Authorities Required to Conduct Multi-Domain Operations

A Monograph

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Abstract

Authorities Required to Conduct Multi-Domain Operations, by MAJ Matt Lyles, 39 pages.

Multi-Domain Operations (MDO) is being discussed by all services today as a new concept. This concept is not new; in fact, MDO has been executed multiple times throughout history. This monograph proposes that commanders must possess the necessary authority to use MDO against a peer or near-peer adversary effectively. These authorities will enable commanders to prioritize efforts and synchronize effects across all domains. For this to occur, a single commander must be able to utilize capabilities across the entirety of the DOD enterprise.

To demonstrate that MDO is not a new phenomenon, this monograph will evaluate a single case study focused on two battles in the pacific theater during World War II: New Guinea and the Solomon Islands. From examining these two battles across time and space, it will become clear that Admiral Nimitz and General MacArthur both conducted MDO against the Japanese in the Pacific Campaign. These commanders were successful by employing assets and capabilities from all domains to deliver devastating effects on a numerically superior adversary. Both commanders were successful because they possessed the authority to synchronize all of their limited assets across all domains (Air, Land, Maritime, and ULTRA) available during WWII.

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Abbreviations

ADP	Army Doctrine Publication
COCOM	Combatant Command
CTF	Combined Task Force
DOD	Department of Defense
EMS	Electro-magnetic Spectrum
FM	Field Manual
JCS	Joint Chiefs of Staff
JP	Joint Publication
MDO	Multi-Domain Operations
MDOTF	Multi-Domain Operations Task Force

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Introduction

Multi-Domain Operations is the next evolution of Combat Operations that may have revolutionary effects.

- GEN Brown, *PACOM CDR*

Multi-Domain Operations (MDO) is being discussed by all services today as a new concept. This concept is not new; MDO has been executed multiple times throughout history. MDO is the evolution of combat operations due to the ability to conduct activities in space and the electromagnetic spectrum (EMS). New technology forces commanders to understand and conduct offensive and defensive operations in domains previously not contested. Military professionals must adapt to these new technologies and capabilities. By changing, future commanders must learn and understand what each domain can bring to the modern battlefield. Commanders then understand each domain, can integrate the domains to achieve effects, identify the interdependencies of the domains, and exploit the adversary across all domains.

For this to occur, the Department of Defense (DOD) must define what MDO is for all of the services. Once the DOD describes what MDO signifies to the enterprise, it must ensure that the DOD is investing, training, and learning how to exploit all domains (land, air, maritime, EMS, and space). This undertaking is critical to ensuring that the United States maintains a competitive advantage and freedom of maneuver across all domains.

To effectively use MDO against a peer or near-peer adversary, commanders must possess the authorities to prioritize efforts and synchronize the effects of all domains. When maintaining these authorities, a single commander can utilize capability across the entirety of the DOD enterprise. The DOD enterprise includes the Joint Force, Interagency partners, and assets from all domains critical to the area of operations. To demonstrate that MDO is not a new phenomenon, this study will conduct one case study focusing on two battles in the pacific theater in World War II: the Solomon Islands and New Guinea. By examining these two locations in time and space, it will become clear that Admiral Nimitz and General MacArthur were conducting MDO. Both

leaders possessed command authorities enabling them to synchronize assets within their commands to deliver devastating effects on the numerically superior enemy. The commander's ability to synchronize multiple domains created opportunities in the Pacific that led to Allied forces successfully fighting and winning against a numerically superior adversary.

Authorities are critical to the implementation of MDO across the Department of Defense. Multi-Domain Operations as described in TRADOC Pamphlet 525-3-1 are, "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."[1] To present near-peer or a peer adversary with this type of dilemma, MDO commanders must have the necessary authorities to leverage new technology and capability (space/cyber/EMS) on the modern battlefield. By empowering commanders with these authorities, a designated commander would be able to synchronize capabilities and assets across the Department of Defense (DOD) to create layered synergy, thus enabling the penetration and dis-integration of enemy defenses to defeat an adversary.[2]

This examination is significant because it will demonstrate the authorities that commanders must have to fight and win our nation's wars. If the DOD is going to use MDO, then the enterprise and services must adapt and make a course correction. This correction would entail new professional military education, new doctrine, and teaching a new generation of service members, interagency members, and civilians how to integrate to achieve MDO effects across the domains. This would fundamentally change the way the DOD enterprise views itself. All

[1] US Department of the Army, Training and Doctrine Command (TRADOC) Pamphlet 525-3-1, *The U.S. Army in Multi-Domain Operations 2028*.(Washington, DC: Government Printing Office, December 2018) GL-7.

[2] Ibid., vii.

organizations, both military and civilian, would need to understand it is paramount they work together to deliver the desired effects on a peer or near-peer adversary. When accomplished, a new level of cooperation will occur in the planning and execution of operations. If the DOD enterprise comes together, only then will it demonstrate MDO's ability to harness and create layered effects across all domains. The layered effects will allow commanders to create tactical overmatch across the adversary's domains to penetrate and dis-integrate enemy defenses to achieve national objectives.

This research defines MDO related terms to provide further understanding and context. MDO, domain, and command authorities are critical terms used throughout the study. "Multi-Domain Operations (MDO) are 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."[3] A domain is another critical term in MDO, "domains are an area of activity within the operational environment (land, air, maritime, space, and cyberspace) in which operations are organized and conducted." (modified joint definition)[4]

When utilizing the capabilities of MDO commanders and their staffs must seek to identify opportunities to penetrate the enemy defensive systems. "A penetration is a form of maneuver in which an attacking force seeks to rupture enemy defenses on a narrow front to disrupt the defensive system."[5] Once commanders and staff have identified how and when to conduct a penetration, they then will seek to dis-integrate enemy capabilities. "Dis-integration is

[3] TRADOC Pamphlet 525-3-1, *The U.S. Army in Multi-Domain Operations 2028,* GL-7.

[4] Ibid., GL-4.

[5] US Department of the Army, Field Manual (FM) 3-90-1, *Offense and Defense* Volume 1 (Washington, DC: Government Printing Office, 2013), 1-14.

when an opposing force breaks the coherence of an adversary's system by destroying or disrupting its subcomponents (such as command and control means, intelligence collection, critical nodes, etc.) degrading its ability to conduct operations while leading to a rapid collapse of the enemy's capabilities or will to fight."[6]

As commanders seek to penetrate and dis-integrate an enemy's defense, a single commander must have the authority to enable his or her ability to synchronize operations to deliver the desired effects on an adversary. The following terms describe authorities: combatant command authority, basic authority, and coordinating authority. These authorities enable commanders to assign and employ forces and assets across the Department of Defense in their specific area of operations.

A Combatant Commander possesses, "command authority (COCOM) over assigned forces vested only in the commanders of CCMDs by Title 10, USC, Section 164 (or as otherwise directed by the President or SecDef) and cannot be delegated or transferred."[7] COCOM authority "provides full authority for a combatant commander (CCDR) to perform those functions of command over assigned forces involving organizing and employing commands and forces, assigning tasks, designating objectives, and giving authoritative direction over all aspects of military operations, joint training (or in the case of USSOCOM, training of assigned forces), and logistics necessary to accomplish the missions assigned to the command. COCOM should be exercised through the commanders of subordinate organizations, normally JFCs, Service and/or functional component commanders."[8]

CCDRs have coordinating authority, which is "the authority delegated to a commander or individual for coordinating specific functions or activities involving forces of two or more

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[6] TRADOC Pamphlet 525-3-1, *The U.S. Army in Multi-Domain Operations 2028,* GL-4.

[7] US Department of Defense, Joint Staff, Joint Publication (JP) *1-0 Doctrine for the Armed Forces of the United States*.(Washington, DC: Government Printing Office, 2013), V-2.

[8] Ibid.

military departments, two or more joint force components, or two or more forces of the same Service."[9] Coordinating authority is conducted at levels beneath the CCMD. An example of this is "a joint security commander exercises coordinating authority over area security operations within the joint security area. Commanders or leaders at any echelon at or below combatant command may be delegated coordinating authority. These individuals may be assigned responsibilities established through a memorandum of agreement between military and nonmilitary organizations."[10]

While conducting MDO, commanders will utilize coordinating authority to leverage assets from across the DOD. This coordination will "require consultation between the agencies involved but does not have the authority to compel agreement. In the event that essential agreement cannot be obtained, the matter shall be referred to the appointing authority."[11] Commanders will leverage coordinating authority due to it being "consultation relationship, not an authority through which command may be exercised."[12] The different types of command authorities discussed above are critical components that afford a commander the ability to synchronize assets to achieve his or her endstates deliberately.

Through the lenses of theory, history, and doctrine, this research will focus on archival material, historiography, current, and past doctrine, and theoretical frameworks to answer the proposed research questions. With access to the Combined Arms Research Library in Fort Leavenworth, KS, research will concentrate on military history works, summaries, and research papers from across the Department of Defense. It will also utilize subject matter experts in the field, such as Dr. Jeff Reilly, Director for Multi-Domain Operational Strategist Concentration at

[9] Headquarters, Department of the Army (HQDA), Field Manual (FM) 6-0, *Command and Staff Organization and Operations* (Washington, DC: Government Printing Office, 2014), B-3.

[10] Ibid.

[11] Ibid.

[12] JP 1-0, *Doctrine for the Armed Forces of the United States*, V-2.

Air Command and Staff College in Montgomery, AL. To inform this monograph's research, the historiography of battles in the Pacific theater will provide examples of a single commander utilizing MDO in the defeat of a peer adversary. These battles will also aid in guiding research, findings, and historical context. The doctrine will provide clarity as Army doctrine is rapidly changing to include and implement a shift towards MDO across the force.

By examining history and doctrine, this examination proposes commanders must possess the necessary authority to use MDO against a peer or near-peer adversary effectively. These authorities must enable commanders to prioritize efforts and synchronize the effects of all domains. For this to occur, a single commander must be able to utilize capability across the entirety of the DOD enterprise. The DOD enterprise would include the Joint Force, Interagency partners, and assets from all domains critical to the area of operations. To demonstrate that this is not a new phenomenon, this work will conduct a case study of two battles in the pacific theater in World War II: the Solomon Islands and New Guinea. By examining these two locations in time and space, it will become clear that Admiral Nimitz and General MacArthur were conducting MDO. Both leaders possessed command authorities enabling them to synchronize assets within their commands to deliver devastating effects on the numerically superior enemy. The commander's ability to synchronize multiple domains created opportunities in the Pacific that led to Allied forces successfully fighting and winning against a numerically superior adversary.

This investigation has the following limitations: the research will focus on the Pacific theater and will not examine the European theater or any additional events of World War II; the Solomon Islands and New Guinea; are the only campaigns discussed; that many other variables may have influenced the success of General MacArthur operations in the Pacific theater. Examples of this may include the priority of effort shifting from Europe to the Pacific, the Japanese forces' operational reach, industrial base, and logistics being stressed and culminating. Other limiting factors are the lack of doctrine concerning MDO, the limited information on MDO, and the limitations of openly discussing MDO due to classification restrictions.

The delimitations of this work will focus on the authorities necessary for a commander to synchronize assets across the DOD enterprise. This analysis will focus on the authorities that Admiral Nimitz and General MacArthur possessed to defeat Japan. These authorities are critical to understanding how both commanders synchronized the joint services, critical assets, and technology across all domains in the Pacific campaign.

This inquiry includes the assumptions that Admiral Nimitz and General MacArthur were authorized to use all assets across the DOD enterprise; that both commanders received clearly defined command authorities; that both commanders purposely synchronized assets across multiple domains to penetrate enemy defenses; and finally that both commanders were able to use assets as needed to defeat Japan.

This survey presents information in four sections. Section one includes the background of the study, statement of the problem, the purpose of the study, the significance of the study, definition of terms, theoretical framework, hypothesis, limitations, delimitations, assumptions, and the organization of the study. Section two presents a review of the literature which discussed MDO from leaders across the field and current doctrine. Section three presents brief case studies of the battles of the Solomon Islands and New Guinea. Section four presents a discussion of the findings of the two campaigns in the Pacific, recommendations for necessary authorities required by commanders, and the study's conclusions.

Literature Review

This section examines relevant theoretical, conceptual, and empirical works of MDO. The literature review has three subsections: Theoretical, conceptual, and empirical. The theoretical subsection will describe the concept of MDO, its appearance in doctrine, and its use in the Pacific theater of WWII. The conceptual subsection will provide the definitions of key MDO terms that are associated with the hypothesis. It will also contain how those key terms are used in the Pacific theater, and Dr. Leonhard's "Anatomy of Surprise" to measure the effectiveness of

operations.[13] The empirical subsection reviews existing works from leaders in the field of MDO, how it relates to the hypothesis, and how this inquiry is specifically looking at the authorities needed to execute MDO.

This research seeks to determine the authorities that commanders must have to fight and win against a near-peer or peer adversary when using Multi-Domain Operations. Four hypotheses will aid in solving the research question and guide this monograph. The first hypothesis is when a commander has the appropriate command authorities; then he or she will be able to conduct MDO to defeat an adversary. The second hypothesis is when a commander has the ability to synchronize MDO assets and capabilities; then he or she will be able to deliver effects to enable the penetration and dis-integration of the enemy defenses. The third hypothesis is when a commander has the ability to use space, cyber, and EMS assets in a campaign; then he or she will utilize the DOD enterprise to defeat an adversary. The final hypothesis is when a commander utilizes all domains (Land, Air, Maritime, Space, EMS, and Human); then, he or she will be able to exploit integrated defenses of an adversary.

This research examines history, theory, and doctrinal concepts of MDO and how they enable commanders to fight and win against a peer or near-peer competitor. The approach stated in *The U.S. Army in Multi-Domain Operations 2028*, is that MDO will allow the United States to deter and defeat a peer or near-peer competitor by utilizing assets and capabilities across all domains that span the DOD enterprise.[14] MDO is a concept currently being integrated into US Army doctrine as the United States shifts focus to "great power" competition.[15] MDO will enable the military to "conduct operations to prevail in competition; when necessary, Army forces penetrate and dis-integrate enemy anti-access and area denial systems and exploit the resultant

[13] Robert R. Leonhard, *Fighting by Minutes: Time and the Art of War*, 2nd ed. (Lexington, KY: CreateSpace Independent Publishing Platform, 2017), 173.

[14] TRADOC Pamphlet 525-3-1, *The U.S. Army in Multi-Domain Operations 2028*, vi.

[15] Ibid.

freedom of maneuver to achieve strategic objectives (win) and force a return to competition on favorable terms."[16] The theoretical approach described above will demonstrate how the US Army will support the Joint Force and conduct operations across all domains.[17] This theoretical approach was used in WWII to enable the Allies to set conditions to gain access and later seize islands that led to the defeat of Japan.[18]

Historically, the MDO concept is not a new theory or concept. It has been used multiple times throughout history; for this investigation, research will focus on Admiral Nimitz and GEN MacArthur's actions during the Pacific campaign. In Christopher Rein's book *Multi-Domain Battle in the Southwest Pacific Theatre of World War II*, he describes the Japanese as "a highly-capable, conventional adversary…who pushed the Allied air and naval forces out of theater."[19] Following the Japanese expulsion of the Allies, Japan seized bases and airfields throughout the Pacific.[20] To gain access to the theater, GEN MacArthur executed MDO to synchronize assets and capabilities across multiple domains.[21] The Allies in the Pacific faced a numerically superior enemy; due to this, all services and partners worked together to increase efficiency and accomplish their mission.[22] The Pacific theater was not the main effort as the Allies began to push back the Japanese. GEN MacArthur and his staff had to be flexible and adaptive to find new ways to defeat their adversaries.

Today, the United States faces significant competition and threats in previously uncontested domains. To meet these threats, commanders and staffs must have the required

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[16] TRADOC Pamphlet 525-3-1, *The U.S. Army in Multi-Domain Operations 2028*, vii.

[17] Ibid., 5.

[18] Christopher M. Rein, *Multi-Domain Battle in the Southwest Pacific Theater of World War II*.(Fort Leavenworth, KS: Combat Studies Institute Press, 2017), 1.

[19] Ibid.

[20] Ibid.

[21] Ibid., 2.

[22] Ibid.

authorities to set conditions to act. Army Field Manual 3-0 discusses the need for commanders and staff to, "identify windows of opportunity during operations to converge capabilities for best effect."[23] For the US Army to create windows as described above, commanders and staffs must be able to synchronize assets and capabilities to create opportunities.[24] Commanders use convergence across multiple domains by employing assets and capabilities to create opportunities to exploit an overmatch.[25] Once an overmatch is created, then commanders are able to penetrate, dis-integrate, and exploit an adversary's defenses.[26] Without the proper authorities, commanders will be unable to synchronize assets and capabilities necessary to deliver effects on the adversary.[27] It is paramount in MDO that staffs have the appropriate tools required to plan, synchronize, and execute as described in the doctrinal approach above to meet the commander's intent. A failure to have appropriate authorities will deny commanders the opportunity to converge and create tactical overmatch.

This paper defines three key terms that are tenets of MDO. These key terms are calibrated force posture, multi-domain formations, and convergence. Calibrated force posture is defined as, "the combination of position and the ability to maneuver across strategic distances."[28] Multi-domain formations are organizations that, "possess the capacity, capability, and endurance necessary to operate across multiple domains in contested spaces against a near-peer adversary."[29] The final definition is convergence, which is the, "rapid and continuous integration of capabilities in all domains, the EMS, and information environment that optimizes effects to overmatch the

[23] Headquarters, Department of the Army (HQDA), Field Manual (FM) 3-0, *Operations* (Washington, DC: Government Printing Office, 2017), 1-6.

[24] TRADOC Pamphlet 525-3-1, *The U.S. Army in Multi-Domain Operations 2028*, 20.

[25] Ibid.

[26] Ibid., 32.

[27] Ibid., 23.

[28] Ibid., iii.

[29] Ibid.

enemy through cross-domain synergy and multiple forms of attack all enabled by mission command and disciplined initiative."[30] Understanding these three definitions is critical to the tenants of MDO used throughout this research. The defined terms provide the reader with what commanders and staffs aim to achieve by using MDO to compete and later defeat a peer or near-peer adversary.

The definitions above demonstrate how Admiral Nimitz and GEN MacArthur were able to synchronize assets throughout the Pacific theater to achieve tactical overmatch. Both commanders and their staffs were able to utilize air and maritime domains to enable the land domain through what is now described as calibrated force posturing. Calibrated force posturing allowed the staff to plan, synchronize, and mass effects from each of the domains to deliver the desired effect, i.e., penetration. While doing this, the Allied forces were able to create positions of advantage at a time and place of their choosing. As this process was repeated throughout the campaign, it enabled the Allies to retake the Pacific even though they started from a position of numerical disadvantage.

At the time, Admiral Nimitz and GEN MacArthur possessed US joint and Allied forces to defeat the Japanese. This type of multinational organization is similar to today's coalitions. Coalitions are a construct that is familiar to all military officers' experiences while combating the Global War on Terror. The strength of the Allies was to utilize forces across all domains and work in concert to enable mission success. We use coalitions today and will continue their use in the future. Coalitions and joint forces will become increasingly crucial as multi-domain formations are expanded and tested throughout the US Army and our allies throughout the world. MDO formations, just like in WWII, will work together across all domains to find weak spots or seams in the enemy defense to penetrate and later dis-integrate. Rein describes the Allies' actions in this campaign as "the air, land, and sea domains work closely together and capitalize on

[30] TRADOC Pamphlet 525-3-1, *The U.S. Army in Multi-Domain Operations 2028*, iii.

information superiority provided by command of the electromagnetic spectrum."[31] The synchronization of domains is a critical reason why the island-hopping campaign was so successful; for both the Japanese and later the Allies.[32] These tactics were made possible due to the commander and his staff having the authority and the ability to resource assets for each decisive point in the campaign.

The final key term critical to understanding MDO is convergence. Convergence during the Pacific campaign was a result of failures early in the war. Even though the United States and allies had strong defensive positions, Japan was able to isolate these forces and conduct MDO operations to expel coalition forces out of the Philippines.[33] The Japanese and the Allies both used convergence, Rein described this as "forces operating in each domain would have to extend their effects across the other domains to successfully execute multi-domain battle."[34] This tenet is critical to MDO; it is what allows commanders to mass effects at a given point to fracture an enemies' defensive system.

In this analysis, the measure of effectiveness will be analyzed through the lens of Dr. Robert Leonhard's idea of the "Anatomy of Surprise."[35] In his book *Fighting by Minutes,* Dr. Leonhard expands on the idea that a ready force will engage an unready army through the science of surprise.[36] He goes into further detail that even when an enemy is prepared and knows an attack is imminent, the enemy is still only prepared for specific types of attacks.[37] Using MDO in this type of situation will overwhelm an adversary. As a commander uses convergence, it will enable him to shatter an enemy's defense. This type of MDO attack is observed on both sides of

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[31] Rein, *Multi-Domain Battle in the Southwest Pacific Theater of World War II*, 10.

[32] Ibid., 11.

[33] Ibid., 10.

[34] Ibid., 11.

[35] Leonhard, *Fighting by Minutes: Time and the Art of War*, 173.

[36] Ibid., 174.

[37] Ibid., 175.

WWII, first on the Allies side as Japan is the aggressor and conducts "ship to shore" attacks by converging domains.[38] Then convergence is again demonstrated as GEN MacArthur, and the Allies retake islands across the pacific to isolate Japan.

There is not a significant amount of literature on the subject of MDO. It is a topic widely discussed across the DOD enterprise and military professionals across the western world. Dr. Jeff Reilly is one of the leaders in the field of MDO. Dr. Reilly is the founder and Director for Multi-Domain Operational Strategist Concentration at Air Command and Staff College in Montgomery, AL. Dr. Reilly conducts research and lectures military professionals on the application of MDO and its potential. His works are informative and demonstrate the need for change as the operational environment continues to change and become more complex. Dr. Jim Greer at the US Army School for Advanced Military Studies examines MDO and publishes articles that describe how each service perceive MDO. Both men are retired Army officers with a wealth of experience planning at all levels of the military.

In the spring of 2016, Dr. Reilly wrote *Multi-Domain Operations: A Subtle but Significant Transition in Military Thought* in the Air and Space Power Journal. The article begins in 2011 with a question from GEN(R) Dempsey, "what is after joint?"[39] This question is being posed by GEN(R) Dempsey because the operational environment continues to be more and more complex, and many believe that joint operations are struggling to maintain superiority across all domains.[40] Dr. Reilly lays out the primary reason our adversaries (state or non-state actors) are becoming more successful at challenging our supremacy in all domains is due to increases in

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[38] Rein, *Multi-Domain Battle in the Southwest Pacific Theater of World War II*, 11.

[39] Jeff Reilly, "Multi-Domain Operations: A Subtle but Significant Transition in Military Thought," *Air and Space Power Journal*, (Spring 2016): 61, accessed 5 August 2018, https://www.armyupress.army.mil/Portals/7/online-publications/documents/V-Reilly.pdf.

[40] Reilly, "Multi-Domain Operations: A Subtle but Significant Transition in Military Thought," 61.

computing power and affordable technology.[41] He describes and informs the reader that MDO is not new.[42] MDO is observed throughout history, but it changes over time due to increases in technology. In the rest of the article, Dr. Reilly informs the reader of technology and how our adversaries are using the technology to mitigate our military dominance. Dr. Reilly closes the article by stating "evolution must be deliberately shaped to ensure that domain interdependence does not inadvertently risk a single point of failure."[43]

Dr. Jim Greer wrote an MDO piece titled, *Ulysses S. Grant, Command and Control, and the Multi-Domain Battlespace of the Future* for the Modern War Institute at West Point. This work was published in November of 2018 and broke down GEN Grants' quote, "the Art of War is simple enough; find out where your enemy is, get at him as soon as you can, and strike him as hard as you can, and keep on moving."[44] He then breaks down each part of the above quote and describes how it is applicable today in MDO. The article begins describing GEN Grant's understanding of operation art and the importance of what we would call convergence in today's terms.[45] It later discusses the need for cultural and leadership adjustments, not only in the Army but across all services to get the most out of MDO in the future.[46]

While both authors describe MDO, they do not approach it through the same lens. Dr. Reilly believes that MDO is in response to the technological advances that have become easily acquired by our adversaries. This easily obtained technology enables them to challenge the United States superiority across all the domains. His message is that the US militarty and DOD

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[41] Reilly, "Multi-Domain Operations: A Subtle but Significant Transition in Military Thought," 61.

[42] Ibid., 62.

[43] Ibid., 71.

[44] John H. Brinton, *Personal Memoirs of John H. Brinton: Civil War Surgeon, 1861-1865*, (Carbondale, IL: Southern Illinois University, 1996), 239.

[45] Jim Greer, "Ulysses S. Grant, Command and Control, and the Multi-Domain Battlespace of the Future" *Modern Warfare Institute*, (30 November 2018), accessed 10 July 2019, https://mwi.usma.edu/ulysses-s-grant-command-control-multi-domain-battlespace-future/.

[46] Ibid.

need to understand that conducting joint operations is not enough in today's complex environment. Dr. Greer believes in implementing MDO, but that it will take cultural adjustments, time, and training for its implementation. Both authors have captured the problems in the process of implementing MDO across the services, identifying friction points critical to executing MDO, and highlighted future threats.

This monograph's hypotheses and assertions are different from both Dr. Reilly and Dr. Greer. This inquiry examines the execution of MDO and the belief that a commander must be free to use all assets from across the DoD enterprise. For this to occur, commanders must have the authority to use those assets. With authorities in place, a commander would be able to identify a priority of effort for a phase of the operation and then resource accordingly. This authority would allow commanders to converge capabilities to penetrate and dis-integrate adversary defenses. If the commander must go outside his or her headquarters to gain access to resources, prioritize assets, and synchronize assets, then MDO will not work.

The literature review described the hypothesis, provided a greater understanding of the key terms (tenets of MDO), their definitions, and how they will be used throughout the study. The literature review introduced two leaders and their work in MDO, Dr. Reilly, and Dr. Greer. Both authors have made substantial contributions by looking at MDO from different lenses and opening the discussion between military professionals. This report defines the desire to investigate and demonstrate the authorities necessary to enable commanders to execute MDO and defeat a near-peer or peer adversary. The next section will describe the methodology that will be used throughout the study.

Methodology

This section describes the methodology employed to examine the authorities needed to execute MDO against a near-peer or peer adversary. The methodology uses a structured and focused approach to test the hypothesis by using qualitative analysis. This section has four

subsections: structured and focused comparison, the historical case study selection, research questions, and the expected outcomes. The methodology will test the hypothesis and identify how authorities enabled Allied commanders to leverage assets and capabilities to defeat the Japanese in the Pacific theater.

This paper employs a structured focused comparison methodology as described by Alexander George and Andrew Bennett in *Case Studies and Theory Development in the Social Sciences* to qualitative analyze two battles in WWII that demonstrate the tenets of MDO.[47] The method is structured, as described by George and Bennett because it is guided by, "general questions that reflect the research objective."[48] The method is focused as it only, "deals with certain aspects of the historical cases examined and focus."[49] Two battles from the Pacific theater in WWII were selected for the case study to demonstrate how the Allies and their staff led, planned, and synchronized a multination coalition across all domains to defeat a peer adversary. The structure is provided by four research questions that enable the collection of qualitative data to identify how Allied commanders and their staff were able to synchronize and converge domains to deliver devastating effects on their adversary.

Examination of the Pacific theater and the campaigns of the Solomon Islands and New Guinea are critical to this review as each campaign demonstrates the benefits of combining multiple domains to impact the adversary negatively. Throughout the Pacific campaign, the Allies were unable to defeat the Japanese with a single domain attack (Air, Maritime, or Land). Attacking in a single domain resulted in the Allies failing to defeat the Japanese. The Allies failing resulted in them adapting their tactics and finding new and creative ways to use all domains. By working together and synchronizing all the domains, the Allies put the Japanese in

[47] Alexander George and Andrew Bennett, *Case Studies and Theory Development in the Social Science* (Cambridge, MA: MIT Press, 2005), 67-72.

[48] Ibid.

[49] Ibid.

an unprepared position. The Allies placed themselves in a position of advantage by achieving convergence across all domains. By examining each campaign, the study will display the necessary relationships and authorities that a commander must have to defeat a peer adversary. Despite being the inferior numerical force throughout most of the Pacific campaign, the Allies were able to gain ground and ultimately push back Japanese forces. The Allies used air, land, and maritime assets and capabilities from multiple services and countries to synchronize operations to defeat the enemy.

The Battle for the Solomon Islands is critical to this research because it examines how the Allies gained and maintained a foothold in the Pacific through the use of MDO. First, the Battle for the Solomon Islands demonstrates how a numerically inferior force is capable of converging across all domains to deliver effects. Second, the battle highlights how each domain may obtain primacy of effort during different phases of the fight. Third, the battle demonstrates the Allies' ability to defeat a numerically superior enemy. Early in the campaign, the Maritime domain served as the decisive operation in the fight against the Japanese. Later, the Maritime served in a supporting role following the establishment of Henderson Air Field, and the Air domain acted as a decisive operation to stop the Japanese advance. Third, the campaign will demonstrate the power of commanders from all services and nations working towards the desired endstate. Finally, the ability of the Allies to utilize the electromagnetic spectrum to aide Air, Land, and Maritime domains enabled the Allies to anticipate and prepare for enemy actions.

The Battle of New Guinea is critical to the study because it demonstrates GEN MacArthur’s use of an MDO task force to achieve his campaign objectives. During this battle, GEN MacArthur and the Allies had American air, land, and maritime elements along with ground forces of Australia to defeat the numerically superior Japanese forces in the area of operations. Between the Solomon Islands and New Guinea, the Allies were building combat power along the separate but supporting axis of advance to thrust further into the Pacific theater. This case study and the campaign analysis will highlight Admiral Nimitz and GEN MacArthur’s ability to utilize

MDO and synchronize all elements of combat power. By using all the assets at their disposal from multiple services and nations, the Allies achieved convergence; this placed the enemy at a disadvantage.[50] In the Solomon's, each service was placed in various roles (decisive or supporting). Critical to this campaign was Admiral Nimitz, GEN MacArthur, and their staff's ability to command and control all of these elements to place them in a position to gain tactical overmatch.

This monograph uses four focused research questions to identify if the Allied commanders in the Pacific theater had the necessary authorities to conduct MDO. The findings and analysis section will present the data collected from the study of the Pacific theater. Each of the research questions aims to validate or negate the associated hypothesis. All of the research questions focus on MDO and the effects it had on the Allies' ability to command against a peer adversary. See figure below for a complete list of hypotheses and associated questions:

[50] Rein, *Multi-Domain Battle in the Southwest Pacific Theater of World War II*, 69.

Focused Research Questions

H1-When a commander has appropriate command authorities Then he or she will be able to conduct MDO to defeat an adversary 1. Was their a clearly defined command structure? a. Was the commander able to utilize all assets and capabilities or did they have to request support from JCS?	H3-When a commander has ability to use space, cyber, and EMS assets in his campaign Then the commander will be able to utilize the full strength of the DOD enterprise to defeat and adversary 1. Did the Allies use assets in the domains other than air, land, and maritime? a. Did it lead to a marked advantage in enabling the Allied commanders to converge on a decisive point?
H2-When a commander has ability to synchronize MDO capabilities and assets Then the commander will be able to deliver effects to enable the penetration and dis-integration of the enemy defenses 1. Was the commander able to plan, resources, and enable convergence?	H4-When a commander is able to utilize all domains (Land, Air, Maritime, Space, EMS, Human) Then the commander will be able to exploit the integrated defenses of an adversary 1. Were the Japanese placed in a position of disadvantage due to the use of multiple domains

Figure 1. Focused Research Questions. Created by Author

This study expects to identify that the Allied commanders did have the appropriate command authorities to defeat a near-peer adversary. The study expects to see the Joint Chiefs of Staff (JCS) was able to serve as the higher headquarters and identify which command was the supported command and which command was supporting. The study also expects to see that the Japanese anticipated attacks but was unable to defend against the Allies converging in multiple domains to achieve effects. The study plans to demonstrate the advantage of utilizing what we know now as electronic warfare. The electromagnetic spectrum allowed the Allies to understand enemy movements, converge on the enemy, and mass at a time and place of the Allies choosing.

The methodology describes how this investigation would examine authorities needed to execute MDO against a near-peer or peer adversary. In this report, the methodology used will be a structured and focused approach to test the hypothesis by using qualitative analysis. This

section explained why the Pacific theater was used to test the hypothesis and identify how authorities enabled Allied commanders to leverage assets and capabilities to defeat the Japanese.

Case Study of the Pacific Theater: Battles of the Solomon Islands and New Guinea

For the United States, the war began on 7 December 1941 following the Japanese attack on Pearl Harbor. The attack by the Japanese served as the spark that brought American armed forces into WWII. From 1941 to 1945, American troops fought alongside their allies in the European and Pacific theaters. In April of 1942, as a response to the attack on Pearl Harbor, American forces planned and executed the Doolittle Raid to strike back at the Japanese mainland.[51] This strike lifted morale as American officials met with allies to agree on strategy and responsibilities to defeat threats on both sides of the world.[52] Early in 1942, Allies held a conference to create two commands for the Pacific theater. One of these commands was led by an Army officer and one by a Naval officer.[53] The Army's General MacArthur was selected as the Supreme Commander, Southwest Pacific Area (see figure 2), while the Navy's Admiral Nimitz was chosen as the Commander in Chief, Pacific Ocean Areas (see figure 2).[54] These two officers received directives, authorities, and responsibilities from the JCS and began to develop plans to defeat the empire of Japan.[55]

[51] William L McGee, *The Solomons Campaigns 1942-1943 From Guadalcanal to Bougainville Pacific War Turning Point* (Santa Barbara, CA: BMC Publications, 2002), XXXVIII.

[52] Ibid.

[53] Ibid., XLII-XLIII.

[54] Ibid.

[55] Ibid.

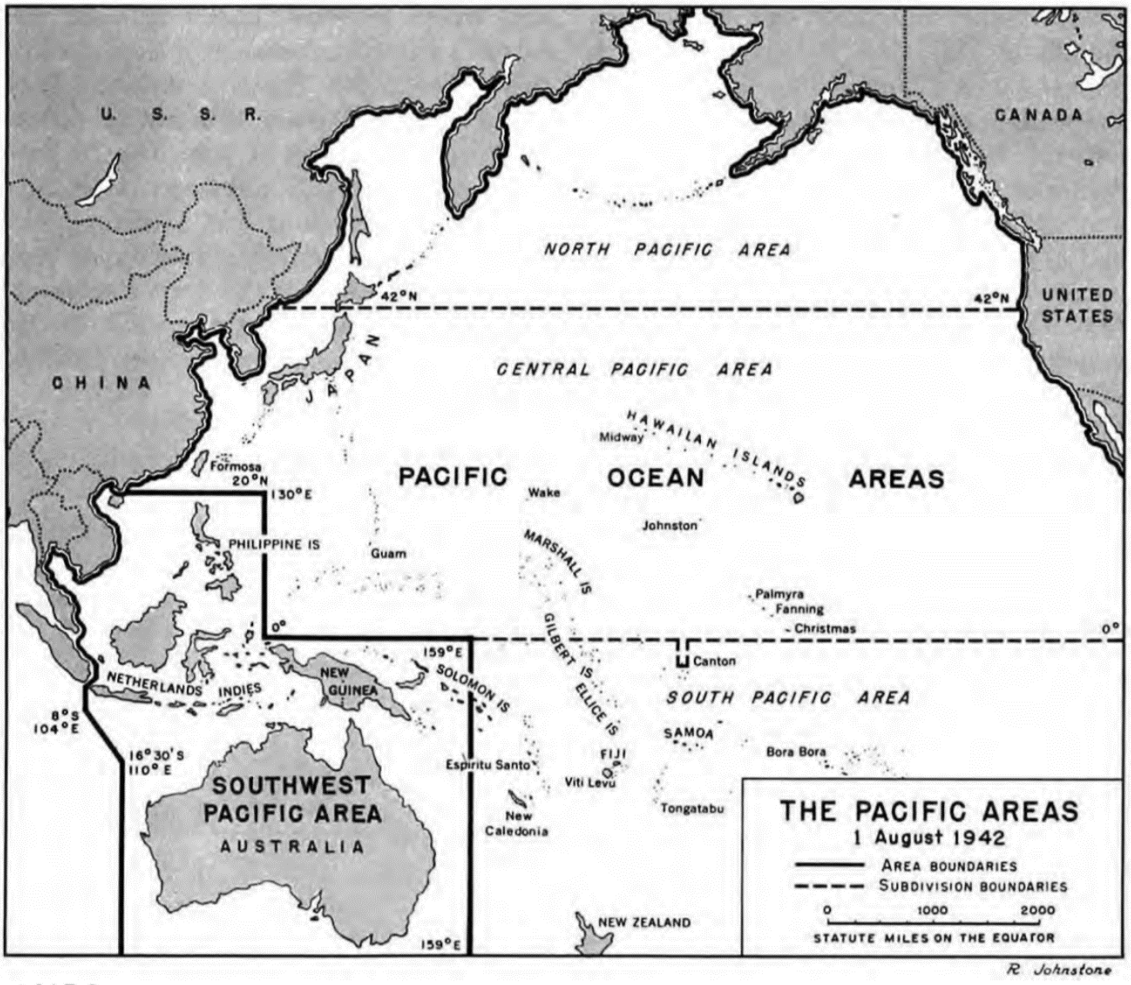

Figure 2. The Pacific Area of Operations. Samuel Milner, *The United States Army in World War II, Victory in Papua* (Washington, DC: Office of the Chief of Military History, 1957), 49.

From the attack on Pearl Harbor on 7 December 1941, until the unconditional surrender of Japan on the deck of the Missouri on 2 September 1945, the Pacific theater saw many critical battles that ultimately led to the defeat of Japan. This case study will focus on two campaigns in two subsections: the Battle of the Solomon Islands and the Battle of New Guinea. Each of these campaigns are critical to the study and the assertion that commanders must have the appropriate level of authority to utilize MDO and defeat a peer adversary.

The Solomon Islands and the Guadalcanal Landings

The planning and preparation for the Battle for the Guadalcanal in the Solomon Islands Campaign began to take shape in June of 1942. On 5 July 1942, Admiral Nimitz received a report from an allied recon plane that identified the Japanese were building an airstrip on the Guadalcanal.[56] This report spurred the Allied forces into action, and the campaign to seize the Solomon Islands began in early August of 1942.[57] The Allies fought for six months to rid the Guadalcanal of Japanese influence by early February of 1943.[58] This subsection examines the initial American landings at Tulagi and the Guadalcanal (see figure 3) by Rear Admiral Turner's TF 62. These landings resulted in an airfield seizure and the establishment of Henderson Air Field. This battle is an excellent example of MDO. The Allies synchronization across the domains led to convergence and enabled the Allies to achieve a position of advantage.

[56] McGee, *The Solomons Campaigns 1942-1943 From Guadalcanal to Bougainville Pacific War Turning Point*, 11.

[57] Ibid., 22.

[58] Ibid., 224.

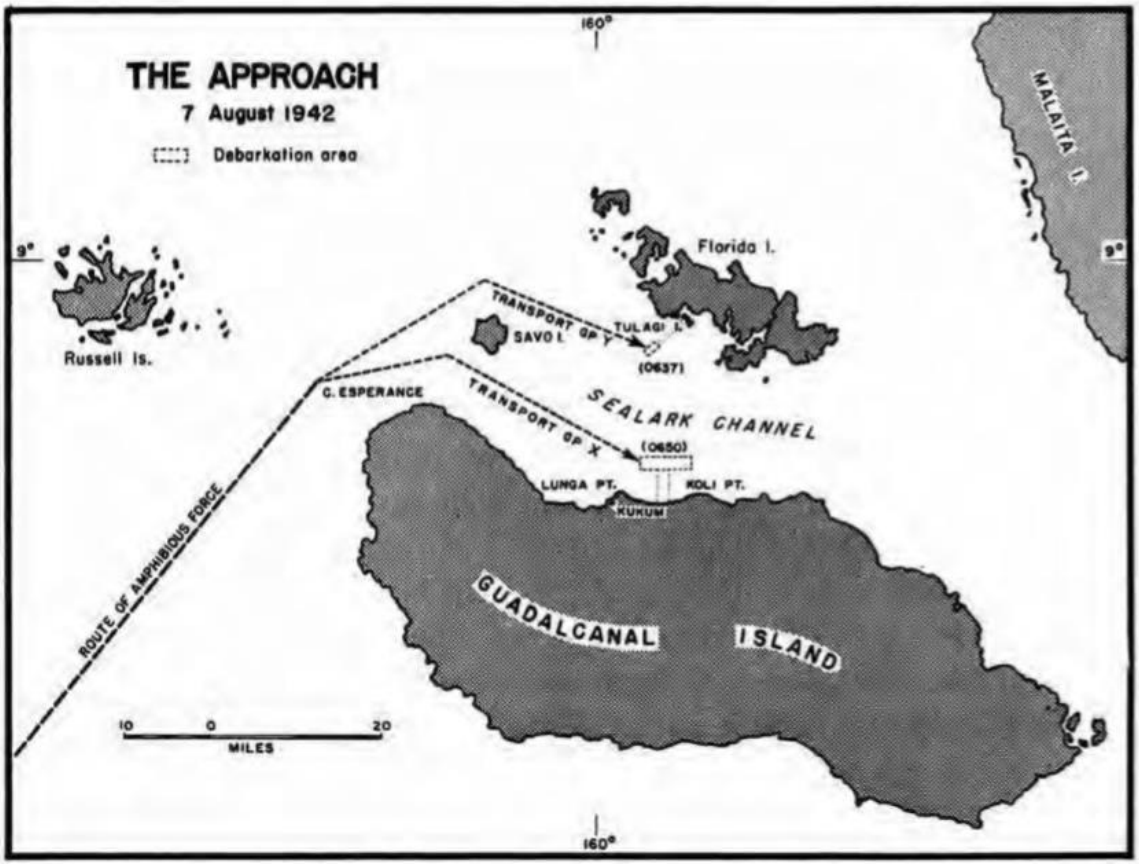

Figure 3. The Guadalcanal Island. John Miller, Jr., *The United States Army in World War II, Guadalcanal: The First Offensive* (Washington, DC: Office of the Chief of Military History, 1949), 60.

The forces that fought in the Battle for the Guadalcanal involved many nations from across the Pacific. The Allied troops primarily consisted of the US Army, US Navy, and US Army Air Force. The US forces were reinforced by the Australian and New Zealander Army, Air, and Naval forces.[59] The enemy consisted of Navy, Air, and Army components from the empire of Japan. On the morning of 7 August 1942, Vice Admiral Fletcher and Rear Admiral Turner's forces seized the initiative and conducted an amphibious assault on two beaches simultaneously.[60]

[59] McGee, *The Solomons Campaigns 1942-1943 From Guadalcanal to Bougainville Pacific War Turning Point*, 563-567.

[60] Richard B. Frank, *Guadalcanal* (New York, NY: Random House Press, 1990), 51.

The Allied forces sought to penetrate the enemy's defenses to allow Marines to capture their primary objective, the critical airfield on the Guadalcanal.[61]

This operation was a massive success for the Allies. The JCS appointed Admiral Nimitz as the commander of Task-One of the Pacific Campaign. During Task-One, the Allies were to seize the Solomon Islands, Tulagi, and the Santa Cruz Islands.[62] Phase One additionally included the Allied seizure of the recently built Japanese airfield built on the northern part of the Guadalcanal. The seizure of the Japanese airfield, later named Henderson Field, was a decisive point for the initial phase of the Pacific campaign.[63] Seizing the airfield was decisive because it allowed the Allies to gain a foothold in contested enemy territory.[64] It enabled Allied air power to disrupt enemy movements within 300 miles of the Guadalcanal.[65] GEN MacArthur was directed by the JCS to support Admiral Nimitz Naval and Marine forces with Army Air forces and later land forces to assist in the continuous buildup of combat power.[66]

The Allied amphibious assaults on the Tulagi and Guadalcanal (see figure 3) were supported by shelling from the Naval ships and aerial bombardment.[67] This naval support provided cover for the Marines preparing and assaulting the beaches.[68] Once on the enemy shore, the Allies met little resistance and rapidly seized assigned objectives. On the Guadalcanal, Marines met little to no resistance.[69] The Marine forces quickly overran the airfield and

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[61] Frank, *Guadalcanal*, 51.

[62] Ibid., 34.

[63] Ibid.

[64] John Prados, *Islands of Destiny* (New York, NY: NAL Caliber, Penguin Group, 2012), 72.

[65] Ibid.

[66] Frank, *Guadalcanal*, 34-35.

[67] Ibid., 60.

[68] Ibid.

[69] Edwin P. Hoyt, *Guadalcanal* (New York, NY: Military Heritage Press, 1982), 17.

surrounding infrastructure which consisted of supplies and food stores.[70] The Marines expanded their perimeter and established security to enable the transports to bring in additional supplies.[71] On Tulagi, the Marines met minimal enemy resistance and continuously cleared the small island to push the Japanese to their final strongpoint on Hill 281.[72] The next day the Marines attacked and cleared Hill 281. The Allies owned both objectives of Phase One of the Pacific Campaign.[73]

While examining the actions of the Allies amphibious landings this work asked if there was a clearly defined commander structure. To be able to command and synchronize forces, yes, during this phase of the Pacific campaign, there was a clearly defined command structure. The JCS had designated Admiral Nimitz as the senior commander to execute Phase One of the Pacific Campaign.[74] The authorities given to him as the commander enabled him to gather resources and capabilities across his command to empower subordinates to achieve his endstates. The JCS also directed that GEN MacArthur act in a supporting role during Phase One Operations.[75] This JCS directive clearly defined the relationship between the two commanders and their positions, who was supported, and who was supporting during different phases of the campaign.[76]

The second research question explored if the Allied commander was able to plan, resource, and enable convergence. Admiral Nimitz and his subordinate commanders were able to set conditions to utilize all domains (Land, Air, Maritime, and EMS). Through the synchronization of all domains, the Allies achieved convergence on a place and time of their choosing to put the Japanese in a position of disadvantage. While conducting the amphibious

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[70] McGee, *The Solomons Campaigns 1942-1943 From Guadalcanal to Bougainville Pacific War Turning Point*, 27.

[71] Frank, *Guadalcanal*, 63.

[72] McGee, *The Solomons Campaigns 1942-1943 From Guadalcanal to Bougainville Pacific War Turning Point*, 31.

[73] Ibid.

[74] Ibid., XLIV.

[75] Ibid.

[76] Ibid.

assaults, synchronization of all domains enabled tactical overmatch. This resulted in the Allies securing a foothold on the Guadalcanal and the establishment of the Cactus Air Force. The Cactus Air Force would continuously degrade the Japanese ability to conduct offensive and logistical operations in and around the Solomon Islands.

The third question investigated the Allied forces use of assets in domains other than air, land, and maritime. At the time, the Allied forces in the Pacific theater were using intelligence in many different forms across the domains to collect information on Japanese operations. Through the use of spotters or "Coastwatchers," Australian and local indigenous people were critical in providing early warnings of Japanese advance throughout the campaign.[77] Additionally, the Allies utilized radio intelligence to gain information on the Japanese.[78] Admiral Nimitz and GEN MacArthur both had intelligence teams solely focused on increasing actionable intelligence from the Japanese radio transmissions.[79] These teams decoded messages and provided warning of possible enemy action.[80] These intelligence reports represent the use of what is now the EMS domain. The EMS domain, along with intelligence obtained by the other domains (air, land, and maritime), allowed the Allies to anticipate enemy maneuvers and meet emerging threats.[81]

The fourth research question sought to answer if the Allies use of multiple domains placed the Japanese in a position of disadvantage. The Allies disrupted, degraded, and denied the Japanese freedom of maneuver throughout the Solomon Islands by synchronizing all domains. The EMS domain, as represented by signals intelligence, enabled the Allies to gain insight into what the Japanese were planning and when they would attack. The maritime domain was instrumental in allowing air and land domains to succeed in the form of offensive and logistical

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[77] Prados, *Islands of Destiny*, 19.

[78] Ibid, 33.

[79] Ibid, 34.

[80] Ibid, 34-35.

[81] TRADOC Pamphlet 525-3-1, *The U.S. Army in Multi-Domain Operations 2028*, C9-C10.

operations. The air domain was critical in providing cover for land forces conducting assaults, protecting naval assets from Japanese air and maritime forces, and gaining essential intelligence for future operations. Finally, the land domain was supported by air, maritime, and EMS to enable the clearance of Japanese troops from each island seized throughout the Pacific campaign.

By taking an MDO approach, the Allies were able to secure a foothold and later clear the Guadalcanal. This foothold enabled the Allies to create a base of operations that would continuously receive reinforcements of men, weapons, and equipment. Without the JCS prioritizing and clearly defining the command relationships for the initial phases of the Pacific Campaign, the Allies would have lost the ability to synchronize their operations. Admiral Nimitz and his staff were able to prioritize and sync all of the domains to ensure they worked together towards a single endstate at each phase of the campaign.

New Guinea

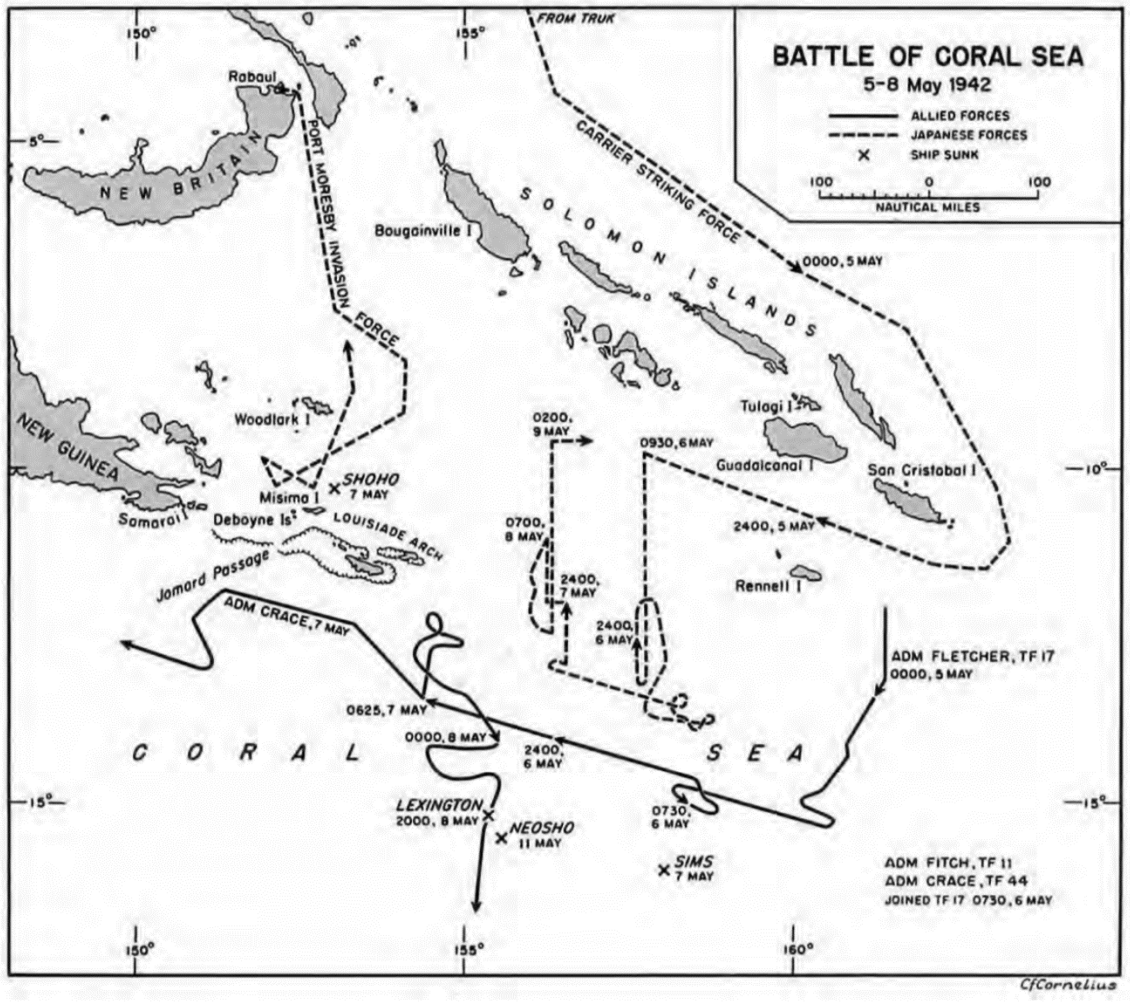
As Admiral Nimitz's forces prepared to attack the Guadalcanal to secure a foothold, GEN MacArthur was to initiate a parallel thrust into enemy territory in the southwest Pacific towards New Guinea.[82] In the Pacific Campaign, Task-Two was to utilize GEN MacArthur's forces to drive the Japanese from New Guinea to set conditions for Task-three, the isolation and capture of Rabaul.[83] The scope of this subsection will be the operations to defend Port Moresby (see figure 4) and defeat the Japanese at Milne Bay (see figure 5). From May of 1942 to January of 1943, Allied forces stopped the Japanese advance, set conditions to clear New Guinea, and prepare for the isolation of Rabaul.[84] The MDO in support of Port Moresby and Milne Bay are

[82] John Costello, *The Pacific War* (New York, NY: Quill, 1981), 314.

[83] Ibid.

[84] Rein, *Multi-Domain Battle in the Southwest Pacific Theater of World War II*, 68.

examples of GEN MacArthur having the authority to synchronize limited forces across all domains in his command to defeat the Japanese advance.



MAP 1

Figure 4. Thwarted Landing: The Battle for the Coral Sea. Samuel Milner, *The United States Army in World War II, Victory in Papua* (Washington, DC: Office of the Chief of Military History, 1959), 35.

The forces that fought in the operations around Port Moresby involved many nations. In July of 1942, the Allied land forces primarily consisted of Australian militia and New Guinea Volunteers reinforced by an Australian Army division to blunt the Japanese offensive.[85] Two US

[85] Samuel Milner, *US Army in World War II, War in the Pacific: Victory in Papua* (Washington, DC: Department of the Army, 1957), 5.

National Guard divisions later reinforced Australian troops in the land campaign.[86] Those divisions then formed I Corp.[87] US Navy, US Army Air forces, a Dutch Air Force squadron, and the Royal Australian Air Force comprised the Allied troops that defended Port Moresby.[88] The enemy consisted of Navy, Air, and Army components from the empire of Japan. In early May, the Battle of the Coral Sea enabled the Allies to deny the Japanese the ability to seize Port Moresby. This Japanese naval failure forced the enemy to attempt a land campaign across the dense jungles of New Guinea.[89] This movement, along with the inability to resupply and reinforce the offensive, resulted in the Japanese culmination on the island of New Guinea.[90]

GEN MacArthur and the Allies defense of Port Moresby and subsequent victory at Milne Bay (see figure 5) were critical to setting conditions for the northern clearance of New Guinea. Following the Battle of the Coral Sea, the Allies anticipated another Japanese offensive towards New Guinea. As a result, the Allies continuously built-up combat power to defend critical airfields surrounding Port Moresby.[91] GEN MacArthur believed that Port Moresby was key terrain for the defense of Australia; if Port Moresby fell to the Japanese, it would serve as a location to direct attacks against Australia and Allied forces throughout the region.[92] The US Marine landings at the Guadalcanal disrupted Japanese offensive operations on New Guinea.[93] As a result of the US Marine landings, the Japanese Imperial Command determined that offensive operations in the Guadalcanal were the priority of effort.[94] This decision by the Japanese Imperial

[86] Rein, *Multi-Domain Battle in the Southwest Pacific Theater of World War II*, 69.

[87] Ibid.

[88] Milner, *US Army in World War II, War in the Pacific: Victory in Papua*, 25-26.

[89] Ibid., 374.

[90] Ibid.

[91] Ibid., 39.

[92] Ibid., 26.

[93] Costello, *The Pacific War*, 335.

[94] Ibid.

Command directly resulted in directing men, weapons, and equipment to the Solomon Islands and away from Japanese forces on New Guinea.[95]

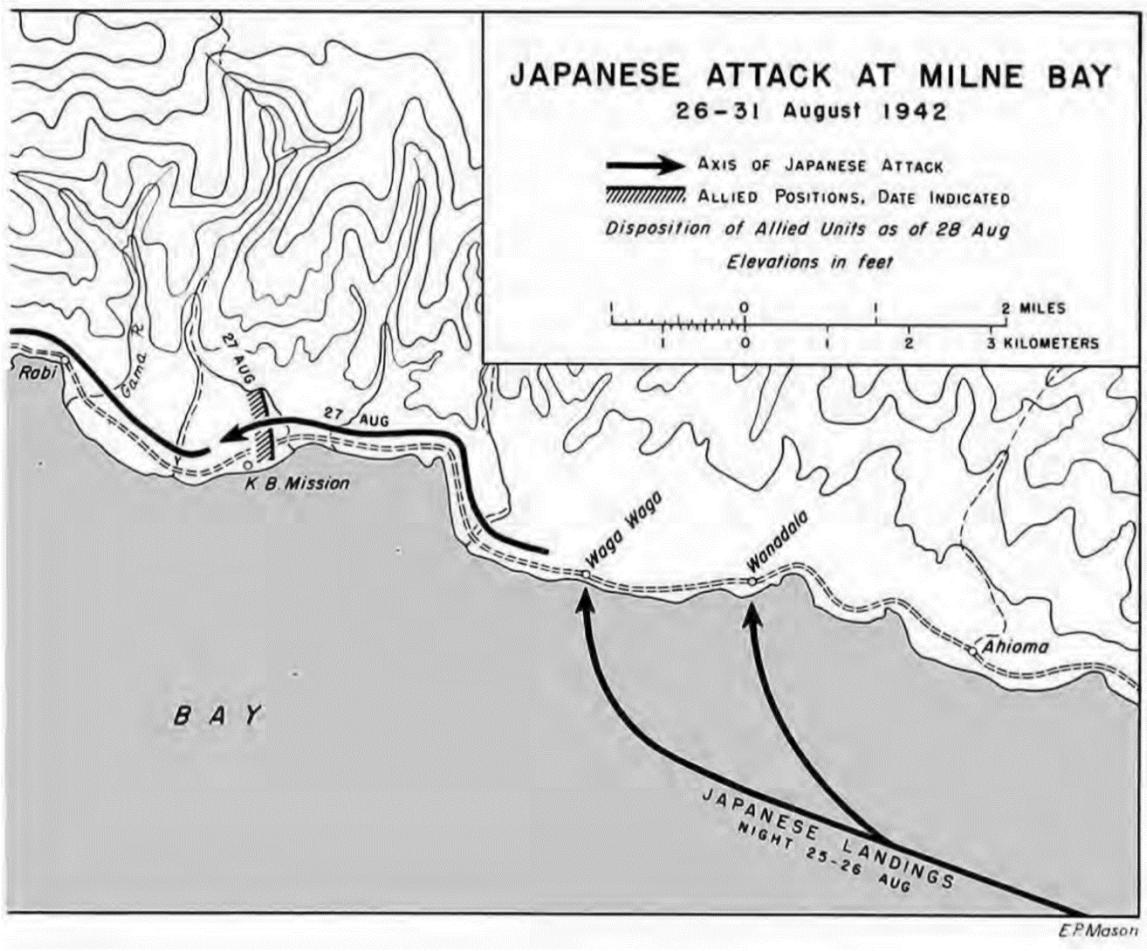


Figure 5. The Japanese Attack on Milne Bay. Samuel Milner, *The United States Army in World War II, Victory in Papua* (Washington, DC: Office of the Chief of Military History, 1959), 79.

By synchronizing all domains to place the enemy in a position of disadvantage, GEN MacArthur's forces successfully defended Port Moresby and blocked the southern Japanese advance towards Milne Bay (see figure 5). Following the failure to seize Port Moresby, the Japanese successfully landed troops east of Milne Bay.[96] While this attack was occurring, the

[95] Costello, *The Pacific War*, 335.

[96] Milner, *US Army in World War II, War in the Pacific: Victory in Papua*, 81.

Japanese simultaneously maneuvered along the mountainous terrain of the Kokoda Trail.[97] In all battles, the Air, Maritime, and EMS domains supported the land domain. The Land domain utilized terrain decisively to delay the enemy, while Air and Maritime domains interdicted and disrupted the enemy movements and their lines of supply.[98] The EMS domain, along with the help of Australian code-breakers, continued to provide the Allies with early warnings of Japanese intentions.[99] The inability of the Japanese to conduct resupply operations and the costly fighting at the Guadalcanal enabled the Allies to reinforce their positions in defense of New Guinea.

While examining the actions of the Allies at New Guinea, this survey asked if there was a clearly defined commander structure. Yes, there was a clearly defined command structure during this phase of the Pacific Campaign. The JCS had designated Admiral Nimitz as the senior commander to execute Phase One of the Pacific Campaign.[100] While serving as the Supreme Commander of the Southwest Pacific Area, General MacArthur was placed in a supporting role to Admiral Nimitz until the completion of Task One.[101] Once the Allies successfully cleared the Guadalcanal, GEN MacArthur would then be the senior commander to execute Task Two as dictated by the JCS directive.[102] Both commanders (GEN MacArthur and Admiral Nimitz) had the authority to control and synchronize their forces to best achieve effects on the adversary.

The second question explored if the Allied commander was able to plan, resource, and enable convergence while defending New Guinea. Yes, from April to September of 1942, GEN MacArthur was able to plan, support, and allow convergence. GEN MacArthur determined Port

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[97] Milner, *US Army in World War II, War in the Pacific: Victory in Papua*, 88.

[98] Ibid., 83.

[99] Edward J Drea, *MacArthur's Ultra Codebreaking and the War against Japan, 1942-1945* (Lawrence, KS: University Press of Kansas, 1992), 36.

[100] McGee, *The Solomons Campaigns 1942-1943 From Guadalcanal to Bougainville Pacific War Turning Point*, XLIV.

[101] Ibid.

[102] Ibid., XLV.

Moresby was key terrain and critical to the defense of Australia.[103] He decided the best protection of the Australian mainland would be the buildup of Port Moresby and increased Allied forces in New Guinea.[104] In early April, GEN MacArthur directed additional airfields to be constructed enabling the concentration of air assets to mass and disrupt Japanese offensive operations.[105] By repositioning his combat power, GEN MacArthur was able to set the conditions to achieve convergence across all domains. By converging assets across all domains, GEN MacArthur successfully defended Port Moresby and was victorious at the Battle of Milne Bay. Without the appropriate command authorities, GEN MacArthur's forces would have failed to achieve convergence across all domains to defeat the Japanese.

The third question was focused on determining if the Allies use of assets in the other domains (not air, land, and maritime) enabled them to defeat the Japanese advance at New Guinea. The Allies utilized intelligence assets in the EMS domain to enable preparatory actions across the domains. Admiral Nimitz's naval code breakers primarily provided ULTRA (deception of Japanese codes) at this point in the war.[106] Early in the war, the US Navy far outpaced the US Army. Army commanders were reluctant to use ULTRA as a justification to divert combat power and reposition assets.[107] As time went on, the US Army and its Australian partners' skill and ability significantly increased, enabling GEN MacArthur and Admiral Nimitz to share information and operationalize information from the EMS domain. An example of this is the Battle of the Coral Sea. Upon breaking the Japanese naval code, US Naval assets fought a Japanese invasion force despite never being within 100 miles from one another.[108] This battle

[103] Milner, *US Army in World War II, War in the Pacific: Victory in Papua*, 25.

[104] Ibid., 24.

[105] Ibid., 27.

[106] Drea, *MacArthur's Ultra Codebreaking and the War against Japan, 1942-1945*, 34.

[107] Ibid., 20.

[108] Ibid., 36.

resulted in a strategic success for the Allies and further demonstrated the utility of using the EMS domain to gain intelligence on enemy actions.[109]

The fourth question sought to answer if the Japanese were placed in a position of disadvantage due to the allies use of multiple domains in and around New Guinea. The Allies' ability to sync all the domains led to the Japanese failing to achieve tactical overmatch during the defense for Port Moresby and the Battle for Milne Bay. Indications and warning through the EMS domain enabled GEN MacArthur to understand opportunities to block enemy advances with naval and air assets.[110] The EMS domain enabled GEN MacArthur and Admiral Nimitz to direct subordinate commanders to reposition forces or go on the offensive when favorable conditions occurred. An example of this is when GEN MacArthur's headquarters received information that the Japanese fleet would no longer attempt a naval invasion of Port Moresby, but would attempt and overland seizure.[111] This intelligence resulted in Allied air assets launching to attack Japanese Naval assets and alerting land forces in New Guinea and Australia to be prepared to mitigate the enemy threat.[112] By synchronizing all domains, the Allies concentrated their forces, blocked the enemy, and forced the adversary back to the sea.

By taking an MDO approach the Allies were able to defend and repel Japanese offensive advances towards New Guinea and set conditions for Task Two of the Pacific Campaign. By maintaining Port Moresby as a base of operations, the Allies continued to increase combat power and build additional airfields to defend Australia. This base of operations led to continued interdiction of Japanese supply lines and air attacks on the stronghold of Rabaul. The JCS directed which commander (Admiral Nimitz or GEN MacArthur) was the priority of effort by

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[109] Drea, *MacArthur's Ultra Codebreaking and the War against Japan, 1942-1945*, 36.

[110] Louis Morton, *US Army in World War II, The War in the Pacific, Strategy and Command: The First Two Years* (Washington, DC: Department of the Army, 1962), 275.

[111] Drea, *MacArthur's Ultra Codebreaking and the War against Japan, 1942-1945*, 36.

[112] Milner, *US Army in World War II, War in the Pacific: Victory in Papua*, 37.

assigning tasks to each commander in the initial stages of the Pacific campaign. These tasks clearly articulated who was the supported and who was the supporting commander at each phase of the operation. Through the use of MDO, GEN MacArthur was able to synchronize limited assets to anticipate, adapt, and deliver the appropriate amount of combat power to achieve his endstates.

Findings and Analysis

This section will present evidence of the examined case study of the Pacific Campaign. This section consists of two subsections: Findings and Analysis. The findings section will review each one of the four research questions' results and compare the evidence to determine if the authorities possessed by the commanders were similar or different. The analysis section will examine each one of the four hypothesis questions and determine whether or not the hypothesis was supported, not supported, or a mixed outcome.

Findings

The first focused research question of this monograph investigated if there was a defined Allied command structure. If there was a command structure, did Allied commanders have authorities to use all assets and capabilities or did they need to request support from the JCS for the use of specific domains? In both battles, the Battle for the Solomon Islands and the Battle for New Guinea, there was a clearly articulated and defined command structure. The commanders were able to use all assets without additional coordination with the JCS. The JCS acted as the higher coordinating authority and prioritized which commander was in charge at each phase of the operation. During Task-One of the Pacific Campaign, as directed by the JCS directive, Admiral Nimitz was in control of Pacific operations. Admiral Nimitz was supported by GEN MacArthur’s air and naval assets to enable the Allies to secure a foothold in the Guadalcanal. Once Task-One was accomplished, GEN MacArthur would receive control of operations to perform Task-2 and Task-3, resulting in the successful seizure of Rabaul. Both commands

possessed similar authorities when they were leading the Allied operations. When not leading Allied operations, the commanders were not subordinate to one another. However, the JCS had directed each commander to provide specific capabilities and support (air or naval assets) to enable the other's operations.

The second focused research question examined if the Allied commander was able to plan, resource, and use all domains to enable convergence during the Pacific campaign. In the battles for the Solomon Islands and New Guinea, the commanders were able to use assets from across all domains to enable convergence. Both commanders had the necessary authorities to control assets across all domains to achieve convergence and deliver effects on the Japanese. For Admiral Nimitz, he was able to use Naval Maritime, Naval Air, Naval ULTRA, and Marine assets to synchronize assets to achieve a window of opportunity to secure amphibious landings in the Guadalcanal. For GEN MacArthur, he was able to use the US Army, US Army Air, US Naval, and Allied assets to defend Australia while preparing to conduct offensive operations. Both commanders dealt with limited assets against a numerically superior adversary in the Pacific campaign. The JCS attempted to reduce friction between Admiral Nimitz and GEN MacArthur by assigned specific tasks to each commander during the campaign. These JCS directives enabled unity of command during each task assigned and gave commanders the authority necessary to conduct MDO.

The third focused research question explored if the Allies use of domains (other than air, land, and maritime) enable them to defeat the Japanese. If the Allied did use other domains, did the other domains give commanders an advantage to converge on a decisive point? In both battles: The Battle for the Solomon Islands and the Battle for New Guinea specifically utilized ULTRA intelligence in the form of signal collection to determine enemy actions across the pacific theater. Both commanders had similar capabilities; they both had ULTRA sections. Nevertheless, the Navy ULTRA was far more effective in the first two years of the war. GEN MacArthur and the Allies in the southwest greatly benefited from Admiral Nimitz sharing

intelligence to enable air assets to interdict and disrupt enemy supply chains. Both commanders shared ULTRA intelligence as their code-breaking capabilities grew in capacity and effectiveness. The EMS domain resulted in the Allies' understanding and forecasting enemy actions, severely disrupting enemy lines of supply, and resulted in enemy culmination on New Guinea.

The fourth focused research question analyzed if the Japanese were placed in a position of disadvantage due to the allies use of multiple domains. In Battles of the Solomon Islands and New Guinea, synchronizing all domains placed the Japanese in a position of disadvantage. Admiral Nimitz's forces conducting task one achieved convergence and deliver Air and Maritime effects at a time and place of their choosing to enable the Marines to conduct amphibious assaults. GEN MacArthur was able to utilize Air and Maritime assets to isolate Japanese land forces while Allied land forces-built combat power to counter-attack and clear New Guinea of Japanese influence. Both commanders used MDO approaches to maximize their limited assets against the Japanese.

Analysis

The first hypothesis asserts that when a commander has appropriate command authorities, then he or she will be able to conduct MDO to defeat an adversary. The empirical evidence supports hypothesis one as both commanders were able to synchronize air, maritime, land, and EMS domains to provide their forces with limited windows of opportunity to achieve tactical overmatch against a numerically superior adversary. Admiral Nimitz and GEN MacArthur accomplished tactical overmatch because each was given specific tasks and the authorities over all domains until the completion of that operational task.

The second hypothesis asserts that when a commander has the ability to synchronize MDO capabilities and assets then the commander will be able to deliver effects to enable the penetration and dis-integration of the enemy defenses. The empirical evidence supports

hypothesis two, as the Allies were able to utilize the air, maritime, and EMS domain to support the land domain to achieve objectives. Through an MDO approach, the Allies gained insight into enemy actions and conducted penetrations to disrupt and later dis-integrate the enemy defenses.

The third hypothesis asserts that when a commander has the ability to use space, cyber, and EMS assets in his campaign, then the commander will be able to utilize the full strength of the DOD enterprise to defeat and adversary. The empirical evidence supports that hypothesis three is a mixed outcome, because there was not a DOD construct during WWII, as we currently possess today. The United States and the Allies did use a whole government approach but lacked the other interagency partners that are seen in conflicts today.

The fourth hypothesis asserts that when a commander is able to utilize all domains (Land, Air, Maritime, Space, EMS, Human), then the commander will be able to exploit the integrated defenses of an adversary. The empirical evidence supports hypothesis four. By conducting an MDO approach, the Allies conducted an island-hopping campaign, which led to the isolation and crippling denial of supplies for the Japanese offensive maneuvers. Admiral Nimitz and GEN MacArthur utilized all domains enabling the defeat of a numerically superior adversary with limited forces and assets.

This section presented the findings and analysis of the case studies of the Pacific Campaign. It showed the results of each research question and if the hypothesis was supported. The results demonstrate the need for commanders to be able to utilize all domains to execute MDO and defeat a near-peer or peer adversary.

Conclusion

This study was designed to begin the discussion on required command authorities and how the DOD enterprise will conduct MDO in the future. This analysis describes and demonstrates the necessary authorities required by a commander to conduct MDO against a near-

peer or peer adversary successfully. This section will summarize the paper, identify findings, why and to whom the findings are relevant, and recommend future actions.

This investigation was designed to use theory, history, and doctrine to examine and research four hypotheses. The literature review describes the theoretical, conceptual, and empirical aspects of the study and how it relates to the authorities necessary for MDO. The methodology used four focused and structured research questions to analyze the single historical case study. The findings and analysis present the results of the study.

This inquires thesis is, "MDO commanders must have necessary authorities to leverage new technology and capability (space/cyber/ems) on the modern battlefield. By empowering commanders with these authorities, a designated commander will be able to synchronize capabilities and assets across the DOD to create layered synergy, thus enabling the penetration and dis-integration of enemy defenses in order to defeat an adversary." The findings and analysis from the Pacific Theater of WWII support this thesis.

The findings and analysis demonstrate the capability of a numerically inferior force to use MDO in the planning and execution of convergence across the domains. Using this process, MDO will enable the Unite States and our allies to defeat a numerically superior adversary. When the US commanders synchronized assets across all domains to work together in tandem, they attacked the Japanese in a manner for which they were not prepared. If the United States attacked within a singular domain, the Japanese numerical advantage would be decisive. By using multiple domains and convergence, the Allied forces were able to win despite the Pacific not being the priority of effort of the war.

The findings of this examination are relevant to principals and commanders across the DOD enterprise. The US Army is building Multi-Domain Operations Task Force (MDOTF) as we speak, but it is undetermined what level of command will own authorities and at what level national capabilities will be withheld or delegated. For this concept to be implemented, it is necessary for all parties within the DOD enterprise (military and civilian agencies) to utilize

MDO. Like the Goldwater-Nichols Act, the DOD must work together to reduce service rivalry and promote cooperation. An MDO act would force the services to work together, within specifically defined roles, prevent services wasted efforts, and assist in prioritizing valuable resources across the DOD. A directive of this type would clearly define the road ahead concerning professional military education for all services, training for the MDOTF, and MDO doctrine.

This research topic is relevant due to this being a time of Great Power competition and a focus on Large Scale Combat Operations. In a multipolar world with competing requirements, the United States will fight with a smaller, lethal, and agile force. Authorities provide a commander with the ability to utilize all domains at his or her disposal today. In a near-peer or peer fight the proper nesting of MDO authorities by echelon will enable a commander to utilize EMS and space domains to provide friendly forces with a window of opportunity. When that window of opportunity presents itself, commanders must have the ability to act.

While this paper demonstrated that commanders must have authorities to conduct MDO, it has also identified additional areas for study. Additional research is needed on training, education, and procurement to establish a "Joint MDOTF" and execute MDO. This training will prepare the future leaders of the DOD. These leaders will be specialists in their services while understanding how all the services work together to create the necessary synergy to defeat a peer or near-peer adversary.

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