DC: Government Publishing Office, 2015), 1-3.

tactical manuals about the employment of technologies are hundreds of pages long. Another way to understand how the Air Force views technology is by their artifacts.

Artifacts are a simple way to view an organizational culture because they represent how a group constructs its reality.⁵⁸ Technology drives the Air Force. Hence their artifacts are almost exclusively derived from technology. For example, a maintenance squadron working on F-15s will have pictures of F-15s on their unit coin.⁵⁹ Another example is the artifacts that the Air Force presents to outsiders. Visit a Facebook page for any Air Force base with fighter jets, and they are guaranteed to have photos of their aircraft at the top of the page.⁶⁰ Contrast this to an Army post's Facebook page where they are likely to showcase soldiers or unit symbols.⁶¹ These coins and websites showcase the organizational culture of the Air Force. The final aspect of how the Air Force views technology is the combat airmen's mindset.

What scares any Air Force pilot is not fighting outnumbered but fighting against superior technology.⁶² This concept has been noted by defense analyst Carl Builder "to be outnumbered may be tolerable, but to be outflown is not. The way to get the American flier's attention is to confront him with a superior machine."⁶³ The focus of an Air Force officer is typically on achieving technological overmatch vice achieving numerical overmatch.⁶⁴ Contrast this with the Army officer's focus on numerical overmatch, such as attaining a 3:1 force ratio for an offensive attack against a prepared or fortified force.⁶⁵

⁵⁸ Edgar H. Schein, 1.

⁵⁹ Carl H. Builder, *The Masks of War*, 28.

⁶⁰ "Royal Air Force Lakenheath," Facebook, accessed November 4, 2020, <https://www.facebook.com/RAFLakenheath/>.

⁶¹ "US Army Fort Benning," Facebook, accessed November 4, 2020, <https://www.facebook.com/FortBenningMCoE/>.

⁶² Jeffrey W. Donnithorne, "Culture Wars," 29.

⁶³ Carl H. Builder, *The Masks of War*, 22.

⁶⁴ Jeffrey W. Donnithorne, "Culture Wars," 29.

⁶⁵ US Department of the Army, Field Manual (FM) 6-0, *Commander and Staff Organization and Operations* (Washington, DC: Government Publishing Office, 2016), 9-20.

Technology drives how the Air Force views warfare, especially their command and control structure. However, it is not the only concept driving their command and control understanding. The cultural insecurity of the Air Force plays a substantial role in how the Air Force operates.

Organizationally Insecure

The Air Force is organizationally conscious that it needs to defend its institutional legitimacy.⁶⁶ This insecurity drives the need to be at the forefront of developing an MDO command and control infrastructure. There is a fear within the Air Force that it is relegated to merely a support agency to the other service branches. Because of this fear, the Air Force MDO command and control structure calls for a joint approach to MDO employment. This organizational insecurity can be explained in two ways, first by the heroes that the Air Force portrays and the language of its leadership.

As explained in the previous section, the Air Force typically glorifies technological development instead of past leadership. However, there are notable exceptions, such as Colonel Billy Mitchell. In his book, *Winged Defense*, Colonel Mitchell makes a controversial argument for developing an independent Air Force. Since an organization typically finds solutions to problems from the organization's early leaders, it is noteworthy that the Air Force's hero in its professional military education is the most outspoken on creating a separate Air Force.⁶⁷ This idea of defending the Air Force organization has pervaded the force today. Furthermore, what modern-day leaders say about the Air Force can help frame this defensive mindset.

Within any organization, a primary task is to defend the organization's legitimacy and ensure the group's basic survival.⁶⁸ Because of the Air Force's organizational insecurity, its

⁶⁶ Jeffrey W. Donnithorne, "Culture Wars," 33.

⁶⁷ Edgar H. Schein, 6.

⁶⁸ *Ibid.*, 9.

leaders still feel the need to protect the organization. In 1989, an unpublished white paper, "A View of the Air Force Today" states that "The Air Force seems to have lost its sense of identity and unique contribution."⁶⁹ Even as late as 2009, the service chief commented to the Washington Post, "Who are we? What are we doing for the nation's defense?...Where is this grand institution headed?"⁷⁰ Furthermore, even outsiders see the Air Force struggle with their identity. In his book, *Grounded*, Robert M. Farley comments on a separate speech by General Schwartz, "The speech evokes no confidence in the idea that the air force can independently provide a decisive impact on world events. The represents an important downward revision in expectations for what independent airpower can achieve."⁷¹ Therefore, the author notes, "if the air force cannot provide independent decisive effect, and instead exists only to support the other services in their aims, then it becomes harder to justify the organization's independent existence."⁷² This type of conversation would not be had in some other branches, such as the Navy, which has a provision in the US Constitution.⁷³ This cultural insecurity is not necessarily bad, but it does drive the organization to place itself at the forefront of innovation. It is manifested today in how the Air Force views MDO command and control.

Fear can be a driving force in any organization. For the Air Force, this organizational insecurity is dramatic and shapes airmen's mindset across the force. Because of this insecurity and the Air Force's technological focus, subcultures within the Air Force play a significant role.

⁶⁹ Carl H. Builder, *The Icarus Syndrome: The Role of Air Power Theory in Evolution and Fate of the U.S. Air Force*, (New Brunswick, NJ: Transaction Publishers, 1994), 5. Quoted in Jeffrey W. Donnithorne, "Culture Wars: Air Force Culture and Civil-Military Relations," *The Drew Papers*, no. 10 (2013): 33.

⁷⁰ "Combat Generation: Drone operators climb on wings of change in the Air Force," Washington Post, last modified 2010, accessed November 20, 2020, https://www.washingtonpost.com/wp-dyn/content/article/2010/02/27/AR2010022703754_2.html?hpid=topnews&sid=ST2010052901564.

⁷¹ Robert M. Farley, *Grounded: The Case for Abolishing the United States Air Force*, (Lexington, KY: The University Press of Kentucky, 2014), 181.

⁷² *Ibid.*, 183.

⁷³ US Constitution, art. 1, sec. 8, cl. 13.

Furthermore, within those subcultures, an extreme level of trust is placed within airmen to make strategic decisions for the organization.

Power Allocation and Subcultures

Every organization has developed a power allocation method and the rules for who gets, maintains, and loses power.⁷⁴ Because of the influence of technology on the organization, the specialists' allocation of power and responsibility is significant. For example, it would not be uncommon in the Air Force for a Captain to issue a command to a Colonel, which is perfectly acceptable within the organization. This power allocation manifests itself in how the Air Force views MDO command and control. A key component to the Air Force MDO command and control vision is having company grade officers and NCOs making strategic decisions for the organization within the JADC2 Center. There are two reasons why the Air Force has developed this allocation of power methodology. The first is that it is born out of necessity.

Leaders within the Air Force have grown up in an environment where aircraft are the primary source of combat capability. While the Air Force has a diversity of leaders, seven out of the eight 4-star Generals from the Air Force major commands and Air Staff come from a combat aircraft background. From the perspective of an aviator of a combat aircraft, warfare is typically high tempo and relatively short. This type of conflict requires airmen to make strategic level decisions without guidance from higher-level leadership. The Air Force views greater oversight and additional layers of command as impediments to combat efficiency.⁷⁵ Therefore, it is no surprise that Air Force leadership is comfortable delegating power to lower-level airmen within the organization. The second reason the Air Force trusts lower-level airmen is the perception of elite professionals within the service.

⁷⁴ Edgar H. Schein, 9.

⁷⁵ William C. Thomas, "The Cultural Identity of the United States Air Force," *Air and Space Power Chronicles*, (January 2004): 8.

Within the Air Force, there exists a subculture of elite professionals. Nearly every airman will associate themselves with the technology that they are associated with. Airmen see themselves as technical experts and the military as an occupation.⁷⁶ This technical expertise mindset manifests itself at the Air Force's operational level of warfare with a Mission Commander concept, which is rank agnostic and the pinnacle of operational expertise. Furthermore, this Mission Commander does not need to be a pilot, which supports the idea of all airmen viewing themselves as elite professionals, not just pilots. The Air Force envisions this Mission Commander being at the JADC2 Center, directing MDO assets, and is conceptually in line with the Air Force culture.

From the Air Force's perspective, for the JADC2 Center to be effective, the power of making strategic decisions must rest with lower ranking officers. This concept is comfortable for the Air Force senior leaders because it is the environment that they were forced into while flying combat aircraft themselves. Furthermore, the acknowledgment of elite subcultures within the Air Force permeates the idea that the JADC2 Center is the best way to command and control MDO enablers. The final cultural aspect of the Air Force driving their concept of MDO command and control is their idea of centralized control.

Centralized Control

A fundamental tenet of the operational approach within the Air Force is centralized control and decentralized execution. Nearly every Air Force officer can rattle off this phrase. The typical Air Force officer has grown up in an environment that airpower should be centrally controlled as a unified fighting element.⁷⁷ This concept goes against the other services that need to keep their assets to aid in their maneuver. For example, the Navy will typically want to keep their air assets to protect Naval assets. Airmen apply this centralized control concept to airpower

⁷⁶ Carl H. Builder, *The Icarus Syndrome*, 180.

⁷⁷ Jeffrey W. Donnithorne, *Four Guardians: A Principled Agent View of American Civil-Military Relations* (Baltimore, MD: Johns Hopkins University Press, 2018), 117.

and managing other assets such as money, personnel, and equipment.⁷⁸ Naturally, this concept carries over to the Air Force vision for MDO command and control based on centralized control in a JADC2 Center. Driving this centralized control concept are three traits inherent to the air domain, the first being operationally limited assets.

Every military service deals with operationally limited assets. However, in the Air Force, this problem is exaggerated. Aircraft are costly, have long production cycles, and require intense sustainment to maintain. Furthermore, there is a limited number of pilots to fly these aircraft, often taking years to train a single pilot. With this mindset of fixed assets, the Air Force culture has gravitated towards a centralized control mindset. Colonel Phillip S. Melinger noted this concept in his book *10 Propositions Regarding Air Power*, "Air Power's unique characteristics necessitate that it be centrally controlled by airmen."⁷⁹ Again, this concept spills over into how the Air Force would like to centrally control MDO assets since the Air Force views them as a limited asset like a fighter jet. The second aspect driving the concept of centralized control for the Air Force is their preferred speed of warfare.

Airpower doctrine places a particular emphasis on speed, but only if that speed can be coordinated appropriately. Within the Air Force *Annex 3-0 – Operations and Planning*, the doctrine states, "Airpower can provide simultaneous and rapid attack on key nodes and forces, producing effects that can overwhelm the enemy's capacity to adapt or recover." An example is Boyd's OODP loop planning model, which stresses the ability to provide decisive effects to the enemy inside the enemy's decision-making process. The Air force believes that by controlling aircraft with centralized control, they can achieve a decisive force faster than the enemy can adapt to.⁸⁰ Furthermore, the Air Force wants operations to be organized in parallel vice serial, which

⁷⁸ Jeffrey W. Donnithorne, *Four Guardians*, 117.

⁷⁹ Phillip S. Meilinger, *10 Propositions Regarding Air Power* (Maxwell AFB, AL: Air Force History and Museums Program, 1995), 2.

⁸⁰ Jeffrey W. Donnithorne, *Four Guardians*, 118.

relies on speed to achieve asymmetric operations..⁸¹ This speed concept is critical to the centralized control concept for MDO enablers that the Air Force envisions. This concept of speed in the battlespace is like another problem Airmen encounter, which is scale.

When an airman thinks about the battlespace, they consistently do this at a larger scale than other services. Walk around an Air Force squadron in combat, and it is common to see maps only depicting the entire AO. To solve an immense scale problem, the typical airmen will default to a centralized control mindset. This mindset feels comfortable for airmen because it creates the impression that they are taking the entire AO into account. It is the third and arguably most important reason that Airmen prefer a centralized command and control.

Centralized control is a fundamental organizing principle of airpower..⁸² The Air Force is accustomed to airpower's ability to affect a conflict's strategic and operational levels directly. They see airmen as maintaining a broad perspective on the application of force. With this concept, the Air Force has designed the JADC2 Center with the same type of centralized control to manage airpower and all MDO enablers.

Summary

Technology, organizational insecurity, power allocation, and centralized control all play an essential part of Air Force culture. Therefore, it should not be surprising that the Air Force has developed an MDO command and control concept aligned with this cultural identity. However, MDO command and control is an ill-structured problem, and there will be disagreement on how the problem should be solved. Case in point, the Army has its approach to MDO command and control centered around their organizational culture.

⁸¹ US Department of the Air Force, Annex 3-0, *Operations and Planning* (Washington, DC: Government Publishing Office, 2016), 36.

⁸² US Department of the Air Force, Volume 1 Basic Doctrine, *Centralized Control and Decentralized Execution* (Washington, DC: Government Publishing Office, 2015), 67.

Section 3

The Army is the oldest of all the service branches with lineage to the Continental Army of 1775 led by George Washington.⁸³ At that time, it was a relatively small militia and existed as a means for the thirteen unified American colonies to fight the British.⁸⁴ Today the Army's mission is "to deploy fight, and win our nation's wars by providing ready, prompt, and sustained land dominance by Army forces across the full spectrum of conflict as part of the Joint Force."⁸⁵ It does this with a force of 700,00 Soldiers, active duty, and reserve. Along the way from 1775 to 2020, the Army, according to this author, has developed five distinct organizational cultural features, those being a conductor's mentality, interdependence, modularity, exposure, and mission command. Out of those five, conceivably the strongest cultural aspect among their officers is the conductor's mentality.

Conductor's Mentality

Like how a conductor unifies, coordinates, and sets the orchestra's tempo, an Army leader views themselves as performing similar actions within their organization, especially at the higher echelon staff level. Doctrinally, the Army employs operational art and views it as "the pursuit of strategic objectives, in whole or in part, through the arrangement of tactical actions in time, space, and purpose."⁸⁶ To arrange MDO tactical actions, the Army needs to control those enablers and have Multi-Domain capable units.⁸⁷ Influencing this concept of being the Maestro of the land are the fragmentation of force, scale, and historical lessons.

⁸³ "About the Army," US Army, last modified July 10, 2018, accessed February 5, 2021, <https://www.goarmy.com/about/what-is-the-army/history.html>.

⁸⁴ Ibid.

⁸⁵ Mark A. Milley, "The Army Vision" (Letter to US Army Personnel, Washington, DC, 2018), 1.

⁸⁶ US Department of the Army, Army Doctrine Publication (ADP) 3-0, *Operations* (Washington, DC: Government Publishing Office, 2019), 2-1.

⁸⁷ US Department of the Army, TRADOC Pamphlet 525-3-1, 19.

The Army has several aspects that lead to a fragmented force that needs extra coordination from its leadership. First, the Army is a vast organization of nearly 700,000 active duty and reserve personnel.⁸⁸ Additionally, there are 337,000 troops from all the states and territories.⁸⁹ Second, within the Army organization, there are three primary combat branches, the infantry, field artillery, and armor.⁹⁰ However, there are several other branches over a variety of expertise. Finally, its force's modularity leads to fragmentation since units are combined with other units that they may be unfamiliar to. All this leads to the Army experience of being the most fragmented of all the services.⁹¹ Because of this fragmentation, it is comfortable for an Army officer to put together several different MDO enablers under their command and control structure or delegate them to a different echelon. Another matter leading to Army officer's conductor mindset is the unprecedented scope and scale of the Army.

The scope and scale of what an Army officer needs to consider at the division, corps, or field army level are unique from the other services. The concept of Unified Land Operations best sums up the massive scope and scale of the Army, "Unified Land operations is the simultaneous execution of offense, defense, stability, and defense support of civil authorities across multiple domains to shape operational environments, prevent conflict, prevail in large-scale ground combat, and consolidate gains as part of unified action."⁹² While other services consider other domains and long-time frames, no other service does this to the Army's extent. Because of this massive task, the Army sees a need to control MDO enablers to achieve unified action. While

⁸⁸ "About the Army," US Army, last modified July 10, 2018, accessed February 5, 2021, <https://www.goarmy.com/about/what-is-the-army/history.html>.

⁸⁹ "Army National Guard," Today's Military, accessed December 15, 2020, <https://www.todaymilitary.com/ways-to-serve/service-branches/army-national-guard>.

⁹⁰ Jeffrey W. Donnithorne, *Four Guardians*, 93.

⁹¹ Ibid.

⁹² US Department of the Army, Army Doctrine Publication (ADP) 3-0, 3-1.

being a conductor of forces is a vital cultural factor in the Army, Army officers' interdependence between their branches is another essential factor.

Interdependence

To a degree beyond the other services, the Army officer recognizes their interdependency and pays homage to the other branches.⁹³ When an Army officer introduces themselves, they will often attach their associated branch. This introduction does not imply that their branch is dominant over the others, which is different from the Air Force that sometimes has a pilot versus everyone else mentality. Instead, it is to reference their background to whom they are communicating. In an Army officer's eyes, this type of teamwork and healthy interdependence are vital to winning in the battlespace. This idea rolls over into how they view MDO command and control. Since they view their organization as interdependent, it is natural for an Army officer to want organic MDO enablers within that interdependent Army system. What creates this organizational culture of interdependence within the Army? It is primarily a dampened emphasis of sub-culture and historical motivation for combined combat arms. A key influence on the sub-culture aspect is the Army educational system.

The Army's educational systems offer an insight into this dampening of sub-culture within the force. At West Point, their curriculum has changed to prepare officers to cope with multiple challenges balancing technical and non-technical subjects.⁹⁴ Furthermore, in exercises at the Command and General Staff Officer Course (CGSOC) and the Advanced Military Studies Program (AMSP), students are typically placed outside their area of expertise, which in turn discourages students from forming into sub-cultures based on their respective branch. Another aspect that diminishes the concept of sub-cultures in the Army is the enlisted and officer

⁹³ Carl H. Builder, *The Masks of War*, 27.

⁹⁴ George R. Mastroianni, "Occupations, Cultures, and Leadership in the Army and Air Force," *US Army War College Quarterly* 35, no.4 (Winter 2005-06): 84.

relationship. In the Air Force, an enlisted member does not teach a pilot how to fly.⁹⁵ Conversely, in the Army, NCOs teach young lieutenants how to be good leaders.⁹⁶ Since NCOs from all backgrounds can teach leadership to officers of all backgrounds, this promotes interdependence within the Army. Finally, an Army study conducted in 2010 indicates "there is little if any sub-cultural influence on the larger homogeneous US Army culture."⁹⁷ Since there is little influence of sub-culture within the Army, this amplifies the force's interdependence since no single branch feels dominant over another. Because of this interdependent culture, an Army officer will prefer to command and control MDO assets at the appropriate echelon, vice relying on another service for support. Furthermore, another aspect driving this interdependent culture is the Army's past concept of combined arms.

The idea of combined arms from the Army's officer's perspective includes joint and multinational partners. However, there is still a lingering idea within Army culture that combined arms is focused on Army assets. There are two reasons for this. First, *Army Doctrine Publication 3-0 Operations* has only been recently updated to include non-Army entities into combined arms stating, "the capabilities of all Army, joint, and multinational weapons systems-in the air, land, maritime, space, and cyberspace domains-in a complementary and reinforcing ways."⁹⁸ In the 2016 version of *Army Doctrine Publication 3-0 Operations*, there is a mention of joint and multinational partners in combined arms, but it does not go into the same detail seen in the 2019 version. Furthermore, in the 2011 version of *Army Design Publication 3-0 Operations*, there is almost no reference to joint partners or other domains in combined arms maneuver. The second reason that the Army has a culture of combined arms being Army centric is the historical studies

⁹⁵ George R. Mastroianni, "Occupations, Cultures, and Leadership in the Army and Air Force," 80.

⁹⁶ Ibid.

⁹⁷ James G. Pierce, *Is the Organizational Culture of the U.S. Army Congruent with Professional Development of its Senior Level Officer Corps?* (Carlisle, PA: Strategic Studies Institute, 2010), 100.

⁹⁸ US Department of the Army, *Army Doctrine Publication (ADP) 3-0, 3-9*.

that their institutions choose to study. The notable examples in CGSC and AMSP are the study of the Napoleonic Wars and World War II. For instance, in the AMSP syllabus, *Foundations in Theory: Operational Art*, two of the three blocks that build an understanding of warfare are the Napoleonic Era and World War II.⁹⁹ Additionally, both those blocks include the topic of combined arms employment.¹⁰⁰ While these are undoubtedly critical lessons in history, picking eras to evaluate combined arms with other emerging or non-existent domains creates a culture that combined arms have an Army vice joint focus. Again, this cultural aspect promotes the idea of command and control of MDO assets by echelon within the Army.

Modularity

In the early 2000s, the Army shifted from a division-centric structure to a force whose constituent building blocks are brigades and the BCT (Brigade Combat Team).¹⁰¹ This shift created a cultural aspect within the Army that has two dimensions. First, it is embedded in Army culture to quickly understand their force structure because of the various command and supporting relationships. For example, step one in the Military Decisions Making Process (MDMP) includes running estimates to understand forces available.¹⁰² The second cultural dimension that modularity creates is a commander's mindset to argue for more Army assets because they can flow into their force structure. This movement of assets also creates a pecking order of support structures that are more desirous for commanders, with the most prized being organic support since it can be tasked and held accountable.¹⁰³ Additionally, the force "modularity" concept naturally plays into how the Army views MDO enablers. Based on their

⁹⁹ Justin Kidd, *Foundations in Theory: Operational Art Syllabus* (Ft. Leavenworth, KS: School of Advanced Military Studies, 2020), 1.

¹⁰⁰ Ibid.

¹⁰¹ Jordan R. Fischbach, Stuart E. Johnson, Karin E. Kitchens, Aaron Martin, and John E. Peters, *A Review of the Army's Modular Force Structure* (Santa Monica, CA: RAND Corporation, 2012), iii.

¹⁰² US Department of the Army, Field Manual (FM) 6-0, 9-4.

¹⁰³ Jeffrey W. Donnithorne, *Four Guardians*, 94.

culture, an Army officer is comfortable arguing for specific MDO enablers within their task organization. Here, the cultural mindset drives why the Army views MDO command and control as a “by echelon” system within the Army. Another aspect that drives the Army culture towards controlling MDO enablers is their vulnerability in combat.

Exposure

Army combat operations differ from the Air Force in that they are regularly exposed to enemy forces based on their proximity.¹⁰⁴ While not all Army branches see continuous combat, all Army officer's expectation is to always be prepared for combat. Unsurprisingly, this creates an environment where Army officers want to maximize control of assets within their AO.¹⁰⁵ The Army certainly depends on other services across the spectrum of warfare. However, that support can feel that it is not available when needed, such as air support that does not arrive because of poor weather. This feeling creates a culture of "since we do not know for sure that external support will be there, we should act conservatively and make an Army-only plan."¹⁰⁶ Therefore, the culture of an Army-only plan drives how the Army views MDO command and control. Because that external support can be fickle, an Army officer would prefer an MDO asset under their direct control. The last cultural factor shaping the Army's framework of MDO command and control is their concept of mission command.

Mission Command

A central tenet within Army culture is mission command, defined in their doctrine as, "The Army's approach to command and control that empowers subordinate decision making and decentralized execution appropriate to the situation."¹⁰⁷ From the Army officers' perspective,

¹⁰⁴ Jeffrey W. Donnithorne, *Four Guardians*, 94.

¹⁰⁵ *Ibid.*

¹⁰⁶ *Ibid.*, 95.

¹⁰⁷ US Department of the Army, Field Manual (FM) 6-0, Glossary-3.

inspiring this concept of mission command is the friction of war, which they believe will break down communications within the force. A central reading from both CGSC and AMSP is *On War*, where Carl von Clausewitz discusses the notion of friction as "Everything in war is very simple, but the simplest thing is difficult."¹⁰⁸ Arguably, the Army has the idea of war to experience tremendous friction, which influences their organization by using their doctrinal definition of mission command. This cultural aspect of the Army drives the MDO command and control concept in their MDO documents. If MDO assets can be delegated to the proper authority, it will allow those commanders to make the best use of the MDO enablers for the ground scheme of maneuver.

Summary

The Army is an institution with a rich history and distinct military ethos. Driving their military culture are the conductor's mentality, interdependence, modularity, exposure, and mission command. These cultural drivers directly influenced how the Army developed *The U.S. Army in Multi-Domain Operations 2028*. Furthermore, understanding the Army culture aids in understanding why the Army views MDO command and control differently than the Air Force. By addressing these differences, a shared understanding of command and control between the two services can begin.

¹⁰⁸ Carl von Clausewitz, *On War*, ed. Michael Howard, and Peter Paret (Princeton, NJ: Princeton University Press, 1989), 119.

Conclusion

Summary and Recommendations

This paper has identified divergent concepts on MDO command and control based on their published documents. Driving these divergent concepts are the cultural differences that exist between the Air Force and Army. This author states that the Airman has a culture derived around technology, operational insecurity, power allocation structures, and centralized control. Conversely, the Soldier has a culture drawn from a conductor's mentality, interdependence, modularity, exposure, and mission command. Fortunately, the Department of Defense will likely publish a joint command and control doctrine soon. However, tensions will still exist between the Air Force and Army about command and control based on their organizational culture. Air Force and Army officers must understand their own culture and their sister services culture to help alleviate the friction over command and control.

There is a way for Air Force and Army officers to transition from their current command and control concepts to the next evolution of doctrine that incorporates emerging technologies. The first step is for Air Force and Army officers to understand their culture since it is possible "that managers are more likely to be managed by their organizational culture than they are to manage those cultures."¹⁰⁹ The second step is for Army and Air Force personnel to understand the other service's culture. Understanding another organization's culture is challenging. However, this paper provides a framework for viewing the drivers of organizational culture. Specifically, this paper evaluated the history, artifacts, values, assumptions, norms, and various other Air Force and Army cultural topics. Two other writings foundational for any military member to leverage in understanding another culture are *Coming to a New Awareness of Organizational Culture* by Edgar H. Schein and *Organizational Theory*, specifically Chapter 6, by Mary Jo Hatch. Armed

¹⁰⁹ Mary Jo Hatch, *Organizational Theory: Modern, Symbolic, and Postmodern Perspectives* (Oxford, England: Oxford University Press, 2018), 210.

with this knowledge of organizational culture, Airmen and Soldiers will have a jump start employing joint command and control doctrine that converges assets from multiple domains.

Further Study

There are two recommendations that this paper is proposing for further study. The first is to provide this same type of organizational culture analysis and how that influences their MDO command and control concept for the Navy and Marine Corps. Since the Navy and Marine Corps will likely have their MDO command and control views, this would warrant a study. The second is a case study analysis about how organizations with different cultures came together. For example, the controversial opening of a new Disneyland theme park in France.¹¹⁰ In this case, Disneyland, with a strong American culture was exposed to a new operational environment, a strong French culture. At first, Disney struggled at the organizational level adapting its culture to the new French cultural environment.¹¹¹ However, Disney was able to modify its organizational culture. For example, Disney adjusted their dress code for French employees and altered their beverage items to match the French culture.¹¹² Additionally, portions of France accepted this theme park within their culture which was evident by the French government offering Disney a loan to keep the park open.¹¹³ Future warfare will be more joint because of increased tempo, global sensors and fires, and artificial intelligence. This joint integration will lead to merging the services previously centered on their own service's domain. Therefore, a case study on organizations with different cultures merging is necessary.

¹¹⁰ Mary Jo Hatch, *Organizational Theory: Modern, Symbolic, and Postmodern Perspectives* (Oxford, England: Oxford University Press, 2018), 196.

¹¹¹ Ibid.

¹¹² Ibid.

¹¹³ Ibid.

Bibliography

- Builder, Carl H. *The Icarus Syndrome: The Role of Air Power Theory in Evolution and Fate of the U.S. Air Force*. New Brunswick, NJ: Transaction Publishers, 1994.
- . *The Masks of War: American Military Styles in Strategy and Analysis*. Baltimore, MD: The Johns Hopkins University Press, 1989.
- Clausewitz, Carl von. *On War*. Edited by Michael Howard, and Peter Paret. Princeton, NJ: Princeton University Press, 1989.
- Cooper III, Cortez A., Christian Curriden, Logan Ma, Lindsey Polley, and J.D. Williams. *Chinese Views on Big Data Analytics*. Santa Monica, CA: RAND Corporation, 2020.
- D'Este, Carlo. *Bitter Victory: The Battle for Sicily 1943*. New York, NY: E.P. Dutton, 1988.
- Donnithorne, Jeffrey W. "Culture Wars: Air Force Culture and Civil-Military Relations." *The Drew Papers*, no. 10 (2013).
- . *Four Guardians: A Principled Agent View of American Civil-Military Relations*. Baltimore, MD: Johns Hopkins University Press, 2018.
- Facebook. "Royal Air Force Lakenheath." Accessed November 4, 2020.
<https://www.facebook.com/RAFLakenheath/>.
- . "US Army Fort Benning." Accessed November 4, 2020.
<https://www.facebook.com/FortBenningMCoE/>
- Farley, Robert M. *Grounded: The Case for Abolishing the United States Air Force*. Lexington, KY: The University Press of Kentucky, 2014.
- Fischbach, Jordan R., Stuart E. Johnson, Karin E. Kitchens, Aaron Martin, and John E. Peters. *A Review of the Army's Modular Force Structure*. Santa Monica, CA: RAND Corporation, 2012.
- Freedberg Jr., Sydney J. "Army Seeks New Mid-Range Missile Prototype By 2023." *Breaking Defense, Breaking Media*. September 8, 2020. Accessed December 10, 2020.
<https://www.breakingdefense.com/2020/09/army-seeks-new-mid-range-missile-prototype-by-2023/>.
- . "The Golden 5 Minutes!: The Need For Speed In Information Warfare." *Breaking Defense, Breaking Media*. October 21, 2019. Accessed January 5, 2021.
<https://www.breakingdefense.com/2019/10/the-golden-five-minutes-the-need-for-speed-in-information-war/>.
- Hatch, Mary Jo. *Organizational Theory: Modern, Symbolic, and Postmodern Perspectives*. Oxford, England: Oxford University Press, 2018.

- Kidd, Justin. *Foundations in Theory: Operational Art Syllabus*. Ft. Leavenworth, KS: School of Advanced Military Studies, 2020.
- Lockheed Martin. "Have Raider Demo." Accessed 12 October, 2020.
<https://www.lockheedmartin.com/en-us/capabilities/autonomous-unmanned-systems/unmanned-military-case-study-have-raider-demo.html>.
- Mastroianni, George R. "Occupations, Cultures, and Leadership in the Army and Air Force." *US Army War College Quarterly* 35, no.4 (Winter 2005-06): 76-90.
- Meilinger, Phillip S. *10 Propositions Regarding Air Power*. Maxwell AFB, AL: Air Force History and Museums Program, 1995.
- Milley, Mark A. "The Army Vision." Letter to US Army Personnel, Washington, DC, 2018.
- Nichiporuk, Brian. *U.S. Military Opportunities: Information-Warfare Concepts of Operation*. Edited by Zalmay M. Khalilzad, and John P. White. Santa Monica, CA: RAND Corporation, 1999.
- Pierce, James G. *Is the Organizational Culture of the U.S. Army Congruent with Professional Development of its Senior Level Officer Corps?* Carlisle, PA: Strategic Studies Institute, 2010.
- Rife, Shawn. "Kasserine Pass and the Proper Application of Airpower." *Joint Force Quarterly*, (Autumn/Winter 1998-1999): 71-77.
- Schein, Edgar H. "Coming to a New Awareness of Organizational Culture." *Sloan Management Review* 25, no. 2 (Winter 1984): 3-16.
- Today's Military. "Army National Guard." Accessed December 15, 2020.
<https://www.todaysmilitary.com/ways-to-serve/service-branches/army-national-guard>.
- Thomas, William C. "The Cultural Identity of the United States Air Force." *Air and Space Power Chronicles*, (January 2004).
- Underwood, Kimberly. "Getting to Joint Warfighting." *Signal*, AFCEA, Last Modified November 13, 2019. Accessed October 10, 2021. <https://www.afcea.org/content/getting-joint-warfighting>.
- US Army. "About the Army." Last modified July 10, 2018. Accessed February 5, 2021.
<https://www.goarmy.com/about/what-is-the-army/history.html>.
- US Department of the Air Force. Annex 3-0, *Operations and Planning*. Washington, DC: Government Publishing Office, 2016.
- . Annex 3-1, *Department of the Air Force Role in Joint All-Domain Operations*. Washington, DC: Government Publishing Office, 2020.
- . Volume 1 Basic Doctrine, *Airpower*. Washington, DC: Government Publishing Office, 2015.

- . Volume 1 Basic Doctrine, *Centralized Control and Decentralized Execution*. Washington, DC: Government Publishing Office, 2015.
- US Department of the Army. Army Doctrine Publication (ADP) 3-0, *Operations*. Washington, DC: Government Publishing Office, 2019.
- . Field Manual (FM) 6-0, *Commander and Staff Organization and Operations*. Washington, DC: Government Publishing Office, 2016.
- . Field Manual (FM) 31-35, *Aviation in Support of Ground Operations*. Washington, DC: Government Publishing Office, 1942.
- . TRADOC Pamphlet 525-3-1, *The U.S. Army in Multi-Domain Operations 2028*. Washington, DC: Government Publishing Office, 2018.
- Washington Post. "Combat Generation: Drone operators climb on wings of change in the Air Force." Last modified 2010. Accessed November 20, 2020.
https://www.washingtonpost.com/wp-dyn/content/article/2010/02/27/AR2010022703754_2.html?hpid=topnews&sid=ST2010052901564.