

OFFENSE INVERTED: NON-STANDARD APPLICATIONS OF THE
MULTI-DOMAIN TASK FORCE IN THE INDO-PACIFIC

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Art of War Scholars

by

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ABSTRACT

OFFENSE INVERTED: NON-STANDARD APPLICATIONS OF THE MULTI-DOMAIN TASK FORCE IN THE INDO-PACIFIC, by David E. Degenhardt, 137 pages.

The U.S. Army's Multi-Domain Operations operating concept is meant to solve the problem of anti-access and area-denial (A2/AD) threats posed by peer adversaries. The primary means of defeating these threats is the Multi-Domain Task Force (MDTF), but the MDTF has potential beyond penetrating A2/AD spaces. This is significant amid the ongoing debate about the U.S. Army's role in the Indo-Pacific. This study examines the capabilities of the MDTF and how it can contribute to the Joint Force in the Indo-Pacific by using a reverse version of the Joint Capabilities Integration and Development System process. This process analyzes MDTF's capabilities based on requirements documents, determines the potential gaps those capabilities can fill, examines how the MDTF can fill those gaps at three key locations in the Indo-Pacific.

This study demonstrates that the MDTF has a unique and flexible mix of capabilities that allow it to perform multiple tasks beyond penetrating enemy A2/AD spaces. These include generating its own A2/AD space to serving as a deterrent to enemy escalation and assisting in maintaining operational access for follow-on forces. The MDTF can also isolate enemy forces and delay or disrupt enemy movements and massing of forces, while providing early warning and targeting information. This enables the MDTF to contribute to Joint Force operations in the Indo-Pacific across all phases of competition and conflict if used to its full potential.

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ACRONYMS

A2/AD	Anti-Access Area Denial
EW	Electronic Warfare
I2EWCS	Information, Intelligence, Electronic Warfare, Cyber, and Space
IAMDS	Integrated Air and Missile Defense
LRHW	Long-Range Hypersonic Weapon
LRPF	Long-Range Precision Fires
MDO	Multi-Domain Operations
MDTF	Multi-Domain Task Force
MRC	Mid-Range Capability

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CHAPTER 1

INTRODUCTION

Background

Since its inception in late 2016 under the heading of Multi-Domain Battle the Army's most recent operational concept has undergone continuous revision to more clearly articulate the necessary changes required for the Army to remain competitive in great power competition. Doctrinally the concept of Multi-Domain Operations is built around rapidly and continuously integrating all domains of warfare to deter aggression and compete against enemies at a level below armed conflict. If this option fails, goal of Multi-Domain Operations is to use this integration to defeat the enemy and return to a pre-conflict state on more favorable terms for the United States and its allies and partners.¹

To solve problems with Multi-Domain Operations the Army has identified three central tenets: calibrated force posture to position and maneuver forces on a strategic scale; using "multi-domain formations [that] possess the capacity, capability, and endurance necessary to operate across multiple domains in contested spaces against a near-peer adversary" and convergence or "rapid and continuous integration of capabilities in all domains ... that optimizes effects to overmatch the enemy."² Despite the flexibility of these tenets, in conflict Multi-Domain Operations is usually described as a solution to

¹ U.S. Army Training and Doctrine Command (TRADOC), TRADOC Pamphlet 525-3-1: *The U.S. Army in Multi-Domain Operations 2028* (Fort Eustis, VA: TRADOC, December 2018), 17.

² Ibid., vii.

anti-access and area denial (A2/AD) threats posed by peer adversaries where forces will penetrate the enemy's A2/AD systems, dis-integrate enemy forces, and then exploit the resulting openings to achieve joint force objectives.³ This reflects our focus on and preference for offensive maneuver, with shaping and defensive operations taken as a secondary consideration.

One of the methods that has been used to develop Multi-Domain Operation as a concept has been the Multi-Domain Task Force (MDTF), which was directed in 2017 as part of a deliberate process of design and experimentation. The MDTF was conceptualized as a forward-stationed brigade-sized unit combining long-range precision fires, integrated air and missile defense, and special capabilities such as electronic warfare, space, cyber, and information operations before and during conflict.⁴ The first MDTF was established at Joint Base Lewis-McChord in 2017, and the Army currently plans to establish five MDTFs with two in the Indo-Pacific, one in Europe, one in the Arctic, and one as a global response force.⁵

Over the last four years the MDTF at Joint Base Lewis-McChord has participated in numerous training exercises including Yama Sakura 75 in 2017, Pacific Sentry in

³ TRADOC, TRADOC Pamphlet 525-3-1, viii-xi.

⁴ Ibid., F-1.

⁵ Congressional Research Service (CRS), *The Army's Multi-Domain Task Force (MDTF)*, CRS In Focus IF11797, by Andrew Feickert (Washington, DC: Library of Congress, updated 13 April 2021), 2.

2017, Rim Of The Pacific in 2018, and Valiant Shield in 2020.⁶ These exercises have provided valuable insights on integrating the MDTF into the Joint force, particularly in terms of operating across domains while integrating and synchronizing cyber and space effects. Based on the outcome of these exercises the MDTF as a concept has arguably been validated, bringing a much-needed ability for the Army to contribute to conflicts occurring in domains that have historically favored other branches of the United States military. The multinational nature of many of these exercises also demonstrates the role that the MDTF can play in enabling operations alongside our allies and partners.

This is particularly important as TRADOC Pamphlet 525-3-1 takes the unusual approach of specifically naming China and Russia as serious threats and orienting the Multi-Domain concept against them.⁷ While both states operate within the Indo-Pacific Theater where the first MDTF is postured, the bulk of Russia's population and forces are concentrated closer to Europe. As a result, China represents the greater threat to U.S. interests in the region and will be treated as the primary adversary within this study.

Despite these benefits the MDTF and Multi-Domain Operations are still in their doctrine development phase, with the latter mostly existing as a conceptual discussion that is slowly percolating through the minds of senior leaders and rising through the ranks carried by field grade officers who have been introduced to the concept through schooling and exercises. The second MDTF was officially activated on 16 September

⁶ Brian J. Newill, "Leveling Up: Improving Army Fires and Targeting for Multi-Domain Operations," in *Theater Army in Multi-Domain Operations Integrated Research Project*, ed. Gregory L. Cantwell (Carlisle, PA: Army War College, 2020), 147.

⁷ TRADOC, TRADOC Pamphlet 525-3-1, vi.

2021 and as of yet only has a fraction of its eventual total of about 1,200 Soldiers.⁸ A number of the MDTF's required capabilities are still in development, including Mid-Range Capabilities (MRC) and Long-Range Hypersonic Weapons (LRHW) that will not be fully operational until at least 2023.⁹

According to this emerging doctrine the purpose of the MDTF is to use kinetic and non-kinetic capabilities to neutralize an adversary's A2/AD systems to support the Joint Force.¹⁰ This does not account for a basic principle inherent in their design: the same capabilities that allow a force to *penetrate* an A2/AD space can also be utilized to *generate* an A2/AD space. This provides for a number of potential uses for an MDTF that are not captured in the Multi-Domain Operations concept that this study will explore.

The roots of this principle can be found in the 2017 RAND study titled *What Role Can Land-Based, Multi-Domain Anti-Access/Area Denial Forces Play in Deterring or Defeating Aggression?* This study identifies three possible approaches that include attacking enemy A2/AD, mitigating damage from enemy A2/AD, and creating A2/AD challenges for adversaries.¹¹ Written at approximately the same time that the MDTF was

⁸ Todd South, "Army's First Multi-Domain Task Force in Europe Gets to Work," *The Army Times*, 17 September 2021, <https://www.armytimes.com/news/your-army/2021/09/17/armys-first-multi-domain-task-force-in-europe-gets-to-work/>.

⁹ CRS, *The Army's Multi-Domain Task Force*, 1.

¹⁰ Headquarters, Department of the Army (HQDA), "Army Multi-Domain Transformation: Ready to Win in Competition and Conflict," (Chief of Staff Paper #1, Department of the Army, Washington, DC, 2021), 12.

¹¹ Timothy M. Bonds, Joel B. Predd, Timothy R. Heath, Michael S. Chase, Michael Johnson, Michael J. Lostumbo, James Bonomo, Muharrem Mane, and Paul S. Steinberg, *What Role Can Land-Based, Multi-Domain Anti-Access/Area Denial Forces*

being developed, this report does not mention the MDTF but forecasts many of the capabilities that the MDTF now possesses. While this report appears to have largely been forgotten as the MDTF has been designed around the first approach, many of the recommendations and conclusions in the report suggest that the MDTF has significant unrealized potential to assist in the third approach. Clarifying and exploring this potential increases the flexibility of MDTF and provides additional options for conducting Multi-Domain Operations that will increase the Army's relevance, capabilities, and relevance in the Pacific Theater.

Without referencing the MDTF, the RAND study also suggests the development of a small and specialized Army unit with longer-range anti-ship capabilities for pre-crisis or rapid deployment. This is described later in the study as a notional A2/AD system that integrates sensors, anti-ship missiles, and anti-aircraft batteries within a combined force.¹² This is remarkably like the eventual make-up of the MDTF, although the MDTF and its doctrinal use developed along a different path focused on penetrating A2/AD spaces rather than creating them.

The study goes further by suggesting several locations where such a unit could be useful in scenarios concerning Taiwan, the South China Sea, or the Senkaku Islands.¹³ These suggestions are no more than hypothetical cases, however, and do not consider the

Play in Deterring or Defeating Aggression (Santa Monica, CA: RAND Corporation, 2017), 75-77.

¹² Bonds et al., *What Role Can Land-Based, Multi-Domain Anti-Access/Area Denial Forces Play in Deterring or Defeating Aggression*, xii-xiv, 78-79.

¹³ *Ibid.*, 82, 87-88, 104-105.

capabilities of the MDTF or template possible opposing forces and how the MDTF might fare against them. The purpose of this paper is to build on this earlier research by objectively examining the MDTF's capabilities, determine what tactical tasks it can fulfill outside of its primary use of defeating adversary A2/AD systems, and examine the possible outcomes of using the MDTF in these roles.

Despite the reality that the full operational capabilities of the MDTF as templated will not be available until at least 2023, there is sufficient information available based on the unit's design documents and equipment that is being tested to allow for analysis of the potential uses for a MDTF to fulfill these roles outside of its doctrinal mission. These uses could take advantage of dis-integrating elements of the MDTF to allow portions of the task force to operate independently in several key locations or extending and overlapping coverage from different assets to create a distributed A2/AD bubble.

Maintaining China as the pacing threat in the Indo-Pacific Theater suggests several potential locations where a MDTF could provide a key defensive or deterrent capability. China's increasing naval presence west of the Malacca Strait creates the possibility that denying access to the straits during conflict could effectively split the Chinese Navy and prevent it from massing naval combat power for hours or days. Another example would be deployment of a MDTF to the Philippines, Malaysia, or Vietnam to affect territorial disputes within the Nine Dash Line and potentially intervene in a crisis. In the event of a Chinese attack on Taiwan, its long-range capabilities could also allow a MDTF to influence operations in the Straits of Taiwan from a variety of locations and shield approaching U.S. forces if the United States decided to oppose a forceful reintegration of Taiwan and China. Finally, as referenced in the RAND study the

MDTF might be able to play a role in support of Japan in the event of a dispute over the Senkaku islands.

Problem Statement

The Army's MDTF is a brigade size element with a mix of unique capabilities which has been primarily designed around a specific offensive role, severely limiting its flexibility and ability to act within a large theater. Failing to account for other tasks that the MDTF might be capable of performing has stifled development of doctrine that could potentially employ it in any other capacity beyond penetrating A2/AD spaces. Overfocus on a single mission has resulted in a general lack of understanding of the precise capabilities that the MDTF was designed to employ, making it difficult for planners to imagine ways that it could potentially be used in shaping or defensive operations that could affect the operational and strategic balance of a theater of war. This is particularly important in the Indo-Pacific, where the United States Army is re-evaluating the role of land component forces and their relevance due to the vast distances between landmasses and limited ground maneuver space.

Purpose of the Study

This intention of this study is to provide a more comprehensive understanding of the doctrinally designed capabilities of the MDTF and how those capabilities can be used in future conflicts beyond the MDTF's planned role of penetrating an A2/AD space. While this study will focus on the Indo-Pacific theater, grounding the study in research on operational capabilities and doctrinal tasks will enable scholars and planners to transfer the resulting conceptual uses of the MDTF into different locations with minor

modifications based on different operating environments and mission variables. By illustrating the capabilities of the MDTF and potential methods of using those capabilities this paper is intended to generate further discussion on the issues addressed as well as providing a starting point for the development of doctrine that will allow the MDTF to take a greater role in conducting large-scale combat operation and suggest potential roles for Army capabilities in the Indo-Pacific.

Research Questions

The primary research question for this study is how the MDTF can contribute to the Joint Force in the Indo-Pacific outside of its doctrinal mission of penetrating A2/AD spaces. This research question was chosen due to ongoing debate about the role of the Army in the Indo-Pacific theater and because the first and most operationally mature MDTF in the Army's inventory is currently aligned against that region. Providing an answer to this question will provide additional options for joint planners to incorporate a unique mix of capabilities into future conflicts that allows for increased flexibility and methods of shaping the operational and strategic picture using long-range precision fires.

To answer this primary research question, the first secondary research question asks what the planned future capabilities of the MDTF are based on its designed structure. As the analysis in chapter four will demonstrate, the existing MDTF does not match the unit's force structure requirements documents while informational presentations crafted for mass consumption have largely been simplified to top level line and block charts. A large part of this discontinuity has come from the MDTF being designed around capabilities that are only now reaching the point of being tested and

issued. Envisioning future uses for the MDTF requires a solid understanding of the potential capabilities that the unit is intended to possess.

This ties directly into the second secondary research question, which asks what operational and tactical tasks the MDTF can perform outside of its existing doctrinal mission based on those potential capabilities. The answer to this question requires thorough analysis of the capabilities stipulated in the MDTF's original design documents plus additional capabilities still in development. These should then be measured against doctrinal tasks to ascertain if the MDTF is capable of accomplishing those tasks. Laying a solid foundation of essential basic warfighting tasks and potential tasks that the MDTF can perform sets the stage for applying those tasks against key locations in the Indo-Pacific region and demonstrating the potential impact that a fully realized MDTF could have as a force multiplier if employed as part of a joint strategy supporting national objectives.

The third secondary question addresses this area by asking how the MDTF's capabilities and the associated tasks it can perform can be used to shape the operational and strategic environment in the Indo-Pacific. A definitive answer to this question would constitute a theater campaign plan or a major operational plan, so this study examines a handful of key locations in the Indo-Pacific and use the answers to the first two questions to demonstrate potential uses for the MDTF at those locations. This will allow the question to be answered in terms of strategic and operational military effects that an MDTF can potentially generate, allowing for those effects to be generalized for use in future operations at different locations. This brings us back to the primary research

question by providing a menu of options showing how an MDTF can allow the Army to contribute to the Joint Force in the Indo-Pacific.

Assumptions

The main assumptions used in this study are based around equipment capabilities, requirements, organizational/doctrinal design documents, and use of the MDTF in hypothetical locations. For the first category, this study will assume that announced ranges and velocities are reasonably accurate for planning purposes. This allows for use of publicly available sources and provides a basis for comparison between various capabilities as well as the possibility of deriving employment concepts based on those capabilities. This includes using the SM-6 and Tomahawk ranges and flight speeds when conjecturing about the possible uses and role of the MDTF's planned mid-range capability. Another example of such an assumption would be quoted speeds and ranges of long-range hypersonic weapons currently in development.

In terms of requirement and design documents, this study assumes that the capabilities described in requirement documents provide an accurate representation of the MDTF's intended design. The most recent active design documents will be considered as authoritative statements of the planned organizational, personnel, and equipment structures of the MDTF, and the listed capabilities will be used to analyze the planned MDTF's suitability for doctrinal tasks. This includes the intended roles for sub-elements of the MDTF and specific capabilities housed within its component battalions. This is particularly necessary when analyzing the I2EWCS battalion since many of the templated capabilities are specifically designed to support a particular aspect of the MDTF's role

while the exact nature of how those functions would be performed are not publicly available.

The final set of assumptions in this study is concerned with exploring potential uses of the MDTF within the Indo-Pacific. Due to the complex politics of the region and the continuing evolution of relationships among the United States and its allies and partners this study will assume that deployment to strategic locations will be allowed by all participants for the purpose of illustrating the MDTF's capabilities. This enables the study to proceed without an in-depth analysis of the political situation around each potential deployment of the MDTF. As a result, the proposed uses of the MDTF can be applied in the future if conditions change or generalized to apply to locations similar to the ones chosen for this study.

Definition of Terms

Domain – “an area of activity within the operational environment (land, air, maritime, space, and cyberspace) in which operations are organized and conducted.”¹⁴ The first four are physical, while cyberspace is “a global domain within the information environment.”¹⁵ There is considerable overlap between domains.

Multi-Domain Operations – “Operations conducted across multiple domains and contested spaces to overcome an adversary (or enemy's) strengths by presenting them with several operational and/or tactical dilemmas through the combined application of

¹⁴ TRADOC, TRADOC Pamphlet 525-3-1, GL-4.

¹⁵ Office of the Chairman of the Joint Chiefs of Staff (CJCS), *DOD Dictionary of Military and Associated Terms* (Washington, DC: The Joint Chiefs of Staff, November 2021), 55.

calibrated 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.”¹⁶

Multi-Domain Task Force – “theater-level maneuver elements ... [that] synchronizes precision effects and precision fires in all domains against adversary A2AD networks in all domains, enabling joint forces to execute their OPLAN-directed roles.”¹⁷. They are “designed to deliver long-range precision joint strike as well as integrate air and missile defense, electronic warfare, space, cyber, and information operations.”¹⁸

Anti-Access Area Denial (A2/AD) – a combination of “capabilities, usually long-range, designed to prevent an advancing enemy force from entering an operational area” (anti-access) and “capabilities, usually short-range, designed to limit an enemy force’s freedom of action within an operational area” (area denial).¹⁹

Long Range Precision Fires – capabilities designed to “attack, neutralize, suppress, and destroy targets using missile-delivered indirect precision fires.”²⁰ There is no defined maximum range, but the Acquisition Support Center specifies that these fires

¹⁶ TRADOC, TRADOC Pamphlet 525-3-1, GL-7.

¹⁷ HQDA, “Army Multi-Domain Transformation,” 12.

¹⁸ Ibid., 32.

¹⁹ Office of the Chairman of the Joint Chiefs of Staff (CJCS), Joint Publication (JP) 3-0, Change 1, *Joint Operations* (Washington, DC: The Joint Chiefs of Staff, October 2018), GL-6.

²⁰ “Long Range Precision Fires (LRPF),” U.S. Army Acquisition Support Center, accessed 1 January 2022, <https://asc.army.mil/web/portfolio-item/long-range-precision-fires-lrpf/>.

will replace the Army Tactical Missile system and have a range in excess of 300 kilometers.²¹

Mid-Range Capabilities – an intermediate capability “designed to hit targets in the range between the Precision Strike Missile and the Long Range Hypersonic Weapons.”²² The current version of this capability is expected to be built around the SM-6 and Tomahawk missile.²³

Long Range Hypersonic Weapon – a developing capability intended to allow the United States military to launch missiles from a ground platform at a speed of over 3,800 miles per hour with greater ranges than mid-range capabilities.²⁴

Scope

This study will focus on the potential uses of the MDTF within the Indo-Pacific theater based on the MDTF’s intended capabilities once all included components have been fielded. It will include the MDTF’s long range fires capability, I2EWCS battalion, and integrated air and missile defense elements. These capabilities will be analyzed against existing tasks described in Army doctrine and how those tasks can be implemented in select locations within the theater. The selected locations are intended for

²¹ “Long Range Precision Fires (LRPF),” U.S. Army Acquisition Support Center.

²² “Army Awards Mid-Range Capability Other Transaction Agreement,” U.S. Army Rapid Capabilities & Critical Technologies office, accessed 1 November 2021, <https://rapidcapabilitiesoffice.army.mil/news/mid-range-capability-ota/>.

²³ Ibid.

²⁴ Neil Thurgood, “Hypersonics by 2023,” U.S. Army, September 4, 2019, https://www.army.mil/article/226678/hypersonics_by_2023.

illustrative purposes and do not represent an exhaustive list of all possible locations that the MDTF could be deployed. Finally, the potential uses of the MDTF from this study are intended to be generalizable to similar locations and situations and are not specific to the examples provided.

Limitations and Delimitations

The primary limitation of this study is that it can only use unclassified or open-source weapon system ranges and capability information to prevent classification and foreign disclosure issues. EW, Cyber, and Space capabilities are often highly classified and operational details concerning the precise effects that these systems can generate are not available in open sources. Many of the capabilities listed are at varying stages of development and their final operating parameters have not yet been precisely determined. To proceed, this study will use the most current test results and announced capabilities for research and planning purposes. If this study requires calculations to determine hypothetical factors such as line of sight or detection range of an intelligence gathering capability these calculations will be based on open-source information to preserve classification.

Delimitations applied to this study include the choice to limit the study to assessing potential uses of the MDTF in the Indo-Pacific and the decision to include only fielded weapon systems or weapon systems with prototypes currently being tested. This study also only uses the Army's current list of tactical tasks without exploring possible new tasks that could be derived from the capabilities of the MDTF in order to limit the amount of analysis to a manageable level. For a similar reason, the number of example scenarios used to illustrate the potential impact of employing the MDTF will be restricted

to theoretical potential scenarios based on the results of the literature review in Chapter Two. The primary focus of this study will be on the use of the MDTF in the islands and archipelagos within the Indo-Pacific rather than potential operations on the mainland, as the Army already has sufficient understanding of its role in such a campaign.

Significance of the Study

The significance of this study is that it expands the doctrinal concept of the MDTF outside of its current role as an A2/AD breaching instrument and provides a starting point to consider alternate offensive and defensive uses of the MDTF as part of Multi Domain Operations within the Army Concept Framework. Expanding the MDTF's doctrinal role or describing a multi-purpose role allows for increased flexibility in using these units to generate effects on an operational and strategic level to shape the theater by restricting or denying key movement corridors and strategic locations to enemies. This assists the MDTF in providing freedom of movement for joint forces conducting follow-on operations and demonstrates an additional role for the United States Army in future operations in the Indo-Pacific.

Summary

The concept of Multi-Domain Operations has flown quietly under the radar for much of the Army outside of the Pacific theater, even as the Army prepares to release new versions of ADP 3-0 and FM 3-0 to bring the concept fully into common use. Because of this there has been relatively little intellectual engagement with the doctrinal vision there is considerable work ahead if the United States Army intends to reach the 2028 milestone in the Army Concept Framework. The current operational concept has

been narrowly focused on offensive operations and does not adequately address the role of international partners in strategic roles. In order to be viable as doctrine, Multi-Domain Operations must be fleshed out and explored through imaginative applications and scenarios.

One of the best methods to accomplish this goal is through engagement of hypothetical case studies, which can serve as a starting point to expand doctrine or serve as the foundation for future exercises and war games. The problem in this case is that the prime experimental laboratory for Multi-Domain Operations, the Multi-Domain Task Force, has been designed around a specific offensive role although some of its components have the potential to be used in other offensive roles or in a defensive situation. This prevents the MDTF from living up to the full potential of its intended capabilities and limits its utility in future conflicts. This problem is particularly exacerbated in the unique operating environment of the Indo-Pacific, which has often been viewed as being dominated by naval forces.

This study is meant to take a fresh look at the MDTF in terms of its intended capabilities and examine the potential gaps that they could be used to fill rather than remaining focused on the specific mission for which it was designed. Comparing these capabilities against the menu of Army tasks allows us to envision additional ways that the MDTF could be useful in the operating environment where it was first developed. Examining these methods of employment through the lens of strategically important locations builds on this concept and provides examples of potential ways that the MDTF could provide a strategically significant capability in support of a joint force before large scale combat operations begin and during the initial phases of conflict. This provides

additional flexibility to joint planners as well as an additional tool to be used during operational design to affect the movement and deployment of adversary forces.

Before conducting this analysis, it is important to ground the research and further examine the questions that this study is intended to answer by conducting an open source literature review examining previous work that has been completed related to the subject of operational and response forces with multiple organic capabilities. While the concept of Multi-Domain Operations is still in development and the MDTF is a relatively new unit, there has been some initial work written to explain the general concept of Multi-Domain Operations to the force at large and a body of joint doctrine that can be applied to provide insight into how MDO can interface with those force structures and formations.

The Indo-Pacific region and its general security situation has also been the subject of numerous studies as China has continued to develop new capabilities and worked to expand its influence with neighboring countries. Reduced operations in the Middle East have led the Army and joint planners to raise the question of what the Army can contribute to operations in the Indo-Pacific theater, while others have begun engaging in studies on specific applications of MDO as a concept and some limited inquiry into its application within specific sub-fields of Army operations.

CHAPTER 2

LITERATURE REVIEW

Introduction

As a relatively new operational and strategic concept that has not been fully implemented, literature concerning Multi-Domain Operations and the Multi Domain Task Force is relatively limited. This literature and has undergone a great deal of change over the last few years as these concepts have been developed. This presents a significant challenge when conducting a literature review, especially when examining a novel application of the concept. A great deal of the work that has been completed on this subject resides in prior theses, and monographs written by military officers, professional military education faculty, CGSC students, and students at the School for Advanced Military Studies (SAMS). The remainder can be found in think-tank studies, recent news stories, and journal articles written by national security thinkers on Multi-Domain Operations and the strategic situation in the Indo-Pacific. An additional barrier is that much of the literature on Multi-Domain Operations exists as the classified level and is not available for this study.

The primary research question for this study asks how the MDTF can contribute to the Joint Force in the Indo-Pacific outside of its doctrinal mission of penetrating A2/AD spaces. Because this question is focused on the intended capabilities of the MDTF and what those can contribute, the first secondary research questions is designed to analyze the capabilities of the MDTF based on its design documents and emergent technologies. The second secondary research question compares those capabilities to tactical mission tasks and then applies the valid tasks against joint doctrinal concepts

based on the range of military operations. The third secondary research question takes the data from the first two secondary research questions and places it in the context of the Indo-Pacific to provide data to determine the potential impacts that the MDTF can generate.

Conducting a literature review concerning these questions is complicated due to the limited body of work that specifically addresses the MDTF in any role outside its designed use of penetrating A2/AD spaces. The idea of a defensive strategic role for the MDTF has been alluded to in some publications and policy documents but has not received the same level of analysis as the MDTF's original and primarily offense-oriented mission. At the same time Army's role in the Indo-Pacific has been a topic of contention over the last few years while there has been an emerging body of work dedicated to China's growing influence in the region as well as the strategies China is likely to use in future conflicts. As a result, the literature review process related to the questions of this study will be largely focused on recent documents in order to provide the most current understanding of the operational environment used in this study.

The process for identifying sources for this literature review began with an examination of doctrinal literature beginning with TRADOC Pamphlet 525-3-1 and expanded to additional relevant Army and Joint documents to provide an overview of the topic. The next step was examining the last four years of CGSC MMAS Theses and SAMS Monographs for topics related to Multi-Domain Battle, Multi-Domain Operations, and the Multi-Domain Task Force. Each document found was assessed for relevance to the topic and analyzed, identifying additional sources that had been referenced in their bibliographies. In addition to this procedure the Defense Technical Information Center

provided access to some background material and potential sources for analysis. Finally, well known strategy-oriented print journals, online journals, and curated websites provided recent articles related to this study's research questions.

Based on the outcome of this initial research this literature review will primarily examine four major areas of existing research related to the primary and secondary research questions. The first of these areas will be an examination of existing doctrine relating to Multi-Domain Operations, related Joint Doctrine, and other official military documents related to the MDO concept. The second area will examine existing literature on Multi-Domain Operations and the MDTF as well as related tactical concepts. The next area will provide a brief background on recent studies of the Army's role in the Indo-Pacific and current discussion on what that role might entail. Finally, the fourth section will discuss pertinent literature on the security situation in the Indo-Pacific, key strategic locations in the region, and the security posture of countries surrounding these points. There is considerable overlap between these categories, with each reviewed document being placed according to its primary focus.

Doctrinal and Military References

Pending the release of the next version of ADP 3-0 in 2022 the current capstone document for Multi-Domain Operations is TRADOC Pamphlet 525-3-1, *The U.S. Army in Multi-Domain Operations*. The primary purpose of this reference is to introduce the MDO framework to a new audience, define the operational environment, express basic tenets, and present problems facing the new construct for future consideration and development. As a result, it introduces MDO at a broad conceptual level expressed in terms of three tenets: calibrated force posture, multi-domain forces, and convergence.

The existing MDO framework it describes is overwhelmingly focused on offensive operations, moving from competition directly into penetration, dis-integration, and exploitation. The limited discussion of defense presented focuses on denying an enemy specific objectives and force protection considerations rather than shaping the larger strategic context.²⁵

Chief of Staff Paper #1, “Army Multi-Domain Transformation” provides further expansion on the topic of MDO and extends the previous concepts into a more complete operational picture. Relevant to this study the paper discusses contesting adversary movements to provide time to consolidate gains and de-escalate, use of the Army to secure key locations such as the Malacca Strait, and using land-based capabilities to affect other domains.²⁶ This provides a foundation for use of MDO in strategically significant defensive operations, but does not specify exactly what capabilities would be used in these instances or how they would integrate with multinational forces.

TRADOC Pamphlet 525-3-8 sheds some light on these areas by marrying aspects of Large-Scale Ground Combat Operations with MDO, addressing the need to shape the environment through employing forces and capabilities but only describes key terrain in terms of collapsing enemy air defense and fires capabilities. Employment of partner capabilities is discussed in terms of converging effects and conducting security cooperation activities to set the theater, as well as forming large multinational combined

²⁵ TRADOC, TRADOC Pamphlet 525-3-1, 17, 26, 34, 36.

²⁶ HQDA, “Army Multi-Domain Transformation,” 5-9.

arms formations.²⁷ This formulation includes operations conducted in concert with partners but does not envision or detail close cooperation at brigade level or below. While reflective of how the United States has generally conducted operations in the past, this may not be an ideal model for future high-intensity high-tempo operations.

Congressional Research Service Documents such as *The Army's Modernization Strategy: Congressional Oversight Considerations* and *Defense Primer: Army Multi-Domain Operations* also provide some insight into development of the MDO concept. The first of these addresses MDO challenges and links them to the Army's six major modernization priorities, as well as raising the question of whether modernization will address the military strategies of peer competitors.²⁸ The *Defense Primer* provides a basic overview of MDO with updated information discussing the Army's Project Convergence Initiative and describes developing MDO concepts with allies and partner nations as well as the potential need to develop a joint warfighting concept for MDO.²⁹

Some elements of this joint warfighting concept can be found in other service doctrines, with the most prominent example being Air Force Doctrine Publication

²⁷ U.S. Army Training and Doctrine Command (TRADOC), TRADOC Pamphlet 525-3-8, *The U.S. Army Concept for Multi-Domain Combined Arms Operations at Echelons Above Brigade 2025-2045* (Fort Eustis, VA: TRADOC, December 2018), 12-14, 18, 34-36.

²⁸ Congressional Research Service (CRS), *The Army's Modernization Strategy: Congressional Oversight Considerations*, CRS Report for Congress R46216, by Andrew Feickert and Brendan W. McGarry (Washington, DC: Library of Congress, 7 February 2020), 4-5.

²⁹ Congressional Research Service (CRS), *Defense Primer: Army Multi-Domain Operations (MDO)*, CRS In Focus IF11409, by Andrew Feickert (Washington, DC: Library of Congress, 22 October 2021), 1-2.

(ADFP) 3-99. Described as emerging doctrine, AFDP 3-99 addresses the Air Force's role in Joint All-Domain Operations (JADO) and includes discussion of competition in that framework as well as the necessity for Joint All-Domain Command and Control (JADC2).³⁰ In addition, AFDP 3-99 is organized by warfighting function and provides an avenue to consider for future expansion of how the Army describes and explains MDO as the concept becomes operational in the larger force.

This kind of nesting is also applicable when examining the methods of employing U.S. forces alongside partner forces, which is a key consideration within the Indo-Pacific region. While this study focuses on the MDTF operating semi-independently, multinational support and transportation may be required to reach key locations. Joint Publication 3-16, *Multinational Operations* provides guidelines to consider for multinational operations, including organizing and operating parallel command structures as well as coordinating between forces.³¹ The Army's Field Manual (FM) 3-16, *The Army in Multinational Operations* provides more detail on these concepts as the operational and tactical level, addressing specifics concerning North Atlantic Treaty Organization and Combined Forces Command Korea operations along with discussions

³⁰ Headquarters, Department of the Air Force (HQAF), Air Force Doctrine Publication (AFDP) 3-99, *Department of the Air Force Role in Joint All-Domain Operations (JADO)* (Washington, DC: Department of the Air Force, October 2020), 5.

³¹ Office of the Chairman of the Joint Chiefs of Staff (CJCS), Joint Publication (JP) 3-16, *Multinational Operations* (Washington, DC: The Joint Chiefs of Staff, March 2019), II-7 – II-9.

of interoperability and incorporating national capabilities.³² While not specifically MDO centered, these publications provide some idea of the challenges in supporting and conducting operations in a complex operating environment.

Multi-Domain Operations and MDTF Studies

The concept of Multi-Domain Operations has undergone significant evolution since its inception in 2016. Originally conceived as Multi-Domain Battle, one of the first examples of the concept was Mike Redman and Major Joseph Easterling's Army white paper describing a new concept of combined arms that would utilize cross-domain synergy to fight against peer threats.³³ By the following year General David Perkins was writing about the topic in *Military Review*, focusing on operations in a contested environment and the need to integrate electronic warfare and space capabilities into the battlefield of the future.³⁴

As an emerging concept Multi-Domain Battle invited discussion, with junior officers wrestling with the concept as they attempted to reconcile new ideas with existing doctrine. Jonathan Bott and an assemblage of other field grade officers from across all

³² Headquarters, Department of the Army (HQDA), Field Manual (FM) 3-16, *The Army In Multinational Operations* (Washington, DC: Army Publishing Directorate, April 2014), 2-2:2-17.

³³ Michael Redman and Joseph Easterling, "Multi-Domain Battle: Combined Arms for the 21st Century," (White Paper, Army Capabilities Integration Center, Washington, DC, October 2016), 2-4.

³⁴ David G. Perkins, "Multi-Domain Battle: Driving Change to Win in the Future," *Military Review* (July-August 2017): 6-12, https://www.armyupress.army.mil/Portals/7/military-review/Archives/English/MilitaryReview_20170831_PERKINS_Multi-domain_Battle.pdf.

four branches of the Department of Defense examined Multi-Domain Battle in 2017 and identified requirements for a mental shift, education and training, and incorporation of mission orders to drive execution of organizational change.³⁵ Based on this and other joint collaborations, there were early indications that the MDO concept could evolve into a joint concept as discussed earlier in the doctrinal references. Another example occurred with Shawn Woodford's short article describing Army and Marine Corps collaboration to develop Multi-Domain Battle as a combined arms framework that could be used for tactical application.³⁶ By 2018 the concept was being used in case studies at SAMS, as demonstrated by Jose Liy's examination of how Multi-Domain Battle had emerged from earlier doctrines.³⁷

Multi-Domain Battle officially evolved into Multi-Domain Operations by September 2018, as explained in General Stephen Townsend's article addressing the change in concept. The main factor in this change was the addition of competition and actions below the level of armed conflict, elevating the concept above the tactical level.³⁸

³⁵ Jonathan W. Bott, John Gallagher, Jake Huber, and Josh Powers. "Multi-Domain Battle: Tactical Implications," *Over the Horizon: Multi-Domain Operations and Strategies*, 28 August 2017, <https://othjournal.com/2017/08/28/multi-domain-battle-tactical-implications/>.

³⁶ Shawn Woodford, "Army and Marine Corps Join Forces to Define Multi-Domain Battle Concept," *Mystics & Statistics* (blog), *The Dupuy Institute*, 03 February 2017, <http://www.dupuyinstitute.org/blog/2017/02/03/army-and-marine-corps-join-forces-to-define-multi-domain-battle-concept/>.

³⁷ Jose L. Liy, "Multi-Domain Battle: A Necessary Adaptation of US Military Doctrine," (Monograph, School of Advanced Military Studies, U.S. Army Command and General Staff College, 28 May 2018), iii.

³⁸ Stephen J. Townsend, "Accelerating Multi-Domain Operations: Evolution of an Idea," *Military Review Special Edition* (September-October 2018): 4-7.

Jonathan Bott, now in his capacity as a SAMS student, began exploring this concept as early as 2017 in his monograph arguing for Multi-Domain Operations as an evolution beyond Joint Operations. This represented an early development of the concept, especially factors related to simultaneous operations in multiple domains by one or more departments and how one domain could open vulnerabilities into another.³⁹

One of the key developments in the development of MDO theory has been the application of overarching operational design considerations through an MDO framework. Scott Vanoort's 2020 thesis provides one example of this expansion by addressing operational risk in Multi-Domain Operations and updating the risk construct for the modern operating environment. Vanoort concludes that MDO needs to be integrated into joint doctrine while addressing the short timelines of high-tempo operations and pushing authorization authority to lower echelons.⁴⁰ These considerations are particularly relevant when addressing an organization like the MDTF that may operate while geographically separated from higher commands in a contested environment.

Current authors have begun to explore applications of MDO in relation to specific military functions and operations. Anthony Clas's article on the challenges of command in multi-domain formation addresses these in terms of emerging technologies, new

³⁹ Jonathan W. Bott, "What's After Joint? Multi-Domain Operations as the Next Evolution in Warfare," (Monograph, School of Advanced Military Studies, U.S. Army Command and General Staff College, 15 March 2017), 1, 5.

⁴⁰ Scott J. VanOort, "Describing Operational Risk in Multi-Domain Operations" (Master's Thesis, U.S. Army Command and General Staff College, June 12, 2020), 11, 76.

ethical dilemmas in operations, an operational environment that includes dense urban environments, and changes in the roles of leaders and soldiers due to increased complexity in operations.⁴¹ Darren Buss expands on this concept in his participation in an Army War College project, examining the capability of echelons above brigade to command multi-domain operations and control partner units.⁴² This addressed the command and control joint warfighting function, a key organizing concept for implementing MDO.

Another example of this concept is the Army's functional concept for fires from 2020-2040. While not specifically addressing MDO, this manual describes many of the fundamental aspects of that concept. This includes leveraging multi-national capabilities, convergence, and cross-domain fires.⁴³ A third example is Chris Sadoski's thesis, which references Multi-Domain Battle but occurs on the cusp of the transformation between that concept and Multi-Domain Operations. Sadoski examined the requirement for supporting large scale deployment against a peer threat in the context of corps size elements in a rapid response force.⁴⁴ These studies and manuals help to align the rest of the force in

⁴¹ Anthony M. Clas, "Commanding in Multi-Domain Formations," *Military Review* (March-April 2018): 90-100.

⁴² Darren W. Buss, "Echelons above Brigades Headquarters in Multi-Domain Operations: Field Army Alternatives," in *Theater Army in Multi-Domain Operations Integrated Research Project*, ed. Gregory L. Cantwell (Carlisle, PA: United States Army War College, 2020), 23-53.

⁴³ U.S. Army Training and Doctrine Command (TRADOC), TRADOC Pamphlet 525-3-4, *The U.S. Army Functional Concept for Fires 2020-2040* (Fort Eustis, VA: TRADOC, January 2017), v-vi.

⁴⁴ Chris J. Sadoski, "Strategic Support to the Multi-Domain Battle Concept," (Master's Thesis, U.S. Army Command and General Staff College, 15 June 2018), 85.

support of MDO, providing some context for how other parts of the Army relate to the forces that are most heavily involved in conducting operations.

Regarding this study a more relevant consideration is how MDO specifically should be used to counter peer threats. One example of this is Nicholas Stafford's analysis of whether Multi-Domain Operations can be used to counter Russian hybrid warfare in the Baltics. Stafford examined this scenario in terms of a "*fait accompli*" with Russia having already set up A2/AD systems in the Baltics. Stafford assessed that current capabilities cannot enable quick penetration of an A2/AD space and that requirements for synchronizing effects would present difficulties in exercising mission command.⁴⁵ Stafford's framework is worthwhile because it contemplates MDO in a conflict against a specific enemy, but less useful in context of this study because it is focused on using conventional forces in an MDO role and does not address the MDTF as a concept.

The complement to addressing how MDO should be used to counter peer threats is how peer threats will seek to counter MDO. Larry Wortzel makes the argument that China is aware of the U.S. MDO concept and is intentionally designing its strategies around defeating it. Wortzel sees China's focus on A2/AD through this lens and then extends the concepts further by addressing China's novel capabilities with possibilities like the use of electromagnetic pulse weapons to disable electronic capabilities or use of ballistic missiles to threaten adversaries.⁴⁶ This underscores the importance of developing

⁴⁵ Nicholas J. Stafford, "The Alliance Strikes Back: Using Multi Domain Operations to Counter Russian Hybrid Warfare in the Baltics," (Master's Thesis, U.S. Army Command and General Staff College, 14 June 2019), 9, 11, 22, 58.

⁴⁶ Larry M. Wortzel, "What the Chinese People's Liberation Army Can Do to Thwart the Army's Multi-Domain Task Force," (Land Warfare Paper 126, The Institute

a fully fleshed-out MDO concept that uses the MDTF and other units in multiple capacities so that they are not so easily predictable.

The U.S. Army's Role in the Indo-Pacific

In recent years one of the cornerstone issues of the debate over Pacific strategy has revolved around the question of what forces will lead in the area, with naval and air forces generally considered as being dominant while the Army struggles to make a case for its own inclusion. The vast distances between land masses and islands in the region have long been cited as proof that the Army would have little role in conflicts in the area, but this perspective is ahistorical and does not account for the full range of the Army's developing capabilities and demonstrated ability to influence other domains. Even the island-hopping campaigns of World War II saw significant Army participation, and there are few reasons to think that future conflicts would not also be heavily reliant on Army capabilities.

The RAND Corporation's 2014 study, *The U.S. Army in Asia, 2030-2040*, argues for six main roles for the U.S. Army in Asia including defending key facilities from air and missile attacks, projecting combat forces into theater, and contributing to new deterrent options. Although it predates the creation of the Multi-Domain Task Force, the study includes references to many of its elements and suggestions for how they could be useful in Asia. This includes a definition of expeditionary combat power that includes long-range precision fires, defensive cyber operations, and strategies to turn China's

of Land Warfare at The Association of the United States Army, Arlington, VA, July 2019), 2-7.

A2/AD strategy against them using shore-based capabilities and threats to blockade and restrict the Chinese military from establishing conditions necessary to initiate hostilities.⁴⁷

These ideas are further developed in the body of the text, based on the concept that time is a major consideration in any potential conflict against China and that any ability to slow down or delay Chinese operations to allow additional forces to intervene works in favor of the U.S. In order to facilitate this, the authors suggest the possibility that the Army should operate in a coastal defense role or gain control of straits to control access through those waters using mobile, shore-based anti-ship missiles. This would serve as a deterrent by undermining Chinese confidence in a successful naval conflict, but the study does note that there is significant risk that this strategy could increase the risk of conflict or drive China toward a more expeditionary posture.⁴⁸ While the current MDTF does not incorporate the deterrent or A2/AD concepts this study calls for in its designated mission, the similarity in unit structure to what the study suggests indicates that it could be used in these roles.

Several years later Emily Martin and Samantha Wooley referenced this study and developed the ideas further in “The Army’s Role in the Future Pacific Theater.” Based on an earlier symposium on land forces in the Pacific Martin and Wooley argue that Army forces should be able to sink a ship, shoot down a missile, and shoot down the aircraft

⁴⁷ Terrence Kelly, James Dobbins, David A. Shlapak, David C. Gompert, Eric Heginbotham, Peter Chalk, and Lloyd Thrall, *The U.S. Army in Asia, 2030-2040* (Santa Monica, CA: RAND Corporation, 2014), xviii-xxiii.

⁴⁸ *Ibid.*, 61-62, 97, 109-110.

that fired the missile within a short window. This article specifically mentions Palawan in the Philippines as a possible site for such actions and discusses the possibility of mobile land-based forces being used to create an A2/AD shield.⁴⁹ Without specifically mentioning the MDTF, this article presents another example of a multiple roles that the Army can play in the Pacific that could be within the potential capabilities of the MDTF.

Loren Thompson advanced similar issues the following year in an article in *Forbes Magazine* titled “How the U.S. Army Can Play a Much Bigger Pacific Role Deterring China.” Thompson proposes a role for U.S. Army in defeating Chinese naval and air forces trying to traverse the first island chain, suggesting that the Army could establish a major land presence in the archipelago or be based in countries like Vietnam. Thompson references multi-domain operations without bringing up the MDTF, but does discuss long range precision fires, possibly adapting Navy anti-ship missiles for Army use, and the Army’s role in providing air and missile defense.⁵⁰ Bringing together these functions under a single heading seems to point directly toward the MDTF as a potential method to fulfill these requirements, but Thompson does not make the connection.

More recent discussion in the last year has explicitly tied the MDTF to providing long range precision fires in the Pacific, including Jen Judson’s article in October of 2021 on the U.S. Army’s desire to carve out a role in the Pacific. Judson initially focuses her

⁴⁹ Emily Martin and Samantha Wooley, “The Army’s Role in the Future Pacific Theater,” *Military Review* (January-February 2018): 105-108.

⁵⁰ Loren Thompson, “How the U.S. Army Can Play a Much Bigger Pacific Role Deterring China,” *Forbes Magazine*, 13 August 2019, <https://www.forces.com/sites/lorenthompson/2019/08/13/how-the-u-s-army-can-play-a-much-bigger-pacific-role-deterring-china/?sh=2ec8285c58f9>.

attention on establishing relationships and training partners, but also notes that the Army's current priority is developing long-range fires due to the problem of distance in the Pacific and names the MDTF as the primary purveyor of that capability. Judson also brings up criticism of the idea, citing calls for the Army to focus on air and missile defense in the region and arguments that the U.S. Air Force and its bomber force are a better investment than ground-based missile capabilities.⁵¹ The reference to the MDTF here is notable in that it references long-range precision fires but does not specify an anti-A2/AD role, suggesting other uses for the MDTF's capabilities.

The most up-to-date conception of the role of the Army in the Pacific has been based on comments by the Secretary of the Army, Christine Wormuth, on how she sees the Army's mission in the theater. Andrew Eversden from *Breaking Defense* quotes Wormuth as laying out five primary roles including building and defending bases, providing C2, sustaining logistical supply lines, taking an offensive role with long range precision strike capabilities, and counterattacking in the event of enemy incursions.⁵² John Grady of the United States Naval Institute digs deeper into the meaning of these comments and notes that many Indo-Pacific nations have cyber, space, and long-range fires in their armies while describing the Army's service role in terms of providing air and missile defense, network security, and the use of long range fires and hypersonic

⁵¹ Jen Judson, "Post-Afghanistan, the US Army Wants to Carve Out Its Role in the Pacific" *Defense News*, 11 October 2021, <https://www.defensenews.com/digital-show-dailies/ausa/2021/10/11/post-afghanistan-the-us-army-wants-to-carve-out-its-role-in-the-pacific/>.

⁵² Andrew Eversden, "Wormuth: Here's the Army's Role in a Pacific Fight," *Breaking Defense*, 1 December 2021, <https://breakingdefense.com/2021/12/heres-what-the-army-would-do-in-a-pacific-fight-wormuth/>.

missiles. Crucially, Grady frames these roles in terms of Multi-Domain Operations taking its place as the current doctrine for operations.⁵³

The most detailed explanation of these roles and how they would be accomplished comes from Caitlin M. Kenney's article from *Defense One*, which provides an expanded purpose and possible means for each task. Crucial to the discussions in this study is Kenney's explanation of the fourth task of providing ground-based fires, which Kenney indicates includes the ability to interdict fires across sea lines of communications, suppress enemy air defenses, and provide counter-fires against mobile targets. Kenney also references cyber-attacks as a major area of concern and references a need to expand the Army's focus out of northeast Asia and into the southeastern region.⁵⁴ These concepts of the Army's use in the Pacific once again leave out the MDTF as a primary executing agent but include many of its components in the Army's projected role and provide some possible tasks that it could execute in a Pacific conflict.

The Indo-Pacific Security Situation

The complexity of the Indo-Pacific security situation is clearly communicated in national security documents, beginning with the *2021 Interim National Security Strategic Guidance* which recognizes that a connection to the Indo-Pacific is vital to our national interests and calls for deepening partnerships with members of the Association of

⁵³ John Grady, "SECARMY Wormuth Pitches Army's Next Role in the Western Pacific," *USNI News*, 2 December 2021, <https://news.usni.org/2021/12/02/secarmy-wormuth-pitches-armys-next-role-in-the-western-pacific>.

⁵⁴ Caitlin M. Kenney, "Army Would Have 5 'Core Tasks' in a Pacific Conflict," *Defense One*, 1 December 2021, <https://www.defenseone.com/policy/2021/12/army-would-have-5-core-tasks-pacific-conflict/187212/>.

Southeast Asian Nations. The guidance also calls for a more robust presence in the Indo-Pacific and places China's assertiveness front and center as a challenge that must be overcome through strong alliances and partnerships.⁵⁵ These priorities underwrite the selection of China as the competitor in this study's scenario and show the importance of expanding concepts of defensive partnership.

Although slightly older, the Department of Defense *Indo-Pacific Strategy Report* shares some language with the MDO concept by calling for forward-posturing of combat-credible forces and references interoperable warfighting capability in the region as a force multiplier. This issue is important enough to form the second of the three Lines of Effort in the report, specifically mentioning Singapore, Malaysia, and Indonesia. The report also highlights the importance of the Malacca Strait and addresses the importance of developing the Multi-Domain Task Force and building partner capacity.⁵⁶ This suggests some key partners and strategically significant locations, as well and the importance of focusing on their developing capabilities.

Recent testimony and talks by senior Department of Defense leaders have reinforced these ideas, with Secretary of the Army Ryan McCarthy's describing the importance of the Multi-Domain Task Force the possible use of the MDTF as an area denial force in a 2020 statement to the Brookings Institute on the Army's Indo-Pacific

⁵⁵ U.S. President, *Interim National Security Strategic Guidance* (Washington, DC: The White House, March 2021), 10, 15, 20.

⁵⁶ Department of Defense (DOD). *The Department of Defense Indo-Pacific Strategy Report: Preparedness, Partnerships, and Promoting a Networked Region* (Washington, DC: DOD, 1 June 2019), 19, 21, 39.

strategy.⁵⁷ More recently, Admiral Philip S. Davidson’s testimony before the Senate Armed Services Committee included several MDO related priorities such as Long Range Precision Fires and the importance of establishing a multi-domain command and control node in the region.⁵⁸ Taken together these statements help to establish the importance of MDO and the MDTF in the region.

The recent release of the Biden administration’s new Indo-Pacific strategy has not significantly altered these conclusions. It retains China as a major threat to the rules-based order in the region and lays out five objectives, specifically prioritizing supporting open societies and preventing coercion along with bolstering Indo-Pacific security and building defense capacity of partners such as Taiwan.⁵⁹ The strategy also lays out ten lines of effort, with the third line of “Reinforce Deterrence” including references to the Taiwan Strait and AUKUS partnership.⁶⁰ Based on these objectives and lines of effort there is still a continued role in the Indo-Pacific for the MDO and the MDTF.

As a result of this emphasis, recent scholarship has focused on the U.S. strategic situation in the region, specifically in relation to China. Although primarily concerned with the Freely Associated States in the Western Pacific, Christopher Lochridge argues

⁵⁷ Ryan McCarthy and Michael O’Hanlon, “The Army’s Strategy in the Indo-Pacific,” (Transcript of proceedings at the Brookings Institution, Washington, DC, 10 January 2020; transcribed by Anderson Court Reporting, Alexandria, VA), 7, 17.

⁵⁸ “Statement of Admiral Philip S. Davidson, U.S. Navy, Commander, U.S. Indo-Pacific Command Before the Senate Armed Services Committee on U.S. Indo-Pacific Command Posture,” (Washington, DC, 09 March 2021), 6-10.

⁵⁹ U.S. President, *Indo-Pacific Strategy of the United States* (Washington, DC: The White House, February 2022), 8-13.

⁶⁰ *Ibid.*, 15.

that the United States has a blind spot in the region and addresses China's A2/AD and EW, cyber, and space capabilities as a major concern in the region.⁶¹ George Sotelo describes similar influence tactics by China in the East and South China Sea disputes, arguing that many nations in the region dispute Chinese claims and might welcome U.S. leadership. Sotelo also concludes that China is unlikely to understand or change its behavior for anything short of a military confrontation or a blockade in some situations.⁶²

Other authors have examined the possibility of the United States being drawn into a conflict in the region or discussed specific threats China poses to U.S. capabilities. Jacob Rosales imagined two possible categories of scenarios that might lead to U.S. military involvement, with the first being the U.S. acting as a third party on behalf of one or more Southeast Asian nations being threatened by China while the second would be a direct conflict over freedom of navigation operations.⁶³ Richard Gibson's earlier examination of the region brings the beginnings of MDO into the discussion by addressing China's threat to U.S. space capabilities and potential use of A2/AD systems

⁶¹ Christopher P. Lochridge, "The Pacific's Strategic Blind Spot: US Indo-Pacific Command's Problem of China in the Western Pacific," (Monograph, School of Advanced Military Studies, U.S. Army Command and General Staff College, 21 May 2020), 2. 25.

⁶² George D. Sotelo, "The United States Military Strategy and the East China Sea and South China Sea Disputes," (Master's Thesis, U.S. Army Command and General Staff College, 15 June 2018), 20, 77.

⁶³ Jacob J. Rosales, "The South China Sea: A Strategic Flashpoint," (Monograph, School of Advanced Military Studies, U.S. Army Command and General Staff College, 23 May 2019), 1.

and electronic warfare.⁶⁴ These studies provide some important insights into some of the possible crises that the U.S. could face in the region as well as some of the barriers to activity based on Chinese capabilities.

One of the foremost authorities on anti-access warfare is Samuel Tangredi, whose 2013 book on the subject laid out what he considers the fundamentals of anti-access warfare including the primacy of geography and the predominance of the maritime domain. Tangredi primarily argues from a maritime perspective, but also makes a larger point that technology and tactics alone cannot defeat a well-developed anti-access strategy.⁶⁵ Tangredi further details his arguments in his article “Antiaccess Warfare as Strategy” where he differentiates anti-access warfare scenarios from larger anti-access strategies. In this instance Tangredi’s chooses to use the South China Sea as an illustrative example, arguing that a conflict between the United States and China in the region would likely involve multiple elements of national power and a whole-of-government approach.⁶⁶ Tangredi’s analysis provides a good understanding of anti-access warfare, but does not address the Army’s role in defeating or enacting similar strategies.

Major Joseph Cangealose’s 2020 monograph on A2/AD threats and their impact on future combat operations provides another perspective on the topic, primarily focusing

⁶⁴ Richard W. Gibson, “Extending Operational Reach: A Future Chinese Threat Scenario to the U.S. Space Domain,” (Monograph, School of Advanced Military Studies, U.S. Army Command and General Staff College, 23 February 2018), 2, 12, 39-41.

⁶⁵ Sam. J. Tangredi, *Anti-Access Warfare: Countering A2/AD Strategies* (Annapolis, MD: Naval Institute Press, 2013), 1-5.

⁶⁶ Sam J. Tangredi, “Antiaccess Warfare as Strategy,” *Naval War College Review* 71, no. 1, article 4 (2018): 2-10.

on the impact of integrated air defense systems as a threat to aircraft. Cangealose ties earlier concepts of A2/AD warfare into Multi-Domain Operations, arguing that surface to air missiles are an effective method of inhibiting opponents from conducting effective Multi-Domain Operations. By using a variety of examples from Vietnam, Israel, and Kosovo Cangealose is able to demonstrate how A2/AD strategies can be used to force aircraft into flight corridors, keep them from maneuvering freely, interrupt an offensive operation by diverting efforts to deal with A2/AD forces, and lessen the effectiveness of strike aircraft.⁶⁷

Narrowing the scope to potentially significant locations where the MDTF may be able to create an outsized effect on events within the theater the Malacca Strait has been the focus of a significant amount of analysis as a key strategic location. Peter Rimmer and Paul Lee's exploration of potential consequences identified sea lane closure in the region as catastrophic to the world's economy and identified numerous key locations where the Straits are narrow enough that this could present a significant threat. Their analysis also included the distance and time costs of going around Indonesia to the Lombok Strait as more than 2,500 nautical miles and upwards of 100 hours depending on the speed of the ship at sea.⁶⁸ This underscores the strategic importance of the region that

⁶⁷ Joseph M. Cangealose, "The Impact of Anti-Access Area Denial Threats on Future Combat Operations" (Monograph, School of Advanced Military Studies, Fort Leavenworth, KS, 28 April 2020), 2-29.

⁶⁸ Peter J. Rimmer and Paul T.W. Lee, "Repercussions of Impeding Shipping in the Malacca and Singapore Straits," *Journal of International Logistics and Trade* 5, no. 1 (2007): 7–26, <https://doi.org/10.24006/jilt.2007.5.1.001>.

led to it being chosen for this study, as well as demonstrating the possible strategic benefits of denying passage in a time-sensitive military crisis.

Joel Davis's thorough exploration of maritime security in the Strait highlights the potential of the area as a war risk due to the threat of piracy and terrorism. Davis focuses his analysis on Indonesia, Malaysia, and Singapore and examines the military capabilities of each for maritime security but is mostly concerned with anti-piracy measures and cooperation when dealing with criminal organizations. In addition to discussing the relative military capabilities of each country Davis provides valuable insight into the relationships between the actors in the region and concludes that most of the actors in the region have demonstrated the ability to work together and are all nervous about China to one degree or another.⁶⁹ With these considerations in mind, it is important to remember that all straits have an entrance and an exit.

Looking at the other end of the Straits of Malacca indicates that India could have a significant role in any action in the region. Ken Moriyasu of *Nikkei Asia* references the Andaman and Nicobar Islands as "strategically situated" locations that overwatch the Malacca Strait and notes that they have been used to refuel U.S. maritime surveillance aircraft.⁷⁰ H. I. Sutton of *Forbes Magazine* concludes that India could certainly block the Straits, although China has begun developing alternate routes around the Straits of

⁶⁹ Joel D. Davis, "Maritime Security and the Strait of Malacca: A Strategic Analysis," (Master's Thesis, U.S. Army Command and General Staff College, 16 June 2006), 17-39.

⁷⁰ Ken Moriyasu, "Japan Sends First-Ever Aid to Indian Islands at Mouth of Malacca," *Nikkei Asia*, 7 April 2021, <https://asia.nikkei.com/Politics/International-relations/Indo-Pacific/Japan-sends-first-ever-aid-to-Indian-islands-at-mouth-of-Malacca>.

Malacca and is increasing its naval strength in the region.⁷¹ With multiple potential avenues for closure the Straits of Malacca are a key chokepoint in the region, but far from the only potential strategic location to employ land-based fires.

Returning to the 2017 RAND study on land based A2/AD, Ishigaki island represents another potential location due to its proximity to the Senkaku islands and Taiwan.⁷² The island has made appearances in regional news on several occasions in this role, with Chheang Vannarith of the Khmer Times referring to it as “a strategic gateway to Asia” due to its access to shipping lanes near Miyako islands. The island has also been the site of increasing amounts of defensive infrastructure including Coast Guard and potentially other Japanese Self-Defense Force facilities.⁷³ In a more recent article Robert Eldridge notes that the Ishigaki City Assembly has called on the central government of Japan to establish a Japan-Taiwan Basic Relations Act and that the Yaeyama Defense Association has requested the establishment of a Maritime Self-Defense Force base to protect the area.⁷⁴

⁷¹ H. I. Sutton, “Could the Indian Navy Strangle China’s Lifeline in the Malacca Strait,” *Forbes Magazine*, 8 July 2020, <https://www.forbes.com/sites/hisutton/2020/07/08/could-the-indian-navy-strangle-chinas-lifeline-in-the-malacca-strait/>.

⁷² Bonds et al., *What Role Can Land-Based, Multi-Domain Anti-Access / Area Denial Forces Play in Deterring or Defeating Aggression*, 83-84.

⁷³ Chheang Vannarith, “Ishigaki Island, a Strategic Gateway to Asia,” *Khmer Times*, 6 February 2019, <https://www.khmertimeskh.com/50575597/ishigaki-island-a-strategic-gateway-to-asia/>.

⁷⁴ Robert D. Eldridge, “Ishigaki on Cutting Edge of Japan’s Relationship with Taiwan,” *Japan Forward*, 17 March 2021, <https://japan-forward.com/ishigaki-on-cutting-edge-of-japans-relationship-with-taiwan/>.

Many security concerns in the Indo-Pacific today revolve around the South China Sea, which Marvin Ott described in 2019 as being critical to American interests in terms of critical sea lanes, defense ties with allies and partners, and implications for the global balance of power and influence.⁷⁵ Jacob Rosales' monograph from the same year also points out that there are considerable oil and natural gas reserves under the sea floor while pinpointing major Chinese outposts at Fiery Cross, Subi, and Mischief Reef.⁷⁶ This builds on and supports earlier work by James Holmes in the *Naval War College Review*, which noted that most of the disputed islands in the region are dependent on outside support and that Chinese vessels moving in or out of the region would most likely transit near the Philippines if not using the Malacca Strait.⁷⁷ This indicates that the Philippines should be considered as another location where land-based forces could influence the regional situation.

The 2017 RAND report repeatedly cites the western island of Palawan as a deployment location based on it being within 300 kilometers of the Second Thomas Shoal and within 200 to 300 nautical miles of many other disputed features.⁷⁸ The idea of Palawan as a strategic location is a common enough perspective that it has found its way

⁷⁵ Marvin Ott, "The South China Sea in Strategic Terms," *Asia Dispatches* (blog), *The Wilson Center Asia Program*, 14 May 2019, <https://www.wilsoncenter.org/blog-post/the-south-china-sea-strategic-terms>.

⁷⁶ Rosales, "The South China Sea," 3-4, 27.

⁷⁷ James R. Holmes, "Strategic Features of the South China Sea: A Tough Neighborhood For Hegemons," *Naval War College Review* 67, no. 2 (Spring 2014): 11-16.

⁷⁸ Bonds et al., *What Role Can Land-Based, Multi-Domain Anti-Access / Area Denial Forces Play in Deterring or Defeating Aggression*, 46, 105.

into nature conservation publications, with a 2021 article describing the island as the country's sentinel in maritime disputes and calling it a jumping off point to the Philippines' Thitu Island base.⁷⁹ Based on this information, the MDTF could affect targets within the majority of the South China Sea from this location using its long range fires capabilities. With these three strategic locations identified, the next consideration is the geopolitical climate of the region and how the affected nations view strategic competition between the United States and China.

Broto Wardoyo's examination of Indonesia's perspective on U.S.-China strategic competition argues that Indonesia's concerns in this region are primarily economic in nature. Despite a commitment to reducing tensions in the region Wardoyo highlights the U.S.-Indonesia security relationship and indicates that domestic concerns are the major factor driving these policies.⁸⁰ Brian Lenzmeier addressed these factors in his 2019 monograph concerning Indonesian hedging and argues that the U.S. needs to step up its Marine Security Initiatives with Indonesia, strengthen relationships with security assistance and security cooperation, and realign these efforts with other implements of

⁷⁹ Crisabela Yabes and Leilani Chavez, "Amid South China Sea Dispute, Philippines' Palawan is Besieged by Political Split," *Mongabay*, 12 March 2021, <https://news.mongabay.com/2021/03/amid-south-china-sea-dispute-philippines-palawan-is-besieged-by-political-split/>.

⁸⁰ Broto Wardoyo, "ASEAN in the United States-China Strategic Competition: An Indonesian Perspective," in *How Can ASEAN Deal with the United States-China Strategic Competition*, NIDS Joint Research Series No. 18 (Tokyo, Japan: National Institute for Defense Studies, 2020), 35-45.

national power.⁸¹ These studies are based on a relatively stable international situation, and do not anticipate or necessarily apply during a crisis scenario.

Christopher Dibble's 2018 thesis offers a more expansive discussion of these ideas, beginning with describing the history of U.S.-Indonesian relations and then moving on to discuss the principles of Indonesia's maritime framework. One noteworthy portion of Dibble's analysis is that he identifies friction points with China and indications that these might push Indonesia out of its non-aligned status in the face of a severe enough violation. Dibble's thesis primarily focuses on Indonesia's borders, fishing concerns, and piracy.⁸² This presents a more nuanced understanding of Indonesia's security and diplomatic considerations, as well as stressing the length and depth of U.S.-Indonesia relations.

The Philippines also has a complicated relationship with the United States and China based on shared history and current security concerns. In 2012 a report from Center for Strategic and Budgetary Assessments described the Philippines as a vital node for U.S. forces in the region, advocating for closer relations with America to check Chinese naval expansion along with assisting the Philippines to develop their own A2/AD capabilities.⁸³ A more recent report from the Peace Research Institute Oslo shows

⁸¹ Brian J. Lenzmeier "Indonesian Hedging: Strategies to Counter a Growing Imbalance in Southeast Asia," (Monograph, School of Advanced Military Studies, U.S. Army Command and General Staff College, 23 May 2019), 4-5, 12, 40.

⁸² Christopher T. Dibble, "Advancing U.S. Interests in the Indo-Pacific Through Bilateral Maritime Security Cooperation with Indonesia," (Master's Thesis, U.S. Army Command and General Staff College, 15 June 2018), 2, 23-25, 47-48.

⁸³ Center for Strategic and Budgetary Assessments (CSBA), *The Geostrategic Return of the Philippines* (Washington, DC: CBSA, 18 April 2012), 1-2.

that this relationship continues to evolve as China has increased its security and economic ties to the Philippines under president Rodrigo Duterte against the advice of members of the Philippine strategy community while still remaining dependent on the United States.⁸⁴

Richard Hedarian addressed this topic at the beginning of Duterte's term, reporting that Duterte expressed an early desire to reduce dependency on the United States and open ties with China. Hedarian notes that Duterte's actual policy has been more restrained than his rhetoric, but has included restrictions on U.S. operations from the Philippines even as the Philippines struggles to find common ground with China over disputes in the South China Sea.⁸⁵ Teresita Ang See's recent work on narratives in Philippine-Chinese relationships provides some important historical context to these relationships, citing common experiences in both countries living under imperial and colonial rule and seeking emancipation.⁸⁶ These commonalities and recent changes have complicated the security relationship between the Philippines and the United States, but there is still a high level of cooperation between the two countries and shared concern over Chinese actions in the South China Sea.

⁸⁴ Julio Amador III, Deryk Matthew N. Baladjay, Ilaria Carrozza, Marte Nilsen, and Oystein H. Rolandsen, "An Appraisal of Philippines-China Security Relations under the Duterte Administration (2016-2020)," (PRIO Paper 2021, Peace Research Institute Oslo, Norway, 2021), 10-21.

⁸⁵ Richard Javad Hedarian, "Duterte's Geopolitical Game-Play," in *Line in the Waters: The South China Sea Dispute and its Implications for Asia*, ed. Abhijit Singh (New Delhi: Mohit Enterprises, 2017), 55-63.

⁸⁶ Teresita Ang See, "Shared History, Shared Heritage, Shared Destiny: Discovering New Narratives on Philippines-China Relations," *Chinese Studies Journal* 14 (January 2021): 31-32.

A similar but slightly warmer relationship exists between the United States and India. Alexander Mulling's 2019 monograph on the subject describes the Obama administration as recognizing India as a major partner with the intention of developing bilateral security and defense cooperation even though India is primarily concerned with Pakistan despite being wary of China.⁸⁷ Andrew Talone echoes these comments by arguing that China is threatening India's sphere of influence in the Indian Ocean region, suggesting that the U.S. and India could affect China by blocking the Malacca Strait or cutting off energy imports despite military limitations would restrict the amount of assistance that India could provide.⁸⁸ As a result of this they are in some ways similar to Japan, as Satoru Nagao observed in his proposal for a Japan-India partnership based on both countries having a shared interest in the South China Sea while being partially dependent on the U.S. to counter China.⁸⁹

Muhammad Prabowo provides a recent look at how Japan perceives China in his article in the *Nation State: Journal of International Studies*, claiming that recent tensions over the Senkaku Islands and increasing clashes in the South China Sea have prompted Japan to increase activities and move troops to support their security concerns in the

⁸⁷ Alexander G. Mulling, "The Army and US-India Alignment," (Monograph, School of Advanced Military Studies, U.S. Army Command and General Staff College, 23 May 2019), 1-27.

⁸⁸ Andrew J. Talone, "How the United States Can Reinforce India as a Counterbalance to China in the Indian Ocean Region from a Military Standpoint," (Master's Thesis, U.S. Army Command and General Staff College, 14 June 2019), 4, 63-64.

⁸⁹ Satoru Nagao, "A Japan-India Partnership in Maritime Asia," in *Line in the Waters: The South China Sea Dispute and its Implications for Asia*, ed. Abhijit Singh (New Delhi: Mohit Enterprises, 2017), 65-67.

region.⁹⁰ Xuan Tuan Chu contextualizes these views in their 2019 thesis on Japan's engagements in the South China Sea, explaining that Japan views Chinese control over the Spratly Islands as demonstrating their eventual strategy against the Senkaku Islands while at the same time calculating that China being occupied in the South China Sea will prevent such a move.⁹¹ This reinforces the idea that Japan is a key ally for U.S. interests in the region, as well as having an interest in supporting deployment of forces such as the MDTF in pursuit of its own interests.

Sung Keun Hyong's 2018 thesis provides an assessment of Japan's security policy and its impact on U.S. national interests, arguing that Japan is moving toward a more realistic security posture that will see it acting as a more active participant and concluding that Japan's strategy is not detrimental to U.S. interests.⁹² In a recent article on Japan's new security posture Taiwan Yamaguchi Noboru refers to bilateral plans to react to Chinese actions toward Taiwan by linking those to the Senkaku Islands, indicating that Japan is working to increase its capabilities for island defenses with long-range stand-off munitions.⁹³ This is strikingly similar to the concept of using the MDTF

⁹⁰ Muhammad Arif Prabowo, "How Does Japan Perceive China as an Adversary? The Dispute in Diaoyu/Senkaku Islands," *Nation State: Journal of International Study* 4, no. 2 (December 2021): 223-226.

⁹¹ Xuan Tuan Chu, "Japan's Engagements in the South China Sea," (Master's Thesis, U.S. Army Command and General Staff College, 14 June 2019), 5, 31-32.

⁹² Sung Keun Hyong, "Impact of Japan's Security Strategy and Policies on U.S. National Security Interests in the Indo-Pacific," (Master's Thesis, U.S. Army Command and General Staff College, 15 June 2018), 1-2, 163-164.

⁹³ Noboru Yamaguchi, "Japan's New Security Posture and Its Implications for Taiwan," *The ASAN Forum*, 24 September 2021, <https://theasanforum.org/japans-new-security-posture-and-its-implications-for-taiwan/>.

in such a role, further validating the concept and the choice of strategic locations in this study.

Summary

The concept of Multi-Domain Operations has continued to evolve over the last five years, expanding from a basic understanding of the need to compete against peer competitors to an offensively oriented doctrine aimed at overcoming a key adversary capability. Multiple scholars have wrestled with this concept and conceptualized operations in terms of the U.S. perspective concerning China, identifying key terrain in the region and international partners who are intricately connected to those features. There is no escaping the importance of the Indo-Pacific region to U.S. National Security priorities, suggesting that national security professionals should retain a comprehensive perspective concerning potential allies, opportunities, and threats in the area.

While the concept of Multi-Domain Operations has evolved since it was first developed as Multi-Domain Battle, there are still significant gaps that must be addressed due to limited engagement from allies, partners, and functional components of the U.S. armed forces. Based on this literature review the primary gaps concern analysis of MDO in the Indo-Pacific region and alternate uses of a Multi-Domain Task Force in an offensive or defensive role. This study will address those gaps and demonstrate how the MDTF can contribute to the Joint Force in the Indo-Pacific.

CHAPTER 3

RESEARCH METHODOLOGY

Introduction

This chapter will discuss the research methodology, data collection, and data analysis that will be used in Chapter Four and Five to analyze the capabilities of the MDTF, determine what tasks those capabilities allow the MDTF perform, and examine the potential effects the MDTF can generate by conducting those tasks in the Indo-Pacific. This study envisions using the MDTF in a non-standard role to create an A2/AD space through the use land-based fires extending into the maritime domain, integrated electronic warfare, cyber, and space capabilities, and air defense systems. Combined with the MDTF's ability to strike distant targets using long range precision fires, this potentially allows the MDTF to play multiple different roles in potential future conflicts based on occupying key strategic locations. This presents multiple dilemmas to adversaries by influencing their ability to deploy and move troops as well as enabling freedom of movement for U.S. forces in the region.

The primary research question for this study asks how the MDTF can contribute to the Joint Force in the Indo-Pacific outside of its doctrinal mission of penetrating A2/AD spaces. While the MDTF may have been designed for that mission, that does not mean that it lacks the capability to perform other tasks if the capabilities required for its primary mission are used in a creative manner. Examining these capabilities and determining how they can be used in the Indo-Pacific increases the utility of the MDTF in scenarios that do not involve supporting an attack into an A2/AD space, expanding its participation within the range of military operations. This in turn addresses a larger

question within military literature concerning the Army's role in the Indo-Pacific. While this study is focused on a single theater of operations, the general principles derived can be adapted for other operating environments in future studies.

The first secondary research question asks what the MDTF's planned capabilities are based on its design documents. This question is necessary because the MDTF was designed to incorporate emerging technologies and has largely been simplified in explanatory literature based on its primary purpose. Due to the narrow focus on the MDTF's role in penetrating A2/AD spaces there has been little thought put into other methods of employing its capabilities since the gap and solution have been so tightly connected. Answering this question requires examining the capabilities of the MDTF in absolute terms divorced from its specific mission, establishing a baseline of how far it can detect, engage, and effect enemies using the full suite of enablers it is intended to have as well as what self-protection capabilities it possesses with organic equipment.

The next secondary research question addresses what operational and tactical tasks that the MDTF can perform based on those capabilities. This includes an examination of the MDTF's role within a decisive action framework, ability to conduct enabling operations, and ability to perform tactical mission tasks as outlined in Army doctrine. These capabilities in turn contribute to the MDTF's ability to participate in joint operations by providing options that can be exercised across the conflict continuum and the range of military operations.⁹⁴

⁹⁴ CJCS, JP 3-0, Ch 1, V-8 – V-10.

The third secondary question asks how these capabilities and associated tasks can be used to shape the operational and strategic environment in the Indo-Pacific. This question applies the answers to the first two questions against key strategic terrain where the MDTF. This demonstrates how the MDTF could potentially operate to generate effects that would affect the operational or strategic situation within the region. Potential areas to explore while answering this question include the possibility that the MDTF could be used to deny passage through key locations, deter adversary action by the threat of being able to strike at disputed territory, or provide coverage to allow movement of U.S. or allied forces to a more advantageous location or to the location of a conflict.

Method

Based on the variety of secondary research questions this study will use multiple qualitative and quantitative methods for research and analysis. The beginning of Chapter Four will examine the differences between the existing MDTF structure, the rough structure outlined in doctrinal documents, and the structure of the MDTF as defined by its requirement documents that list capabilities and components of the MDTF. The most recent requirement documents available will be used to provide a notional outline of what capabilities the MDTF is intended to possess. From there, this study will answer the first and second questions via a reverse-JCIDS analysis. JCIDS, the Joint Capabilities Integration and Development System, is intended to fulfill military requirements by comparing those requirements with existing solutions to identify gaps and then develop

solutions to fill those gaps based on the level of risk.⁹⁵ Because the solution of the MDTF already exists, reversing the process deconstructs the solution to determine its capabilities and then identifies the gaps that those capabilities can be used to fill.

The first portion of this process is a base level analysis of the doctrinal and organizational requirements for the MDTF, providing a description of the raw capabilities of the MDTF in terms of the systems described within its requirement documents. Once those have been established the second portion of the process examines what gaps those capabilities can potentially fill. To structure this portion of the analysis the MDTF's capabilities will be assessed against the tactical mission tasks listed within ADP 3-90 and further defined in FM 3-90 Volume 1 and 2. The tactical mission tasks that the MDTF is assessed as capable of performing will then be applied against the range of military operations in Joint Publication 3-0.

The results of this analysis will be applied to answer the third secondary question by conducting several small case studies examining the effects of utilizing the MDTF as part of a joint operation in accordance with the tasks it can conduct across the range of military operations. These case studies will begin by overlaying a template based on the range and sensing capabilities of the MDTF over key strategic terrain identified within the literature review to determine the maximum potential area that the MDTF can affect. After defining the area of operations each case study will analyze potential applications of the tasks and capabilities identified in the previous sections to identify how the MDTF

⁹⁵ Office of the Chairman of the Joint Chiefs of Staff (CJCS), *Manual for the Operation of the Joint Capabilities Integration and Development System* (JCIDS) (Washington, DC: The Joint Chiefs of Staff, 2018), A-1.

could be used during different portions of the range of military operations. A graphical depiction of this method is included as Figure 1.

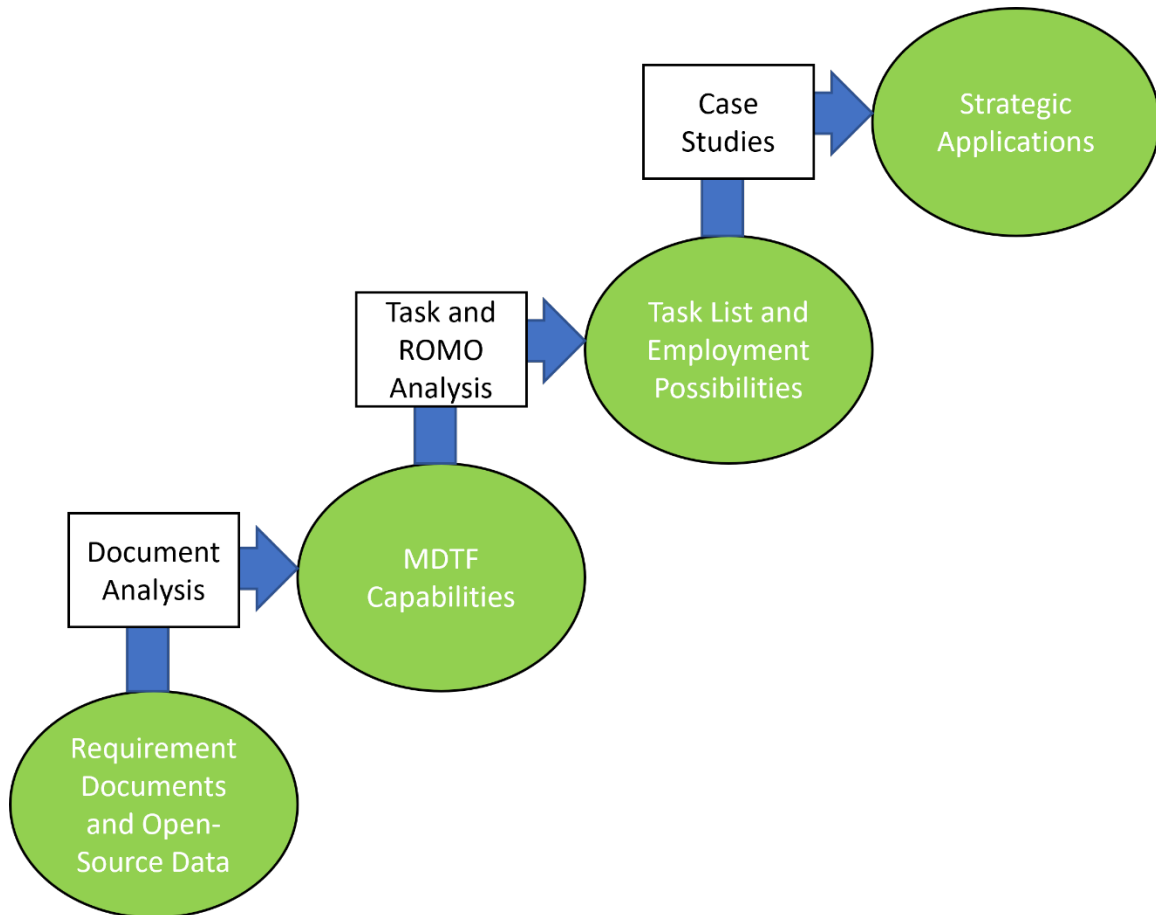


Figure 1. Methodology Diagram

Source: Created by author.

This method is most appropriate because of the requirement for military judgment and non-quantifiable nature of many of the capabilities that will be studied. It would potentially be possible to conduct a mixed methods approach using quantitative methods for the measurable aspects and qualitative descriptions for less concrete data, but the limitation of using non-classified data from publicly available sources and the potential of

being unable to locate specific data on all required systems would result in an incomplete comparison. The precise disruptive capability of an offensive cyberspace operation or EW attack cannot be easily calculated in an accessible manner, for instance, while the precise accuracy of a long-range fire system requires detailed testing information that is not likely to be publicly available.

Data Collection

The primary method of data collection will be through analysis of open-source press releases, news reports, country and capability assessments from think tanks such as the Center for Strategic and International Studies or U.S. government databases, technical resources on military equipment. Mission task descriptions, joint operation framework concepts, and requirements documents will use publicly available references or be downloaded from unclassified force structure documentation sources such as FMSWeb for the MDTF's organizations, units, and formations. No restricted, classified, or otherwise non-public data will be collected as part of this study. This data will be screened and filtered to ensure that it is relevant, as recent as possible, and reliable before being used to build a develop a capability list for the MDTF.

Data collection will continue until all publicly announced and potentially applicable long-range fires or integrated air and missile defense systems fielded or in testing for the MDTF have been analyzed. Requirements for the MDTF will be analyzed down to at least the company level for all included units and down to the platoon level in the case of special capabilities such as electronic warfare, cyber defense, or intelligence gathering and target location capabilities. After establishing the range of the MDTF's sensing and fires capabilities, these ranges will be plotted on key strategic terrain

identified in the literature review. This will enable analysis of where the MDTF's capabilities could be leveraged in military operations from those locations.

Data Analysis

Answering the first secondary research question will begin by analyzing the Table of Organization and Equipment (TOE) for the MDTF to determine its intended mission, dependencies, employment, capabilities, and functions. Organizational requirements TOEs provide information on the intended structure of a unit and are arranged in a hierarchical fashion with each subordinate unit's TOE providing expanded information on that aspect of the MDTF. This structure continues down to the detachment or company level, where sections, teams, and platoons are broken out in individual paragraphs that describe what that element is intended to provide to the unit. On some rare occasions individual platoons that provide a highly technical capability are also described in their own TOE, often specifically designed for employment by a unique organization such as the MDTF.

While these requirement documents provide information on structure, manpower, personnel, and equipment about the intended capabilities of the MDTF, they do not provide detailed military effects data concerning weapon capabilities. The second part of answering this question will require analysis of open-source data on existing weapons and systems as well as those that are still in development, particularly long-range precision fires and I2EWCS capabilities. Describing the MDTF's capabilities for fires includes data concerning range, magazine capacity, flight speeds, the kinds of targets it can strike and affect, and the ability to mass effects on a target from different ranges. Air and missile defense systems will be described based on detection range, engagement

range, and versatility. In terms of this study versatility refers to the ability to engage different types of targets such as cruise missiles, ballistic missiles, and aircraft.

The nature of EW, cyberspace, and space-based capabilities is inherently less measurable and more difficult to compare than long-range fires or air and missile defense systems. Instead, data concerning these capabilities will be assessed for its potential to generate effects on hostile naval and air capabilities or support the use of other systems. Examples of capabilities focused on adversary forces might include the ability to jam, intercept, or interrupt communications, interfering with position-navigation-timing systems, generating false targets or alarms, or remotely shutting down or infiltrating computer systems. Activities in support of friendly activities might include defensive cyber operations to protect partner networks and computer systems, locating targets using overhead imagery or signals intelligence, providing guidance information for weapons systems, or assisting in target identification. These possibilities do not include all possible uses of EW, cyberspace, or space capabilities, and as a result research and analysis may uncover additional possibilities that will be considered during analysis.

To answer the second secondary research question this study will filter the capabilities described in the first research question through the lens of the elements of decisive action and tactical mission tasks described in ADP 3-90. Some elements and tasks will be obviously unsuited for the MDTF and will be identified and discarded at the beginning of this stage of analysis. Detailed information on those tasks is available in FM 3-90 including specific requirements and definitions that allow analysis to determine if a specific unit can conduct the subcomponents of a task. Both actions by friendly forces

and effects on enemy forces will be addressed, providing a list of potential tasks that can be assessed against the range of military operations.

As described in JP 3-0 the range of military operations comprises three primary categories ranging from military engagement up to large-scale combat operations along a continuum of conflict from peace to war.⁹⁶ Further details on typical operations within each category are provided in separate chapters with employment considerations organized based on the joint operation model. Using these concepts as a backdrop makes it possible to integrate the tasks that the MDTF can accomplish into a joint concept that places its capabilities as part of a construct that includes operational and theater level activities in service of national strategic objectives as part of the Chapter Five.

To answer the third secondary research question, this study will graphically depict the information from the first two questions at key strategic locations identified via the literature review to demonstrate the effective reach of the MDTF. Based on the range of the MDTF's capabilities and the terrain within the area of operations, analysis will focus on how the tasks that the MDTF is capable of can be applied to generate different effects on hostile forces across the range of military operations. The end result of the analysis will discuss how the tasks could be used to generate strategic effects.

Following the collection of all required data this study will summarize the results to answer all secondary research questions to provide an analysis of the MDTF's potential to contribute to joint operations in the Indo-Pacific to answer the primary research question. This analysis will lay out the specific capabilities of the MDTF, the

⁹⁶ JCS, JP 3-0, Ch 1, V-4 – V-5.

tasks that it can perform, and consolidate the lessons learned from the case studies. The answers to the secondary questions will be used to describe how the MDTF can be integrated into the Joint Operations Model described in JP 5-0 as well as how this recommended integration differs from the existing mission of the MDTF.

Summary

Based on the literature review in Chapter Two, while the question of what role the United States Army can play in the Indo-Pacific theater has been the subject of discussion for some time much of this discussion occurred before the development of the MDTF or has taken the designated mission of the MDTF at face value. As a result, the full potential the MDTF in a future conflict has not been widely studied and there is a gap in our understanding of its intended capabilities and the effects that they can generate against adversary forces. The concentrated firepower, variety of enablers, and long-range sensing and fires capabilities of the MDTF give the unit a disproportionate impact on an operational and strategic level that cannot be fully exploited without thorough analysis of what the unit might be, what tasks it could conduct, and how those tasks can be used to affect the Indo-Pacific theater.

In order to answer the research questions discussed previously this study will use a blended qualitative approach followed by analysis of the resulting data. The first portion of this approach will use a reverse-JCIDS methodology to analyze the MDTF in its role as an existing solution to determine its raw capabilities and the tactical mission tasks it can conduct to determine the gaps it can fill. The second portion of the approach will apply those capabilities and the associated tasks in small case studies based on employment of the MDTF at key strategic locations in the Indo-Pacific using China as a

pace threat. The outcome of those case studies will provide data to answer the primary research question concerning how the MDTF can contribute to the Joint Force in the Indo-Pacific outside of its doctrinally templated mission of penetrating A2/AD spaces.

This method is most appropriate for a variety of reasons, including the non-quantifiable nature of some of the aspects being studied as well as lack of accessible and confirmable numeric data due to classification restrictions. The primary data collection method for this study will be through analysis of open-source documents from a mixture of government, specialist, and media sources. This will include an examination of long-range fires and integrated air and missile defense systems for each country as well as reports on their EW, cyber warfare, and space capabilities. Using publicly available materials does have the drawback of not producing a perfectly accurate representation of the capability being discussed, but the intent of this study is to expand the doctrinal conversation and set the foundation for future development rather than creating a workable operations plan.

While this study focuses on a specific operational environment, the expanded doctrinal role it will support for the MDTF can be adapted to other theaters with appropriate modifications for differences in terrain that create natural barriers to detection and long-range fires. Differences in scale will also affect the role of the MDTF in other theaters, as the widely separated spaces of the Indo-Pacific are in many ways an ideal environment for this unit. Completing those adaptations is a matter of future scholarship, however, and the foundation for that begins now with an examination of what the MDTF is, what it was intended to be, and how it has been described and understood in the past.

CHAPTER 4

ANALYSIS

The MDTF: Concept, Reality, and Requirements

Before examining the potential roles of the MDTF and how those can be applied in the Indo-Pacific, it is important to first establish what the MDTF is to appropriately evaluate its intended capabilities. This problem is complicated by confusion based on available concept materials, the actual organization as it has been constructed now, and the requirement documents that lay out specific capabilities and equipment sets. No single document can provide an answer to this question, and for the purpose of this study the notional MDTF should include planned future equipment as well as the most current explanations as to what the unit is intended to be capable of accomplishing at its end state as a doctrinal capability. The strongest argument in favor of this approach is that waiting until all required pieces are in place adds a further delay while doctrine catches up to equipment, unit training, exercises, and readiness plans.

Beginning with the depiction of the Multi-Domain Task Force from *Army Multi-Domain Transformation* in Figure 2, we have a broad overview at the battalion and company level. The I2CEWS and Strategic Fires Battalion include breakdowns to the company and battery level but provide no explanation as to what role those companies should play or what terms like “Mid-Range Capability Battery” mean in terms of reach, accuracy, and destructive power. In addition, although this diagram was only published a year ago several of the terms used are out of date and other sources show that all of the MDTF’s capabilities are not represented on this diagram.

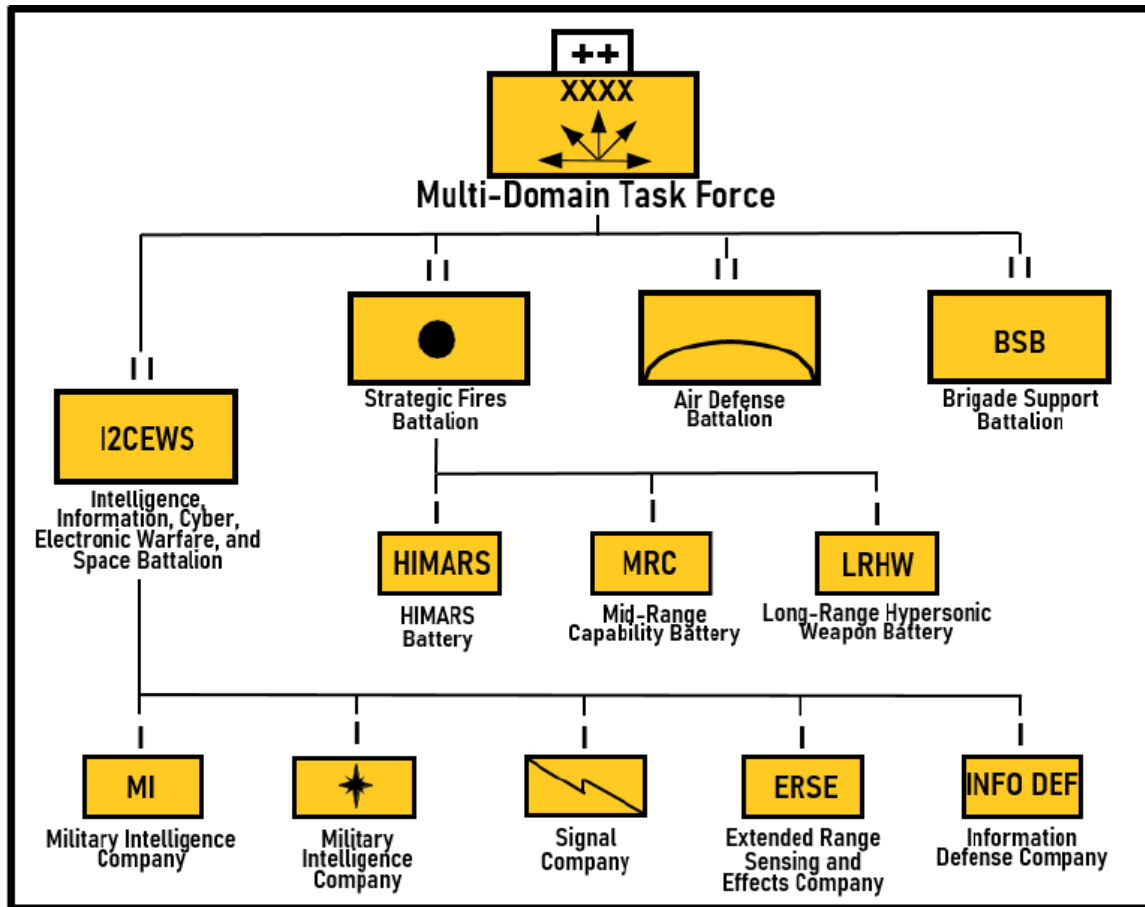


Figure 2. The Multi-Domain Task Force

Source: Headquarters, Department of the Army, “Army Multi-Domain Transformation: Ready to Win in Competition and Conflict,” (Chief of Staff Paper #1, Department of the Army, Washington, DC, 2021), 12.

From this starting point it makes sense to examine the actual composition of the Army’s most well-established MDTF at Joint-Base Lewis-McChord, but as is so often the case reality does not live up to the vision. Instead, as depicted in Figure 3 below the current MDTF is functioning as a headquarters element that is augmented or has units attached to it for mission or training purposes. The only permanently assigned units are an inactive Indirect Fire Protection Capability (IFPC) Air Defense Artillery battalion, a

support company, and a cyber detachment. This is a functional concept for current requirements but does not allow for an accurate representation of future uses and strategic impacts. Currently existing units may be aligned with the MDTF headquarters and expected to be associated or later assigned to the unit on a permanent basis, with 5/3 Field Artillery battalion the most likely candidate as the home of the first Long-Range Hypersonic Weapons Battery.⁹⁷

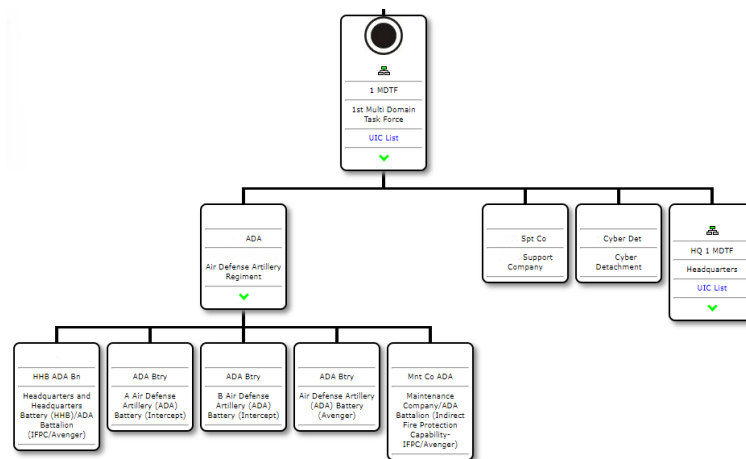


Figure 3. 1st MDTF Line and Block Chart

Source: U.S. Army G3/5/7, “1st Multi Domain Task Force,” FMSWeb, accessed 26 February 2022, fmsweb.fms.army.mil.

The next source of information is the most recent Table of Organization and Equipment (TOE) for the MDTF, also drawn from FMSweb. This provides a more complete picture of the intended structure of the MDTF down to the company level, with further detail provided by individual narratives for each assigned unit. This depiction,

⁹⁷ Kristen Burroughs, “Dark Eagle is on the Move: Soldiers Complete New Equipment Training,” U.S. Army, 14 March 2022, https://www.army.mil/article/254659/dark_eagle_is_on_the_move_soldiers_complete_new_equipment_training.

seen below in Figure 3, provides the most complete breakdown of what the MDTF is intended to contain but is also not complete on its own merit.

06490K100	MULTI-DOMAIN TASK FORCE (MDTF) (RECAP)
1 06492K000	HQ, MULTI-DOMAIN TASK FORCE (MDTF)
1 71495K100	MULTI-DOMAIN EFFECTS BATTALION (MDEB) MDTF
1 71496K100	HHC, MULTI-DOMAIN EFFECTS BATTALION (MDEB) MDTF
1 11497K100	SIGNAL COMPANY, MULTI-DOMAIN EFFECTS BATTALION (MDEB) MDTF
1 34497K100	MILITARY INTELLIGENCE COMPANY MULTI-DOMAIN EFFECTS BATTALION (MDEB) (MDTF)
1 40843K000	SPACE CONTROL COMPANY, MULTI-DOMAIN EFFECTS BATTALION (MDEB)
1 71490K100	EXTENDED RANGE SENSING AND EFFECTS COMPANY, MULTI-DOMAIN EFFECTS BN (MDEB) MDTF
1 71497KA00	EXTENDED RANGE SENSING AND EFFECTS COMPANY, MULTI-DOMAIN EFFECTS BN (MDEB) MDTF
1 01708KA00	TACTICAL UNMANNED AIRCRAFT SYSTEM (TUAS) PLATOON
1 71498K100	INFORMATION DEFENSE COMPANY, MULTI-DOMAIN EFFECTS BN (MDEB) MDTF
1 06475K200	FIELD ARTILLERY BATTALION, HIMARS (2X9)
1 06476K200	HHB, FIELD ARTILLERY BATTALION, HIMARS (2X9)
2 06477K300	FIELD ARTILLERY BATTERY, FIELD ARTILLERY BATTALION, HIMARS (2X9)
1 63447K200	FORWARD SUPPORT COMPANY, HIMARS BN (2X9)
1 44315K000	ADA BN (M-SHORAD-MANPADS)
1 44316K000	HHB, ADA BN (M-SHORAD-MANPADS)
3 44317K000	ADA BATTERY (M-SHORAD)
1 44318K000	ADA BATTERY (MANPADS)
1 43317K000	MAINTENANCE COMPANY, ADA BN (M-SHORAD/MANPADS)
1 63485K000	BRIGADE SUPPORT BATTALION (MDTF)
1 63466K000	HEADQUARTERS AND HEADQUARTERS COMPANY BSB, MULTI DOMAIN TASK FORCE (MDTF)
1 63468K000	DISTRO CO, BSB, MDTF
1 43497K000	FIELD MAINTENANCE COMPANY, MDTF, BSB
1 08067K000	MEDICAL COMPANY, BRIGADE SUPPORT BATTALION (MDTF)
1 01727K000	GRAY EAGLE UAS COMPANY (MQ-1C)

Figure 4. MDTF Unit Hierarchy

Source: U.S. Army G3/5/7, “MDTF Recap Hierarchy,” effective 1 October 2021, FMSWeb, accessed 25 February 2022, fmsweb.fms.army.mil.

While certainly more comprehensive than the previous documents, this information is not as clear as a graphic depiction. In addition, it does not include planned capabilities such as the Mid-Range Capability Battery or Long-Range Hypersonic Weapon Battery. Another noteworthy difference is the inclusion of an attached Gray Eagle UAS Company, which carries important implications for target detection and surveillance capability. This version also differs from the existing line and block chart by

including a short-range air defense artillery battalion instead of an IFPC battalion, which provides different defensive capabilities. Combining the planned future systems with this information results in the structure depicted below, with key capabilities that will be analyzed later broken out to the platoon and section level.

Figure 5. Composite Notional MDTF

Working within this framework it is now possible to begin discussing what these units and capabilities mean in order to build a complete picture of what the MDTF is intended to be and do based on this design. In the next section this study will analyze each battalion and its associated capabilities based on TOE narratives to capture this information. Gaps in information, as in the case of capabilities still in development, will be filled using available sources and publicized results of system tests.

Intended Capabilities of the MDTF

Headquarters and Overall Purpose

The most recent TOE of the MDTF lays out the formation's purpose in the opening paragraph. Key language for the purpose of this study specifies that the MDTF's mission is "to synchronize and employ fires multi-domain fires (lethal and non-lethal)" to prepare the environment during competition and conduct strikes against enemy A2/AD defenses "to enable joint force freedom of action during conflict."⁹⁸ Although this language seems centered around enemy A2/AD defenses, it also specifically says that the MDTF is expected to use both lethal and non-lethal fires during the competition phase of a conflict. This suggests that these fires could be used prior to the establishment of enemy A2/AD defenses. The other important language in this section is that the purpose of the MDTF is to enable joint force freedom of action, which can be read to indicate that while penetration of A2/AD defenses is the primary task of the MDTF that other tasks are acceptable if they meet this overall purpose.

As the rest of the TOE narrative directs the reader to subordinate TOEs for further information, the next source for its capabilities is in the TOE narrative of the MDTF Headquarters Battalion. The capabilities section of the MDTF headquarters TOE claims that it provides twelve capabilities, five of which are relevant to this study: long-range

⁹⁸ U.S. Army G3/5/7, "06490K100 Multi-Domain Task Force (MDFT) (Recap) TOE Narrative," effective 1 October 2021, FMSWeb, accessed 25 February 2022, fmsweb.fms.army.mil.

fires, air and missile defense, cyber and electronic warfare, surveillance, and space.⁹⁹

Broadly speaking long-range fires, surveillance, and space can be grouped together, with long-range fires allowing the MDTF to target critical enemy assets, surveillance including joint and organic targeting against land, maritime, and air domain forces, and space capabilities for situational awareness and position data.¹⁰⁰ These capabilities allow the MDTF to target and attack enemy forces, with the inclusion of naval and air assets providing support for the idea that the MDTF can be used to attack enemy aircraft and ships with appropriate support.

The MDTF's capability for cyber and electronic warfare supports this structure by providing the ability to conduct surveillance in that domain while also providing protection via jamming and defense of tactical network infrastructure. This protective function also includes elements of the MDTF's space capability, which has the capacity to provide early warning of enemy missile attacks. This would seem to connect to the MDTF's capability to provide air and missile defense against ballistic and cruise missiles, hostile aviation, and surveillance, but there is a problem with this listed capability.¹⁰¹ As designed the MDTF's air and missile defense assets are all short-range air defense weapons, which are unable to detect or engage ballistic missiles. In order to provide defense against ballistic missiles, including detailed information about their probable

⁹⁹ U.S. Army G3/5/7, "06492K000 HQ Multi-Domain Task Force (MDFT) TOE Narrative," effective 1 October 2021, FMSWeb, accessed 25 February 2022, fmsweb.fms.army.mil

¹⁰⁰ Ibid.

¹⁰¹ Ibid.

point of impact, the MDTF would need to be augmented with a longer-range system such as the Patriot missile system.

Examining the functions contained within the MDTF headquarters reveals that it contains many of the elements common to any headquarters, but a few capabilities appear unusual and relevant to its mission. Proceeding in order of appearance within the TOE the MDTF headquarters includes a robust intelligence capability that includes a geospatial intelligence cell to enable use of signals, imagery, electronic signature, and other types of intelligence.¹⁰² The MDTF headquarters also includes capabilities related to controlling fires, including a target development element, fire direction center, and fire control element. Other capabilities are focused on interfacing with attached units and temporary capabilities for air and maritime domain capabilities, including an Air Naval Gunfire Liaison Company element as a liaison for joint fires, an air and missile defense team to integrate air defense assets, and an air support element to control aircraft strikes.¹⁰³ While some of these inclusions are expected within a fires-centric organization, the combined capabilities indicate that the MDTF is intended to operate independently and have to control a wider variety of assets than a normal brigade-sized artillery element.

¹⁰² U.S. Army G3/5/7, “06492K000 HQ Multi-Domain Task Force (MDFT) TOE Narrative.”

¹⁰³ Ibid.

The Multi-Domain Effects Battalion (I2EWCS)

Known as the I2EWCS Battalion in older documents, the Multi-Domain Effects Battalion (MDEB) houses many of the most critical capabilities within the MDTF. This includes the ability to locate targets, conduct defensive cyber operations, receive and process intelligence support, manage space capabilities, and enable communications when conducting dispersed operations. This unit provides subject matter expertise in these capabilities as well as controlling its subordinate signal, military intelligence, space control, extended range sensing and effects (ERSE), and information defense companies.¹⁰⁴ While the battalion's TOE narrative does provide a general purpose for each company, for detailed information on their capabilities it is necessary to examine their individual TOEs. There is no current TOE for the headquarters company, so this analysis will begin with the MDEB's signal company.

The primary purpose of the MDEB signal company is to provide communications elements to ensure access to the Defense Information Systems Network.¹⁰⁵ To fulfill these functions the signal company includes two types of satellite communications teams for secure communications, network extension teams for network connectivity, and troposcatter teams to provide extended range high-frequency communications.¹⁰⁶ Based

¹⁰⁴ U.S. Army G3/5/7, "71495K100 Multi-Domain Effects Battalion (MDEB) TOE Narrative," effective 1 October 2022, FMSWeb, accessed 25 February 2022, fmsweb.fms.army.mil.

¹⁰⁵ U.S. Army G3/5/7, "11497K100 Signal Company, Multi-Domain Effects Battalion (MDEB) MDTF TOE Narrative," effective 1 October 2021, FMSWeb, accessed 25 February 2022, fmsweb.fms.army.mil.

¹⁰⁶ Ibid.

on the structure of the TOE the signal company is organized into platoons, each of which includes teams for each capability.¹⁰⁷ This means that the MDTF can support multiple remote locations with redundant communications on top of the organic equipment and communications capabilities within the brigade headquarters.

To add space as a domain capability, the MDEB's space control company is closely tied to its signal company although there is limited information available about this unit and its role due to classification restrictions. The TOE for the space control company indicates that it uses the Mobile Integrated Ground Suite (MIGS) and operates to support satellite communications, coordinate and control space-based effects on designated targets, and provide information on the capabilities of enemy forces.¹⁰⁸ Much like the MDEB signal company, the space control company operates with identical platoons to enable support in multiple locations.¹⁰⁹ Turning to joint doctrine provides some clarity on the purpose of this unit, with Joint Publication 3-14 defining space control as operations to maintain the capability to act in space and prevent efforts to interfere with friendly space capabilities.¹¹⁰ These capabilities help to ensure that the

¹⁰⁷ U.S. Army G3/5/7, "11497K100 Signal Company, Multi-Domain Effects Battalion (MDEB) MDTF TOE Narrative."

¹⁰⁸ U.S. Army G3/5/7, "40843K000 Space Control Company, Multi-Domain Effects Battalion (MDEB) TOE Narrative," effective 1 October 2022, FMSWeb, accessed 25 February 2022, fmsweb.fms.army.mil.

¹⁰⁹ Ibid.

¹¹⁰ Office of the Chairman of the Joint Chiefs of Staff (CJCS), Joint Publication (JP) 3-14, Change 1, *Space Operations* (Washington, DC: The Joint Chiefs of Staff, October 2020), ix.

MDTF can operate in a contested space environment and conduct missions in multiple locations while adversaries are attempting to prevent use of space-based assets.

The ability to provide information and connectivity is carried over into the MDEB's military intelligence company, which is designed to support multiple command and control nodes according to its TOE narrative. In addition to providing analysis and intelligence preparation of the battlefield, the MDTF military intelligence company includes signals intelligence (SIGINT) teams to support electronic warfare and cyberspace operations and to conduct electronics intelligence (ELINT) to detect non-communications devices that emit into the electromagnetic system such as active radars.¹¹¹ While such data is often difficult for non-intelligence personnel to understand, this company also includes a Multi-Domain Processing Exploitation and Dissemination (MD-PED) section with the mission of refining data into usable information.¹¹² These capabilities contribute to the MDTF's overall ability to detect, locate, and target high-tech platforms on the modern battlefield.

These capabilities are further amplified by the MDEB's Extended Range Sensing and Effects (ERSE) company, which provides detection and electronic warfare capabilities in support of the MDTF. According to the doctrinal mission statement from the ERSE's TOE this unit consists of an unmanned aerial system (UAS) platoon, high-altitude balloon platoon, and electronic warfare platoon with associated sections that

¹¹¹ U.S. Army G3/5/7, "34497K100 Military Intelligence Company Multi-Domain Effects Battalion (MDEB) (MDTF) TOE Narrative," effective 1 October 2021, FMSWeb, accessed 25 February 2022, fmsweb.fms.army.mil.

¹¹² Ibid.

provide the capability to detect and attack targets in the electromagnetic spectrum and cyberspace at long ranges.¹¹³ The highly technical nature of these capabilities requires additional exploration, particularly in determining their possible uses and effective ranges. The most straightforward component of the ERSE company is the electronic warfare platoon, which is described across three paragraphs as providing electronic attack, electronic surveillance, and limited cyberspace operations to integrate capabilities and preserve freedom of movement to the MDTF and joint forces.¹¹⁴

Two other components of the ERSE company are closely linked: the UAS platoon and the aerial multi-function electronic warfare (MFEW) section. According to the TOE the UAS platoon operates unmanned aircraft for reconnaissance, intelligence, surveillance, and target acquisition (RISTA), communications relay, and persistent surveillance while the MFEW section operates attached systems to support electronic warfare and use electronic attacks to disrupt the enemy.¹¹⁵

While the TOE narrative does not specify which unmanned aircraft the platoon operates, doctrinal design and plans for the UAS platoon shows that it is intended to be equipped with the RQ-7B Shadow UAS.¹¹⁶ The manufacturer's website gives the range of the Shadow as 125 kilometers based on line of sight controls with an endurance of 8 to

¹¹³ U.S. Army G3/5/7, "71490K100 Extended Range Sensing and Effects Company, Multi-Domain Effects Battalion (MDEB) MDTF TOE Narrative," effective 1 October 2022, FMSWeb, accessed 25 February 2022, fmsweb.fms.army.mil.

¹¹⁴ Ibid.

¹¹⁵ Ibid.

¹¹⁶ U.S. Army G3/5/7, "01708KA002 UAS Platoon TOE Detail," effective 1 October 2022, FMSWeb, accessed 29 December 2021, fmsweb.fms.army.mil.

9 hours.¹¹⁷ A 2020 report on the development of a MFEW system and its use on a RQ-7B Shadow UAS gives a potential detection range of up to 279 kilometers at altitude.¹¹⁸ Combining these figures gives us a potential detection range of more than 400 kilometers based on a Shadow operating at its maximum potential range.

The ERSE's balloon platoon is less easily defined, with the TOE narrative describing small balloon sections and a large balloon section that are both intended to enable long-range communications, provide RISTA capability, and augment position-navigation-timing data within an area approximately one thousand kilometers across.¹¹⁹ A 2021 investigation by Adam Kehoe of *The War Zone* provides some insight by identifying recent balloons being tested off the coasts of the United States as derivatives of Raven Aerostar's Thunderhead balloon system.¹²⁰

In his research Kehoe describes two different size variants of the systems operating at altitudes of 60,000 and 92,000 feet, noting that they are designed to act as

¹¹⁷ "Shadow Tactical Unmanned Aircraft Systems," Textron Systems, accessed March 10, 2022, <https://www.textronsystems.com/products/shadow-tactical-unmanned-aircraft-systems>.

¹¹⁸ Thomas Withington, "Small System, Big Difference," *Armada International*, 5 August 2020, <https://www.armadainternational.com/2020/08/small-system-big-difference/>.

¹¹⁹ U.S. Army G3/5/7, "71490K100 Extended Range Sensing and Effects Company, Multi-Domain Effects Battalion (MDEB) MDTF TOE Narrative."

¹²⁰ Adam Kehoe, "What We Know About the High-Altitude Balloons Recently Lingering Off America's Coastlines," *The War Zone* (blog), *The Drive*, 17 May 2021, <https://www.thedrive.com/the-war-zone/40638/what-we-know-about-the-high-tech-balloons-lingering-off-the-coasts-of-the-u-s-recently>.

surveillance and reconnaissance platforms and as communications relays.¹²¹ This matches the TOE doctrinal description, and using a publicly available line of sight calculator for each altitude gives a line of sight of 482 kilometers for the smaller balloon and 597 kilometers for the larger.¹²² Based on these figures and the presence of multiple balloon sections, the ERSE also has the capability of deploying a section forward to provide an extended detection envelope.

The final component of the MDEB is the Information Defense Company, which provides incident detection and response functions to protect the MDTF's network Department of Defense Information Network (DODIN) using its defensive cyber operations (DCO) platoon and defensive electronic attack (DEA) platoon and teams.¹²³ According to the capabilities section of the TOE narrative the former augments cybersecurity capabilities to protect "MDTF networks and mission command capabilities" while the latter are used to provide early warning and active defense against enemy capabilities that use the electromagnetic spectrum such as artillery fuses, rockets and missiles, and unmanned aerial systems.¹²⁴ These capabilities are critical to allowing

¹²¹ Kehoe, "What We Know About the High-Altitude Balloons Recently Linger Off America's Coastlines."

¹²² "Line of Sight Calculator," Southwest Antennas, accessed 10 March 2022, <https://www.southwestantennas.com/calculator/line-of-sight>.

¹²³ U.S. Army G3/5/7, "71498K100 Information Defense Company, Multi-Domain Effects Battalion (MDEB) MDTF TOE Narrative," effective 1 October 2021, FMSWeb, accessed 25 February 2022, fmsweb.fms.army.mil

¹²⁴ Ibid.

the MDTF to function in a contested environment and maintain command and control of detachments and subordinate units.

The Strategic Fires Battalion

Describing the strategic fires battalion of the MDTF represents a challenge as the current TOE and the concept for the MDTF are not remotely similar and the latter employs several capabilities and units that are still under development. Currently the TOE for the MDTF is for a High Mobility Artillery Rocket System (HIMARS) battalion with two subordinate HIMARS batteries¹²⁵. The MDTF concept has a single HIMARS battery along with a mid-range capability (MRC) and long-range hypersonic weapon (LRHW) battery. Both versions retain a headquarters battery and a forward support company, while the TOE for the HIMARS battalion provides a functional mission for either unit: “providing medium range rocket and long-range missile fires ... to destroy, neutralize, or suppress” enemy forces.¹²⁶ For the purpose of this study the MDTF concept will be used with the current doctrinal mission statement, which is versatile enough to allow the strategic fires battalion to be used for multiple roles.

With neither the headquarters nor the forward support company presenting any novel capabilities, the first subordinate unit of interest is the HIMARS battery. The specified capability of this battery is to provide “rocket and missile fires on preplanned targets and targets of opportunity,” which is accomplished through the employment of

¹²⁵ U.S. Army G3/5/7, “06475K200 Field Artillery Battalion, HIMARS (2x9) TOE Narrative,” effective 1 October 2022, FMSWeb, accessed 25 February 2022, fmsweb.fms.army.mil

¹²⁶ Ibid.

multiple firing sections divided into platoons.¹²⁷ According the United States Army Acquisition Support Center each HIMARS launcher can carry a launch pod with six guided rockets or one Army Tactical Missile System (ATACMS), with the guided rockets having a range of more than 70 kilometers.¹²⁸ The latest version of the ATACMS, Block 1A unitary, has a range of 300 kilometers and uses a similar warhead to a Harpoon anti-ship missile.¹²⁹ Finally, the Army's new Precision Strike Missile (PrSM) is compatible with the HIMARS launcher and contains two rounds per launch pod with a current range of up to 499 kilometers.¹³⁰ These options allow the HIMARS battery for the MDTF to be customized for anti-access and area denial missions, and potentially reloaded with increasingly shorter range options as threats approach.

The only existing TOE for a MRC battery does not provide significant information on the capability as most of it is copied directly from the LRHW battery TOE but does indicate that the unit will likely include two firing platoons.¹³¹ Recent

¹²⁷ U.S. Army G3/5/7, "06477K300 Field Artillery Battery, Field Artillery Battalion, HIMARS (2x9) TOE Narrative," effective 1 October 2022, FMSWeb, accessed 25 February 2022, fmsweb.fms.army.mil.

¹²⁸ "High Mobility Artillery Rocket System (HIMARS) – M142," U.S. Army Acquisition Support Center, accessed 11 March 2022, <https://asc.army.mil/web/portfolio-item/ms-himars-m142/>.

¹²⁹ "MGM-140 Army Tactical Missile System (ATACMS)," CSIS Missile Threat, accessed 11 March 2022, <https://missilethreat.csis.org/missile/atacms/>.

¹³⁰ "Precision Strike Missile (PrSM)," Lockheed Martin, accessed 11 March 2022, <https://www.lockheedmartin.com/en-us/products/precision-strike-missile.html>.

¹³¹ U.S. Army G3/5/7, "06489K000 Field Artillery Battery, Mid Range Battery, Long Range Fires Battalion (LRFB) TOE Narrative," effective 1 October 2022, FMSWeb, accessed 25 February 2022, fmsweb.fms.army.mil.

reporting on the battery confirms that it will use a combination of land-based SM-6 and Tomahawk missiles with four trailer mounted launchers, implying that each firing platoon would be responsible for two launchers.¹³² Each launcher will carry four rounds, providing a total of sixteen missiles for the battery with the ability to reload by replacing an entire missile cell once all rounds have been expended.¹³³ The exact ranges of these weapons have not been released, but available open source information suggests a range of at least 1,600 kilometers for both the latest variant being developed for the SM-6 and Tomahawk missile.¹³⁴ This provides a flexible, extended range anti-access capability that can be used against surface targets including ships.

The final component of the strategic fires battalion is the Long-Range Hypersonic Weapons Battery, which is divided into two firing platoons according to its TOE with a total of eight firing sections that are each responsible for a single launcher.¹³⁵ Having been released in 2020 this document may not account for changes in concept, although it

¹³² Stephen Silver, “The Army’s New Mid-Range Capability Revealed,” *The Buzz* (blog), *The National Interest*, 15 October 2021, <https://nationalinterest.org/blog/buzz/army%E2%80%99s-new-mid-range-capability-revealed-195098>.

¹³³ Joseph Trevithick, “The Army Plans to Fire Its Version of the Navy’s SM-6 Missile From This Launcher,” *The War Zone* (blog), *The Drive*, 13 October 2021, <https://www.thedrive.com/the-war-zone/42712/the-army-plans-to-fire-its-version-of-the-navys-sm-6-missile-from-this-launcher>.

¹³⁴ Sydney J. Freedberg Jr., “Army picks Tomahawk & SM-6 for Mid-Range Missiles,” *Breaking Defense*, 06 November 2020, <https://breakingdefense.com/2020/11/army-picks-tomahawk-sm-6-for-mid-range-missiles/>. Naval Technology, “Tomahawk Long-Range Cruise Missile,” 27 August 2020, <https://www.naval-technology.com/projects/tomahawk-long-range-cruise-missile/>.

¹³⁵ U.S. Army G3/5/7, “06487K000 Field Artillery Battery, Long Range Hypersonic Weapons (LRHW) TOE Narrative,” effective 1 October 2020, FMSWeb, accessed 25 February 2022, fmsweb.fms.army.mil.

would be logical for LRHWs to be larger than other munitions. A more recent Congressional Research Report describes a battery as containing four launchers that are each able to carry two missiles, with an expected range of 1,725 miles (2,776 kilometers) traveling between 3,800 and 13,000 miles per hour.¹³⁶ This could potentially allow the LRHW to strike a target at maximum range with a flight times between eight and twenty-seven minutes, enabling convergence with other systems within the strategic fires battalion from multiple directions.¹³⁷ One potential consideration with employment of a LHRW battery is that it would likely have to operate detached from the rest of the MDTF as positioning this capability forward could be viewed as escalatory due to its potential ability to strike at targets deep within an adversary's borders.

The Integrated Air and Missile Defense Battalion

For defensive purposes the MDTF includes an air defense battalion to provide short-range air defense (SHORAD) against hostile targets. The current TOE for the MDTF's air defense battalion outlines an organization with a headquarters battery, three Stryker mounted Maneuver SHORAD batteries, a man portable air defense (MANPADS)

¹³⁶ Congressional Research Service (CRS), *The U.S. Army's Long-Range Hypersonic Weapon*, CRS In Focus IF 11991, by Andrew Feickert (Washington DC: Library of Congress, 8 December 2021), 1.

¹³⁷ Calculated by the author based on a maximum speed up to 13,000 miles per hour and maximum range of 1,725 miles. 13,000 miles per hour equals 216.6 miles per minute. 1,725 divided by 216.6 results in a figure of 7.964 minutes (rounded). A lower-bound of 3,800 miles per hour provides a speed of 63.3 miles per minute and a flight time of 27.25 minutes. Acceleration and deceleration would likely result in a flight time between these extremes.

battery, and a specialized maintenance company.¹³⁸ Per the unit's TOE the mission and capabilities for this unit are optimized for defense against cruise missiles, unmanned aircraft systems, and low-altitude aircraft, including the use of the Sentinel Air Defense Radar.¹³⁹ This is directly counter to the MDTF's mission of providing ballistic missile defense, but still provides a self-defense capability and can provide limited protection over a given area for installations and units.

Briefly examining the systems included, the manufacturer's information sheet for the original version of the Maneuver SHORAD system uses the Stinger and Longbow Hellfire missiles combined with four onboard radars and a 30 millimeter chain-gun to intercept and destroy aerial threats.¹⁴⁰ The Army has recently begun fielding a directed energy capability provided by Northrop Grumman that replaces the missiles on the platform with a high-energy laser to allow for an increased number of engagements.¹⁴¹ All variants interface with the Sentinel Air Defense Radar, which is capable of detecting targets over 360 degrees at ranges up to 75 kilometers.¹⁴² For an MDTF operating in an

¹³⁸ U.S. Army G3/5/7, "44315K000 ADA BN (M-SHORAD-MANPADS) TOE Narrative," effective 1 October 2020, FMSWeb, accessed 25 February 2022, fmsweb.fms.army.mil.

¹³⁹ Ibid.

¹⁴⁰ "M-SHORAD Data Sheet," Leonardo DRS, September 2019, https://www.leonardodrs.com/media/13589/m-shorad_datasheet.pdf.

¹⁴¹ "SHORAD Capabilities," Northrop Grumman, accessed 11 March 2022, <https://www.northropgrumman.com/wp-content/uploads/L-0700-Short-Range-Air-Defense-SHORAD-Infographic.pdf>.

¹⁴² "Sentinel Aerial Surveillance Radar – AN/MPQ-64," U.S. Army Acquisition Support Center, accessed 11 March 2022, <https://asc.army.mil/web/portfolio-item/anmpq-64-sentinel/>.

isolated location this enables a self-defense capability, but the short range of these systems and limited detection range limits the ability of this battalion to an area-denial role rather than presenting a credible anti-access capability.

One potential change to the structure of the MDTF's air defense battalion would be replacing some or all of its Maneuver SHORAD with the Army's Indirect Fire Protection Capability (IFPC) system. This does not change the role of the air defense battalion for the MDTF, however, as the IFPC system is still designed as a short-range capability system for defeating unmanned aircraft systems and cruise missiles.¹⁴³

Another alternative would be assigning or attaching a Patriot missile battery to operate with the MDTF. The new Lower Tier Air and Missile Defense Sensor (LTAMDS) being provided by Raytheon provides 360 degree detection at ranges above 100 kilometers against ballistic missiles, cruise missiles, and fixed-wing aircraft.¹⁴⁴ With a loadout including the Patriot Advanced Capability-2 (PAC-2), this would also enable interception of aircraft at ranges up to 160 kilometers or at the limit of the detection range for the associated radar.¹⁴⁵ This would allow a small anti-access capability for the MDTF while allowing it to meet its stated mission of providing ballistic missile protection. In

¹⁴³ "Indirect Fire Protection Capability (IFPC) Increment 2 – Intercept Block 1," U.S. Army Acquisition Support Center, accessed 11 March 2022, https://asc.army.mil/web/portfolio-item/ms-ifpc_inc_2-i/.

¹⁴⁴ "Lower Tier Air and Missile Defense Sensor (LTAMDS)," Missile Defense Advocacy Alliance, 24 July 2020, <https://missiledefenseadvocacy.org/defense-systems/lower-tier-air-and-missile-defense-sensor-ltamds/>.

¹⁴⁵ "Patriot PAC-2," Military Today, accessed 11 March 2022, http://www.military-today.com/missiles/patriot_pac2.htm.

order to demonstrate this as a possibility, this study will include a Patriot capability during case studies later in this chapter.

The Brigade Support Battalion and Attached Units

The original concept of the MDTF proposed in 2019 included a Brigade Support Company with a distribution platoon, maintenance control platoon, and field maintenance section to receive, store, and issue fuel, manage maintenance stocks, and provide a minimal level of on-site maintenance.¹⁴⁶ This has since been replaced with a full Brigade Support Battalion, including a headquarters, distribution, field maintenance, and medical company to provide the capability to deploy within a 96 hour window and establish operations in an austere location.¹⁴⁷ The individual elements within the Brigade Support Battalion are similar to other examples of these units, although one noteworthy capability is the presence of a missile/electronics repair section, armament repair section, and I2CEWS field maintenance section in the field maintenance company.¹⁴⁸ This demonstrates that these units have been customized to support the MDTF's other capabilities in an expeditionary role.

¹⁴⁶ U.S. Army G3/5/7, "63483K000 Brigade Support Company (Multi-Domain Task Force) TOE Narrative," effective 1 October 2022, FMSWeb, accessed 25 February 2022, fmsweb.fms.army.mil.

¹⁴⁷ U.S. Army G3/5/7, "63485K000 Brigade Support Battalion (MDTF) TOE Narrative," effective 1 October 2021, FMSWeb, accessed 25 February 2022, fmsweb.fms.army.mil.

¹⁴⁸ U.S. Army G3/5/7, "43497K000 Field Maintenance Company, MDTF, BSB TOE Narrative," effective 1 October 2022, FMSWeb, accessed 25 February 2022, fmsweb.fms.army.mil.

The final unit assigned to the MDTF is a Gray Eagle Company directly assigned at the brigade level. The current associated TOE for the MDTF-specific version of this unit does not have a TOE narrative, but examining the TOE for a similar stand-alone Gray Eagle Company suggests that such an organization would include its own flight operations section, ground control and launch/recovery sections, and organic maintenance capability.¹⁴⁹ The base model of the Gray Eagle has a flight endurance of over 27 hours at an altitude of up to 25,000 feet, can be controlled via satellite communications, and can carry up to four Hellfire missiles.¹⁵⁰ This allows the MDTF the potential for an unmanned deep-strike capability, but given the amount of firepower resident within the MDTF's strategic fires battalion a more productive use would be locating and providing targeting data for those weapons systems.

According to the manufacturer the next generation of the Gray Eagle intended for Multi-Domain operation provides an extended endurance of up to 42 hours operating at 29,000 feet with a larger payload while retaining the capacity to carry Hellfire missiles.¹⁵¹ This increases the detection footprint of the Gray Eagle, which Armada International calculates at up to 387 kilometers using a larger version of the Multi-

¹⁴⁹ U.S. Army G3/5/7, "01707K000 Gray Eagle UAS Company (MQ-1C) (SEP) TOE Narrative," effective 1 October 2020, FMSWeb, accessed 25 February 2022, fmsweb.fms.army.mil.

¹⁵⁰ "MQ-1C Gray Eagle Unmanned Aircraft System (UAS)," U.S. Army Acquisition Support Center, accessed 13 March 2022, https://asc.army.mil/web/portfolio-item/aviation_gray-eagle-uas/.

¹⁵¹ "Gray Eagle Extended Range (GE-ER)," General Atomics Aeronautical, accessed 13 March 2022, <https://www.ga-asi.com/remotely-piloted-aircraft/gray-eagle-extended-range>.

Function Electronic Warfare capability available to the Shadow UAS platoon discussed earlier.¹⁵² Regardless of which version of the Gray Eagle that the MDTF uses, either platform provides the capability of providing target information out to the limits of the MDTF's MRC battery.

Operating in the Indo-Pacific one useful quality that the Gray Eagle does not currently possess is an anti-submarine capability. This capability is theoretically possible as the Navy has currently fielded a variant of the MQ-9 Reaper that can conduct submarine tracking and detection using a network of sonobuoys dropped by the UAS.¹⁵³ Although the MQ-9 Reaper is a significantly larger platform than the Gray Eagle and has a correspondingly higher carrying capacity, a similar system could potentially be developed or modified for use in an MDTF. This would increase the MDTF's ability to conduct intelligence and surveillance operations in the maritime domain and provide early warning for friendly forces.

Doctrinal Requirements and Capabilities Summary

To summarize the overall capabilities based on this analysis, the MDTF's Multi-Domain Effects Battalion provides the ability to locate targets using a variety of methods, conduct defensive cyber operations, receive and process intelligence support, manage space capabilities, and conduct dispersed operations while maintaining communications

¹⁵² Withington, "Small System, Big Difference."

¹⁵³ General Atomics Aeronautical Systems, "Versatile Multi-Domain MQ-9B SeaGuardian Has Revolutionized Anti-Submarine Warfare," *Breaking Defense*, 5 April 2022, <https://breakingdefense.com/2022/04/versatile-multi-domain-mq-9b-seaguardian-has-revolutionized-anti-submarine-warfare/>.

in a contested environment. It has an organic electronic warfare capability and the ability to locate targets at ranges of at least 400 kilometers using organic UAS, and the potential to detect targets up to almost 600 kilometers using high-altitude balloons.

The MDTF's Strategic Fires Battalion is intended to include a HIMARS battery, a Mid-Range Capability (MRC) battery, and a Long-Range Hypersonic Weapon (LRHW) Battery. The HIMARS battery has three possible weapons systems with maximum ranges of 70 to 499 kilometers, while the MRC battery uses a combination of land-based cruise missiles and ballistic missiles with a range of up to 1,600 kilometers. The LRHW Battery can provide fires at ranges up to nearly 2,800 kilometers with rounds arriving within minutes of being fired. These capabilities are supported by the MDTF's Gray Eagle Company, which can provide targeting information using over the horizon and satellite-based communications.

Finally, the MDTF is intended to include a short-range air defense capability that is optimized to protect the unit from hostile aircraft, unmanned aerial systems, and cruise missiles. The current TOE for this unit is based on a Maneuver Short Range Air Defense battalion but changing to an Integrated Force Protection Capability does not significantly alter this capability. The MDTF cannot provide ballistic missile defense or extended-range defense against aircraft but could do so if assigned or allocated a Patriot missile battery during operations. These assets can also be used to protect other critical locations and systems in addition to protecting the MDTF, with an accompanying risk of reducing their effectiveness due to reduced depth and mass.

While the MDTF is a very capable unit, it also possesses some operational shortcomings that must be considered when deploying it alone or as part of a group. The

first of these is that it is a relatively small unit with limited capability for self-defense against ground assaults. This is mitigated by deployment to islands in the Indo-Pacific and the ability to interdict incoming forces before they can make landfall. The second major shortcoming is that requires a constant supply of fuel and munitions to conduct operations due to the power requirements of radars, UAS, and sensors. This can be mitigated by pre-positioning bulk fuel and logistical planning but could be a factor in extended operations. Third, the MDTF has a relatively small magazine depth of only 18 Precision Strike Missiles, 16 rounds in the Mid-Range Capability battery, and 8 rounds for the Long Range Hypersonic Weapon battery. This limits the number of targets it can strike before conducting reload operations and requires a substantial ammunition storage facility for extended operations.

It is also important to consider the fact that some of these capabilities are currently in development or in limited rate production. The Army's first Long Range Hypersonic Weapon battery is not expected to reach initial operating capability until fiscal year 2023.¹⁵⁴ The Precision Strike Missile is currently in production, with the Fiscal Year 2022 Army Budget requesting production of 110 rounds for the first year.¹⁵⁵ According to Major General Ken Kamper's speech at the Maneuver Warfighter Conference on 7 March 2022, the next upgrade to the Precision Strike Missile to allow it

¹⁵⁴ Burroughs, "Dark Eagle is on the Move."

¹⁵⁵ Office of the Under Secretary of Defense (Comptroller)/Chief Financial Officer, *Program Acquisition Costs by Weapon System*, U.S. Department of Defense Fiscal Year 2022 Budget Request (Washington, DC: Department of Defense, May 2021), 5-15.

to target moving emitters such as ships is not expected to be complete until 2025.¹⁵⁶

Keeping the current status of these capabilities in mind and planning for future operations, the next step is to examine them with an operational framework.

Capabilities, Gaps, and Applications

Tactical Mission Tasks

Although not an exhaustive list, the Army's list of tactical mission tasks provides a framework that assists in describing the desired action that a force will take and the intended effect that action will have on an enemy. Examining this list considering the established capabilities of the MDTF provides the foundation to conceptualize how the MDTF can be used in operations supporting the joint force. In addition to the table below, tactical shaping tasks including reconnaissance and security operations can also provide clarity on the potential for multiple roles for the MDTF.

¹⁵⁶ Ken Kamper, "Fires Modernization," (Speech, Maneuver Warfighter Conference, Fort Benning, GA, 7 March 2022), <https://www.youtube.com/watch?v=RuZxEbWV7s8>.

<i>Actions by friendly forces</i>	<i>Effects on enemy forces</i>
Attack by fire	Block
Breach	Canalize
Bypass	Contain
Clear	Defeat
Control	Destroy
Counterreconnaissance	Disrupt
Disengagement	Fix
Exfiltrate	Isolate
Follow and assume	Neutralize
Follow and support	Suppress
Occupy	Turn
Retain	
Secure	
Seize	
Support by fire	

Figure 6. Tactical Mission Tasks

Source: Headquarters, Department of the Army, Field Manual 3-90-1, Change 2, *Offense and Defense*, vol. 1 (Washington, DC: Army Publishing Directorate, March 2013), B-1.

The basic task of the MDTF can be viewed as a combination of attack by fire in support of a larger breaching operation, acting as part of the means to break through an enemy defense for follow-on forces to maneuver as part of Multi-Domain Operations. A number of tasks in the figure above require a degree of movement and direct fires that the MDTF is not constructed to provide, including bypass, clear, disengage, exfiltrate, follow and assume, follow and support, and seize. This leaves seven additional tasks where the capabilities of the MDTF are open to interpretation.

The first of these, control, is defined as “maintaining physical influence over a specific area to prevent its use by the enemy or create conditions necessary for successful friendly operations” by either occupying the area or being able to engage enemy forces

within the area.¹⁵⁷ In the conventional sense this is usually conducted by ground forces, but given its ability to engage surface targets at extended range using a variety of weapons the MDTF could perform this activity in a maritime environment. The effectiveness of control that the MDTF can provide increases as the volume to be controlled shrinks, allowing the MDTF to apply more weapon systems within the area. This is closely linked to the task of counterreconnaissance, which “encompasses all measures to counter enemy reconnaissance and surveillance efforts” as a fundamental part of security operations.¹⁵⁸ By preventing enemy use of an area the MDTF also prevents enemy forces from effectively locating friendly assets moving through the area.

A similar relationship exists between the tasks of occupy, retain, and secure. Occupy involves “moving a friendly force into an area so that it can control that area” without being opposed by an enemy and is different from control because it requires physical presence at a location.¹⁵⁹ Retain focuses on keeping “a terrain feature controlled by friendly forces from enemy occupation or use” but does not require the unit to occupy the area. Secure requires keeping an enemy from damaging or destroying a unit or location and can also be done without occupying the terrain to be secured as long as the force can keep the enemy from affecting it.¹⁶⁰ The MDTF can occupy terrain to a limited

¹⁵⁷ Headquarters, Department of the Army (HQDA), Field Manual (FM) 3-90-1, Change 2, *Offense and Defense*, vol. 1 (Washington, DC: Army Publishing Directorate, March 2013), B-5.

¹⁵⁸ Ibid.

¹⁵⁹ Ibid., Ch 2, B-9.

¹⁶⁰ Ibid.

extent and may be able to retain a location using its long-ranged fires by preventing enemy forces from moving onto a location. The extensive range of the MDTF's capabilities and electronic warfare capabilities may also enable it to secure a location by keeping enemy forces outside of direct or even indirect fire range, but this is limited to air and surface forces within a given radius and does not apply to long-range ballistic missile attacks.

The final two tasks are subject to debate. Reduce is a “the destruction of an encircled or bypassed enemy force,”¹⁶¹ while support by fire is when a unit “moves to a position where it can engage the enemy by direct fire in support of another maneuvering force” to fix, suppress, or destroy the enemy if they attempt to move.¹⁶² Theoretically an MDTF could be used as the primary instrument to destroy an enemy force using massed fires, but this would likely require a prodigious expenditure of ammunition to accomplish a task that could likely be easily managed by a less specialized capability. The specification of direct fire as the means of accomplishing support by fire makes the MDTF unsuited to the task, although the MDTF could potentially produce the desired effect of suppressing, fixing, or destroying an enemy force trying to reposition.

The second half of the figure at the beginning of this section addresses effects on the enemy, which provides additional utility for discussing employing the MDTF. Effects based language is more general and allows for a freer rein in analysis, with only two of the listed effects appearing immediately unsuited to the capabilities of the MDTF.

¹⁶¹ HQDA, FM 3-90-1, B-9.

¹⁶² HQDA, FM 3-90-1, B-10.

Contain and fix are both tasks that involve controlling the movement enemy forces, with the former requiring a capability to “stop, hold, or surround enemy forces”¹⁶³ while the latter requires preventing an enemy “from moving any part of their force from a specific location.”¹⁶⁴ Both of these tasks are extremely difficult to accomplish with long-ranged fires and electronic warfare assets, as they typically involve some form of direct contact to control enemy movement.

Other movement controlling tasks are more clearly within the capabilities of the MDTF, especially when operating in a maritime environment. Block and canalize are two examples based on imposing an unacceptable cost for proceeding on an avenue of approach or restricting enemy movement to a confined area using fires or maneuver.¹⁶⁵ Both of these effects can be accomplished by using progressively heavier fires to attrit an enemy force or to force an enemy to stay outside of engagement range and thus limiting their number of available routes. This is closely related to turn, which “involves forcing an enemy element from one avenue of approach or mobility corridor to another.”¹⁶⁶ In a maritime dominated environment the MDTF can accomplish this task by using fires to engage an enemy when they attempt to use an undesired avenue of approach and thus force them into using a slower or more dangerous route.

¹⁶³ HQDA, FM 3-90-1, Ch 2, B-11

¹⁶⁴ Ibid., B-13.

¹⁶⁵ Ibid., B-11.

¹⁶⁶ Ibid., B-15.

Other effects that the MDTF can accomplish are based on their impact on enemy operations. Disrupt involves efforts that “upset an enemy’s formation or tempo, [or] interrupt the enemy’s timetable”¹⁶⁷ while interdict “prevents, disrupts, or delays the enemy’s use of an area or route.”¹⁶⁸ Neutralize and suppress prevent an enemy from interfering with friendly activities or accomplishing their own mission and can both be accomplished through lethal and non-lethal effects such as electronic warfare.¹⁶⁹ The ability to detect targets at long ranges and place accurate fires as well as the capability to generate electronic attack within the multi-domain effects battalion make the MDTF uniquely well-suited for generating these effects and degrading or shaping enemy operations.

The final category of effects to consider in relation to the MDTF are effects directly targeted at enemy forces. Defeat includes rendering an enemy unable or unwilling to fight through force or threats of force¹⁷⁰ while destroy “physically renders an enemy force combat ineffective.”¹⁷¹ Isolate requires preventing an enemy from receiving support, denying their ability to move, and preventing them from contacting other forces.¹⁷² The first two are within the MDTF’s range of capabilities depending on the

¹⁶⁷ HQDA, FM 3-90-1, Ch 2, B-12.

¹⁶⁸ Ibid., B-13.

¹⁶⁹ Ibid., B-13.

¹⁷⁰ Ibid., B-14.

¹⁷¹ Ibid., B-11 – B-12.

¹⁷² Ibid., B-14.

amount of firepower applied, with the task of rendering a naval combat system ineffective particularly well-suited to the MDFT's Mid-Range Capability. Isolation is also theoretically possible since electronic warfare capabilities can be used to prevent contact while fires can target incoming support and deny freedom of movement.

Turning to reconnaissance and security, reconnaissance squadrons and air cavalry forces are doctrinally described as capable of conducting route, zone, or area reconnaissance.¹⁷³ The reconnaissance and detection capabilities of the MDTF suggest that it can also conduct these activities, although this is a situational capability as other forces might be better suited to these roles. When operating independently ahead of friendly forces, however, the MDTF could provide initial reconnaissance before other assets are able to arrive.

Combining the tasks and effects that the MDTF can generate also indicates that it could conduct security operations, particularly a screen or advance guard. The doctrinal definition of a screen includes providing early warning while a guard fights to protect the main body, gathers information, and prevents enemies from observing or firing on friendly forces.¹⁷⁴ The advanced reconnaissance and electronic warfare capabilities of the MDTF enable it to provide early warning in a maritime environment while its fires can slow enemy movement to gain time and be used to keep enemy forces out of firing range of other forces as they move through the area it controls.

¹⁷³ Headquarters, Department of the Army (HQDA), Field Manual (FM) 3-90-2, *Reconnaissance, Security, and Tactical Enabling Tasks*, vol. 2 (Washington, DC: Army Publishing Directorate, March 2013), 1-6.

¹⁷⁴ *Ibid.*, 2-1.

The Range of Military Operations

Armed with the list of potential tasks and effects that the MDTF can employ, the next step is to integrate those within the range of military operations. Most defense professionals are familiar with this construct as depicted below showing notional operations across the conflict continuum. The MDTF and its capabilities, tasks, and the effects that it can generate have a role across the entirety of the conflict continuum.



Figure 7. The Range of Military Operations

Source: Office of the Chairman of the Joint Chiefs of Staff, Joint Publication 3-0, Change 1, *Joint Operations* (Washington, DC: The Joint Chiefs of Staff, October 2018), V-4.

The Department of Defense defines military engagement as “routine contact and interaction” between the United States military and the armed forces and civil authorities of another nation, while security cooperation specifically applies to interactions with foreign defense establishments for purposes such as developing their military capabilities and establishing access.¹⁷⁵ The MDTF has no special capabilities that apply to these

¹⁷⁵ CJCS, JP 3-0, Ch 1, VI-3.

aspects of the conflict continuum, although it can conduct security cooperation through joint training or exercises and needs established access in order to be effective in situations higher up the continuum. Other units such as Security Force Assistance Brigades or Special Operations Forces are better suited to security cooperation efforts aimed at building capacity, while the MDTF provides a greater deterrent capability.

JP 3-0 describes deterrence as “preventing adversary action through the presentation of a credible threat of unacceptable counteraction” and notes that forces that cannot conduct decisive operations should be prepared to defend themselves while waiting for support.¹⁷⁶ The MDTF’s long-range capabilities and ability to locate targets present a credible threat to surface forces attempting to interfere in an area where the MDTF is deployed, either through attacks on facilities or on forces attempting to conduct unwelcome operations. Within joint doctrine these activities can be conceived as a type of show of force or protection of shipping operation. The MDTF’s ability to disrupt and interdict forces moving into an area suggest that it would also be able to fulfill the requirement of conducting defensive operations while additional forces move into the region and protect those forces while they are in-route.

The capacity to deter hostile forces is also relevant in crisis response and limited contingency operations further up the conflict continuum. Joint doctrine describes initial response to these situations as deterring aggression and signaling commitment while taking economy of force into consideration.¹⁷⁷ As a relatively small force with an

¹⁷⁶ CJCS, JP 3-0, Ch 1, VI-4.

¹⁷⁷ Ibid., VII-1 – VII-2.

outsized impact due to the amount of firepower it includes and variety of IC2EWS effects it can generate, the MDTF has considerable potential as an initial response force. This is also supported by its expeditionary capability and ability to quickly establish itself in an austere environment.

Typical examples of contingency and crisis operations include noncombatant evacuation operations, peace operations, foreign humanitarian assistance, recovery operations, strikes, and raids.¹⁷⁸ The MDTF is generally ill-suited for most evacuation, peace, and humanitarian operations, although its signal detection and surveillance activities could prove useful during personnel recovery operations in concert with other forces. The MDTF's long-range fires are ideal for locating targets and launching strikes from a distance, but as a raid requires seizing an area the MDTF would have to operate in a supporting role for such a mission.

At the highest levels of the conflict continuum in large-scale combat operations the MDTF would fulfill its primary function once conflict begins, but there are several relevant areas in setting conditions for theater operations where the MDTF can also play an expanded early role. Joint doctrine for large-scale combat operations stresses the importance of maintaining operational access, isolating the enemy, executing flexible deterrent options (FDOs) or flexible response operations (FROs), control of littoral areas, and the difference between opposed and unopposed deployment operations.¹⁷⁹

Unopposed deployment operations are considered preferable as they provide a more

¹⁷⁸ CJCS, JP 3-0, Ch 1, VII-2 – VII-4.

¹⁷⁹ Ibid., VIII-5 – VIII-12.

flexible environment, while opposed deployment operations take place in the context of having to deal with enemy A2/AD establishments.¹⁸⁰

The intended role for the MDTF is in conducting an opposed deployment but based on the capabilities outlined previously early deployment of an MDTF can enable it to contribute to other aspects of setting the theater. This is particularly true in a maritime environment, where an MDTF deployed on key terrain could control enemy access to a space to maintain operational access for friendly forces by controlling littoral areas using shore-based fires. Taking the initiative by deploying the MDTF in this role can turn a potentially opposed entry into an unopposed entry. The MDTF can also be used to isolate potentially hostile forces based on an island by interdicting support using long-range fires or use its electronic warfare capabilities to suppress communication capabilities. Previous discussion on the MDTF as a deterrent show that it can serve as part of a flexible deterrent option with the added capability of acting as a flexible response on command.

Key Terrain and Case Studies

Before launching into individual cases where the MDTF might be utilized in the Indo-Pacific to illustrate its capabilities and the tasks it can conduct overlaid on terrain it is important to set the parameters for the illustrations below. The extreme range of the Long-Range Hypersonic Weapons battery means that in the roles the MDTF will fill in the scenarios below it cannot be collocated with the rest of the unit. There are potentially friendly locations where it can be placed with the ability to range targets within the rest of the MDTF's area of influence for each scenario below. While operational considerations

¹⁸⁰ CJCS, JP 3-0, Ch 1, VIII-12.

would dictate the actual positioning of this unit during an operation, example locations can be found in the illustrations section at the end of this thesis.

All scenarios included below depict the range of the Mid-Range Capability battery, the maximum range of the HIMARS battery, and the range of a PAC-2 missile depicted as red range rings. The latter is included for illustration purposes even though the MDTF does not have an organic capability to conduct long-range air defense operations. Blue rings illustrate the maximum detection range of the Shadow UAS and the maximum calculated detection range of the high-altitude balloon capability from the Multi-Domain Effects Battalion. The detection range of the Gray Eagle is not included on these diagrams as the system's range, endurance, and over-the-horizon communications capability allow it to range to the full extent of the Mid-Range Capability battery. Selection of a surveillance area would be mission-dependent and focus on surveillance of key avenues of approach detailed in the scenario.

The Senkaku Islands, Taiwan, and Ishigaki

Located west of Okinawa, the Senkaku islands have long been an area of contention between China and Japan as discussed in Chapter Two. The islands are uninhabited but are located near shipping routes, surrounded by fish, and may have reserves of oil and gas.¹⁸¹ The remote location of the islands has resulted in confrontations over the disputed territory historically involving naval confrontations or air incursions. One of the largest nearby islands that could potentially host a MDTF in the

¹⁸¹ Center for Preventive Action, "Tensions in the East China Sea," Global Conflict Tracker, Council on Foreign Relations, accessed 15 March 2022, <https://www.cfr.org/global-conflict-tracker/conflict/tensions-east-china-sea>.

event that the United States intended to deter activity in the area of deploy forces in a crisis is Ishigaki island, located east of Taiwan. The figure below depicts the range of MDTF weapon and surveillance systems if deployed to Ishigaki.

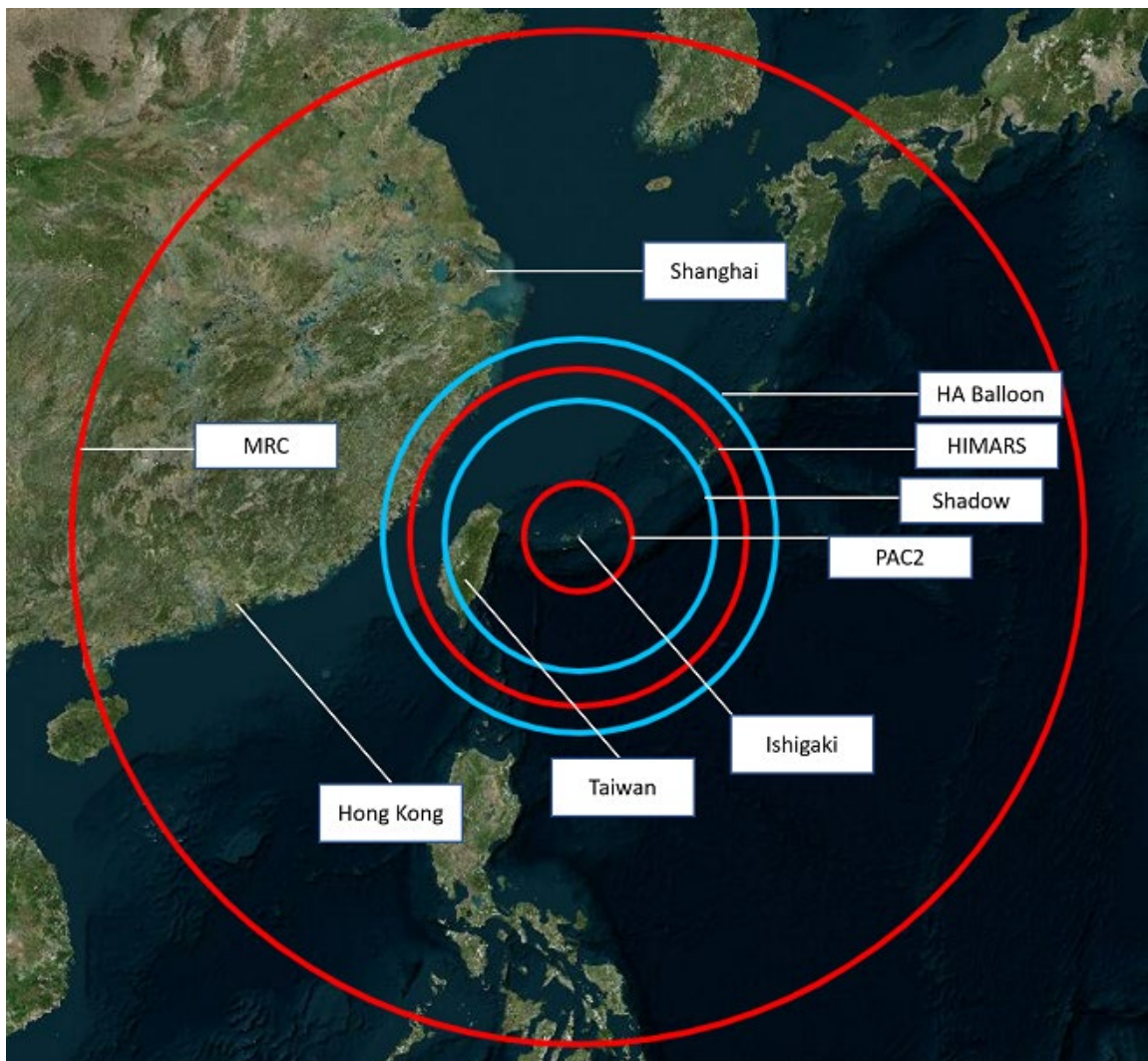


Figure 8. The MDTF on Ishigaki

Source: Created by author using map from DigitalGlobe, “Maxar, Global Enhanced GEOINT Delivery,” accessed 15 March 2022, G-EGD Login (digitalglobe.com).

From this location the MDTF can use its surveillance and detection capabilities to cover the entirety of the disputed region as well as being able to identify and track aircraft and ships departing China's coast adjacent to the Senkaku Islands. The MDTF's Mid-Range Capability battery can provide anti-access capabilities against ships transiting through the South China Sea using the Gray Eagle's surveillance capability. Using the HIMARS to its maximum range also allows the MDTF to conduct area denial operations to deny freedom of movement past the coastline of China and to the south once potential targets pass between Taiwan and the Philippines.

Based on the tasks that the MDTF has been identified as being capable of conducting, this placement allows it to control the region surrounding Ishigaki and retain the Senkaku islands by disrupting naval forces enroute to that location. Deployed as a deterrent, the range of its weapon systems allow it to transition to a response posture and conduct attacks on key port facilities in the region or interdict forces moving into the region. Because the MDTF can control the area between Taiwan and Okinawa from its location on Ishigaki, this also allows it to provide security for naval forces moving south from ports in Japan. This has the potential to allow allied naval forces to proceed much closer to the Chinese coast without coming under direct attack from hostile ships operating in the East China Sea.

In addition to the ability to act in response to a dispute in the Senkaku islands, positioning the MDTF on Ishigaki also places the entirety of Taiwan and most of the Taiwan Strait within the MDTF's area of influence. Although the United States has followed a strategy of deliberate ambiguity on the question of whether it would intervene in the event of a conflict over possession of Taiwan, in such an event an MDTF located

on Ishigaki could use forward surveillance assets to disrupt or interdict an attack on Taiwan. As a result, the presence of an MDTF on Ishigaki during the leadup to a possible conflict could serve as a formidable deterrent. If the United States were unwilling to intervene directly, the surveillance capabilities of the MDTF could still be used to provide intelligence to Taiwan or to other partners within the region.

Palawan, the Spratlys, and the South China Sea

Another hotly disputed region in the Indo-Pacific is the South China Sea, with almost all surrounding nations submitting competing claims for islands, shoals, and the natural resources surrounding them in the shallow waters of the region. This has been of particular concern with the Spratly Islands, which lie within a disputed area between the Philippines and China, and the Paracel Islands which China has increasingly used as a base of operations. Historically close ties and a mutual defense treaty with the Philippines raise the possibility that the United States could become involved if the dispute escalates.¹⁸² As discussed in Chapter Two of this thesis, in such an event the island of Palawan southwest of Luzon could serve as an important strategic location for deployment of an MDTF as depicted in the figure below.

¹⁸² Center for Preventive Action, “Territorial Disputes in the South China Sea,” Global Conflict Tracker, Council on Foreign Relations, accessed 15 March 2022, <https://www.cfr.org/global-conflict-tracker/conflict/territorial-disputes-south-china-sea>.

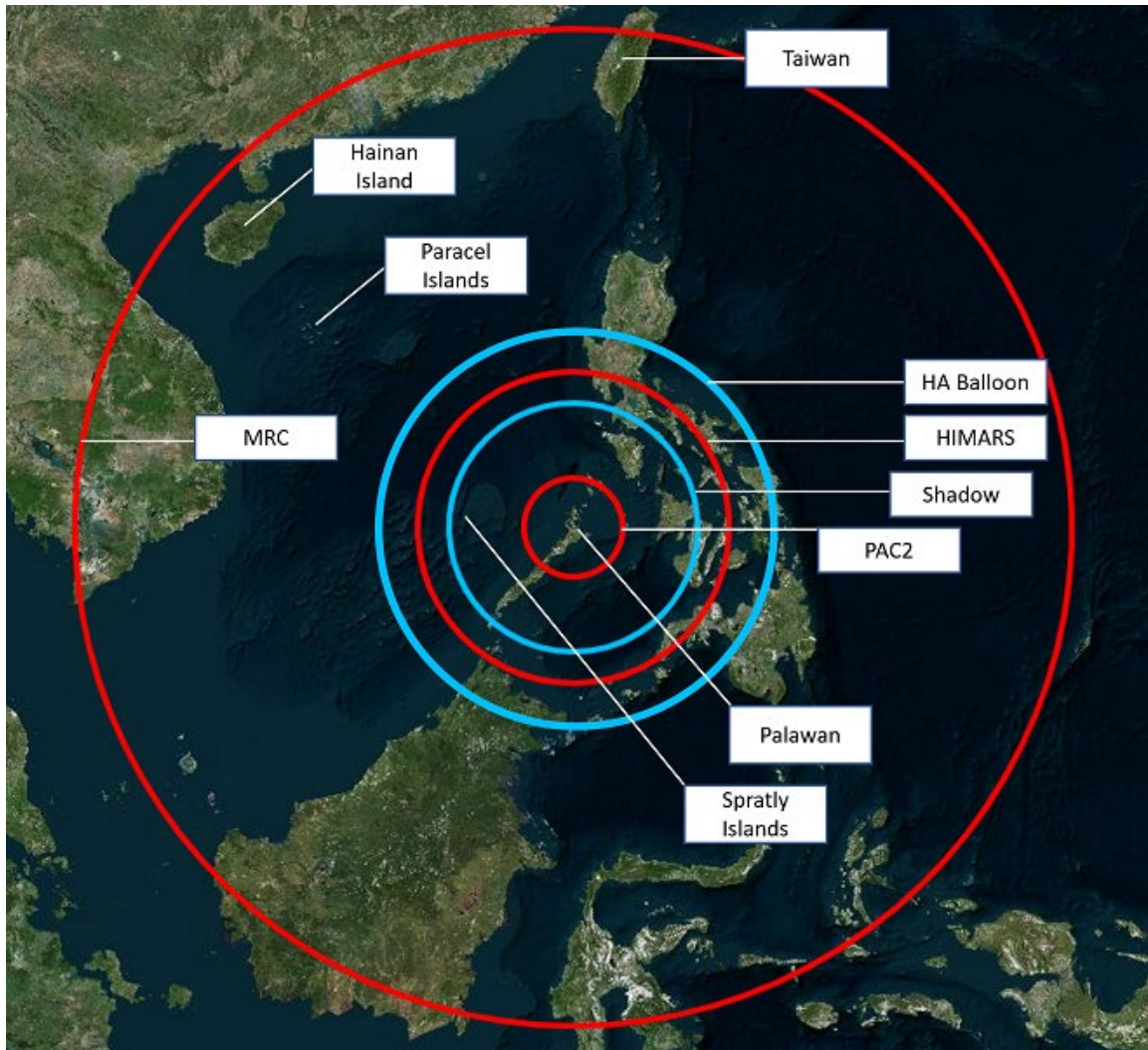


Figure 9. The MDTF on Palawan

Source: Created by author using map from DigitalGlobe, “Maxar, Global Enhanced GEOINT Delivery,” accessed 15 March 2022, G-EGD Login (digitalglobe.com).

From a position on northern Palawan, the MDTF has the ability to detect and target forces moving throughout the majority of the Spratly Islands. The bulk of the islands are within range of the MDTF’s HIMARS fires, enabling area denial activities to restrict enemy movement in the waters around the islands. The Mid-Range Capability battery can deny access from the south and around both sides of Taiwan to the north. It

can also range the Paracel Islands to the northwest and reach ports on the coast of China. The number of potential avenues of approach and potential targets has the potential to stretch the MDTF's Gray Eagle company to its limits, requiring careful selection of surveillance locations to enable continuous operations.

From a task-based perspective, the MDTF has multiple potential roles to play from this location. Its proximity to the Spratly Islands enables it to control the space around them, as well as being able to secure Palawan and the nearby islands by preventing enemy forces from approaching within firing range. The MDTF also has the capability to interdict movements into the South China Sea from either direction or disrupt operations originating from the Paracels or the coast to the north. This enables it to potentially isolate forward bases such as Woody Island in the Paracels through long-range fires and electronic warfare. Finally, the MDTF's control of the southeastern approach through the Philippines protects an avenue of approach for U.S. and allied forces as well as a protected location to stage for follow-on operations.

The Malacca Strait

The previous two examples have focused on the MDTF's potential roles in controlling access and movement within a designated area. The final example examines the capability of the MDTF to interdict movement through a key waterway: the Malacca Strait. As the most direct route between the Indian Ocean and the South China Sea the Malacca Strait is one of the busiest waterways in the world while at the same time being extremely narrow and shallow throughout most of its length.

This makes it particularly susceptible to land or sea-based control, with the long-range fires of the MDTF allowing it to subject incoming forces to an increasing volume

of fire as they continue onward. This can serve to either block enemy forces or turn them and force them into a more distant passage, substantially delaying China's ability to mass forces by moving ships from the Indian Ocean to the South China Sea and vice-versa. The geography of the Malacca Strait allows for several options to deny passage, with the first depicted in the figure below.

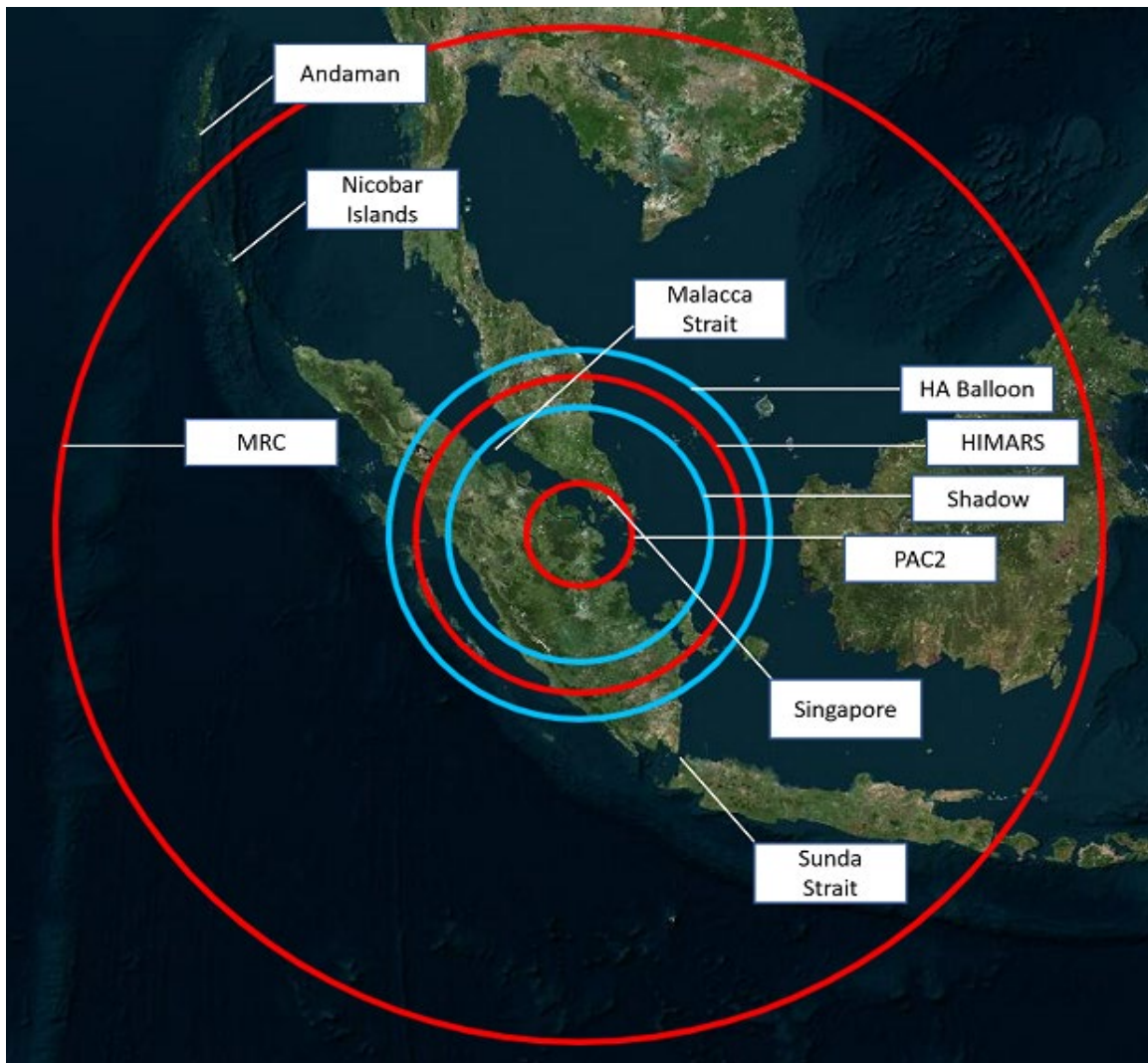


Figure 10. The MDTF in the Malacca Strait

Source: Created by author using map from DigitalGlobe, “Maxar, Global Enhanced GEOINT Delivery,” accessed 15 March 2022, G-EGD Login (digitalglobe.com).

In this example the MDTF is positioned in Sumatra, although the confined terrain within the Malacca Strait would allow a similar effect operating from Malaysia or Singapore. This increases the flexibility of this option by allowing for multiple deployment locations dependent on the currents of international relations. Regardless of the location used, this position provides superior area denial within the Strait while retaining the ability to deny access from either direction through the South China Sea or the Indian Ocean. In addition to denying access to the Malacca Strait, an MDTF positioned near this location can also deny access to the Sunda Strait between Java and Sumatra. This compounds the delay created by denying access to the Malacca Strait, effectively preventing China from combining its naval forces across the region in response to a crisis on either side of the Strait and enabling the U.S. and allied forces to obtain local superiority.

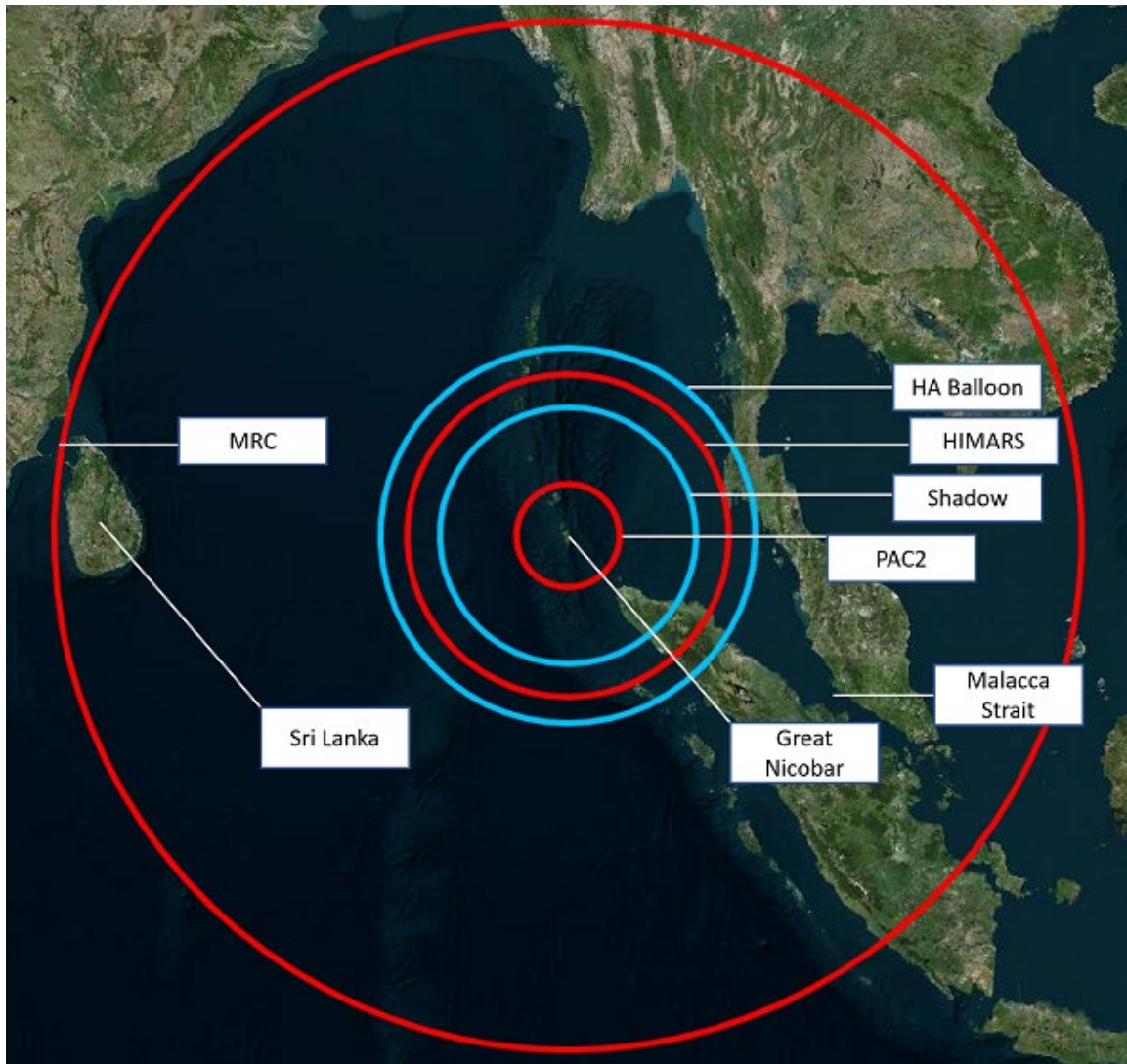


Figure 11. The MDTF on Nicobar

Source: Created by author using map from DigitalGlobe, “Maxar, Global Enhanced GEOINT Delivery,” accessed 15 March 2022, G-EGD Login (digitalglobe.com).

The second alternative depicted in the figure above places the MDTF on Great Nicobar Island. This extends the anti-access capability to the east at the expense of losing the ability to block routes through the South China Sea and Sunda Strait. It retains the ability to deny access throughout the Malacca Strait while providing increased area denial

capability at the mouth of the Strait to strengthen the ability to turn naval forces and drive them to another route. By limiting the number of avenues of approach that the MDTF must cover this positioning also conserves reconnaissance and surveillance assets, increasing their endurance. In this case the duration of the delay imposed by controlling the Malacca Strait from this end is reduced in exchange for a greater probability of success. This deployment is more suited for an attempt to delay Chinese forces in the Indian Ocean from reaching the South China Sea than the reverse, which may be a more effective response based on the level of emphasis placed on the respective regions.

This chapter has analyzed the MDTF based on the requirement documents establishing the capabilities defined for each subordinate element by using open-source information to define the exact ranges and roles of each significant section. After defining the MDTF based on its capabilities the analysis proceeded to put these capabilities against the Army's menu of tasks and effects to show how the MDTF can support the joint force beyond its intended role in penetrating A2/AD spaces. Finally, by templating the MDTF against terrain in the Indo-Pacific this chapter demonstrates how the MDTF can be used in a variety of situations to provide examples of situations where the MDTF could fulfill these new roles. In the concluding chapter, this study will summarize the conclusions from this research and provide recommendations to the force and areas for further study.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

Conclusion: How the MDTF Can Contribute to the Joint Force

To frame the conclusion of this study, the most efficient method is to return to the secondary and primary research questions established in the first chapter beginning with the secondary questions and concluding with the primary question. The first secondary research question asked what the planned future capabilities of the MDTF are based on its design structure. The second secondary research question asks what tasks the MDTF can accomplish outside of its existing doctrinal mission as an A2/AD piercing formation based on those capabilities. The third secondary research question asks how the MDTF's capabilities and the tasks it can perform can be used to shape the operational and strategic environment in the Indo-Pacific. This ties directly into the primary research question, which asks how the MDTF can contribute to the Joint Force in the Indo-Pacific beyond penetrating A2/AD spaces.

Beginning with the first secondary research question, based on the analysis in Chapter Four the MDTF's planned capabilities include the ability to deploy and operate in an austere environment and operate dispersed in at least three locations. The MDTF's organic components provide the capability to detect targets at ranges up to approximately 600 kilometers using signal and electronic intelligence, as well as two types of UAS that can operate on a line-of-sight basis with a detection capability of over 400 kilometers and an over the horizon capability that is only limited by the endurance of the UAS platform. These UAS have a detection footprint of 279 kilometers and 387 kilometers from the

location of the platform itself, allowing the two types of UAS to cover more than 240,000 and 470,000 square kilometers of surface area for each operating platform.

The MDTF is also equipped to maintain satellite and network communications in a contested operational environment and to answer with its own electronic warfare capability. The layered fires capabilities within the MDTF allow it to engage targets simultaneously with three weapons systems at ranges of up to 500 kilometers, two weapons systems out to 1600 kilometers, and up to 2750 kilometers with its Long Range Hypersonic Weapon battery. It does not possess an organic capability to defend against ballistic missiles but has a self-defense capability against Class 1 or 2 UAS, low-flying aircraft, and cruise missiles and can use these assets to protect other forces or locations. This capability is augmented by a defensive electronic attack capability to interfere with enemy UAVs and guided munitions.

Turning to the second secondary research question, the MDTF's capabilities as documented above enable it to control a maritime area and prevent its use by an enemy. This is referred to in other service doctrinal literature as sea denial. It can also perform counterreconnaissance activities in these areas against enemy ships and some types of aircraft. The MDTF has an extremely limited ability to occupy terrain but has a greater ability to meet the doctrinal requirements of retaining or securing terrain by preventing enemies from occupying them or being able to effectively attack them through a combination of long-range fires and defensive capabilities. These long-range fires also allow it to block, canalize, or turn enemy forces from key lines of advance in a maritime environment through an increasing density of fire as enemy ships move closer to the MDTF.

These tasks are accomplished by using the MDTF's fires to disrupt or interdict enemy forces while they are moving, and the MDTF has a limited ability to neutralize or suppress enemy fires and other tactical activities. The MDTF can defeat or destroy small ground forces or larger naval forces and has the capability of isolating enemy forces using a combination of electronic warfare and fires to prevent reinforcement or resupply of enemy forces that are forward of or isolated from the main body. This is particularly true in the maritime environment of the Indo-Pacific, where enemy forces may be operating on small islands. Finally, the MDTF's surveillance capabilities allow it to conduct initial reconnaissance of the area where it is deployed and to conduct limited security operations such as a screen or an advance guard by providing early warning of enemy forces or using long range fires to prevent enemy forces from approaching to within range of friendly forces.

For the third secondary research question, the MDTF can shape the operational and strategic environment in the Indo-Pacific by deploying to key terrain in the region where it can control key seaways and littoral areas. This enables the MDTF to provide security for U.S. and partner naval forces as they enter the region and provide intelligence to those forces as they move into positions. In the event that conflict breaks out during this process the MDTF can strike targets within its area of influence in order to delay, disrupt, or possibly defeat enemy attempts to prevent friendly forces from moving into theater. This can be viewed as an extension of the MDTF's doctrinal mission to defeat enemy A2/AD efforts carried out by establishing its own A2/AD space and establishing local fire superiority ahead of friendly forces.

While not an exhaustive list, this study examined three locations where the MDTF could be deployed in such a role and the function it would perform in that location. The first of these locations was Ishigaki Island, which would allow the MDTF to influence the region around the disputed Senkaku islands or support operations with the Taiwan Straits. A second possible location off the coast of the Philippines offered the ability to influence the South China Sea by exerting control over the Spratly and Paracel islands as well as the sea routes entering the region. Finally, the MDTF can be positioned within the Malacca Strait or at its western end to delay or deny passage of hostile forces and force them onto a longer route that would add multiple days in comparison to a normal transit. This capability is particularly important in the event of a future conflict with China, as it could serve to isolate a portion of China's naval strength from a contested location and allow the U.S. and partner nations to obtain local superiority.

Based on this analysis the answer to the question of how the MDTF can contribute to the Joint Force in the Indo-Pacific stretches across multiple phases of the Joint Combat Operations Model. The presence of the MDTF with its long-range fires and surveillance capabilities can serve as a deterrent to enemy escalation and assist in maintaining operational access for follow-on forces. In the initial stages of a conflict the MDTF can isolate enemy forces and prevent an adversary such as China from massing forces by delaying or disrupting movement of enemy forces. This places the MDTF in line with joint concepts of flexible deterrent and flexible response operations, combined in a single package that can swiftly shift from one type of operation to another. Integrating the MDTF into the Joint Combat Operation Model requires careful consideration of what this expanded role means in that context.

Although there is no one-size-fits-all operational model, JP 3-0 provides an example of how a joint combat operation can be described as a group of interrelated actions divided among operation shaping, deter, seize initiative, dominate, stabilize, and enable activities. The figure below depicts one such operation from beginning to end, with each activity scaled based on the amount of emphasis placed on each type of activity.

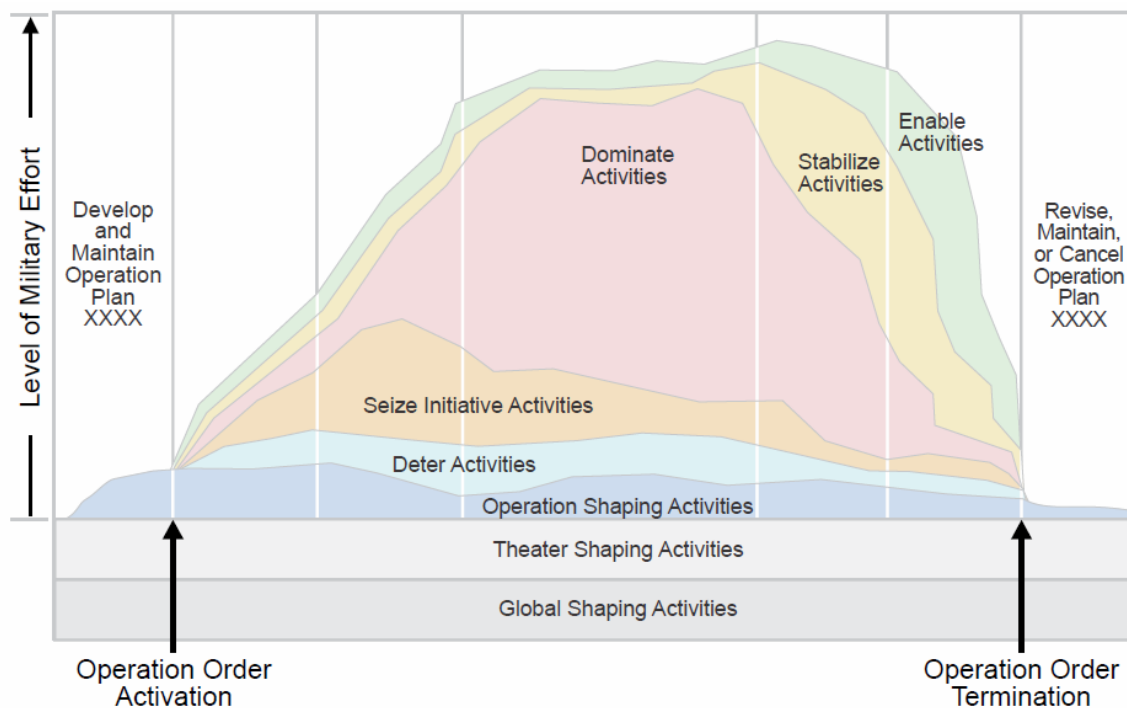


Figure 12. Notional Joint Combat Operation Model

Source: Office of the Chairman of the Joint Chiefs of Staff, Joint Publication 3-0, Change 1, *Joint Operations* (Washington, DC: The Joint Chiefs of Staff, October 2018), V-8.

The figure above depicts a five-phase operation that proceeds from activation of an order to end of mission. The standard use of the MDTF in this figure would most likely occur near the middle of the second phase in support of increases in dominate and

seize initiative activities by penetrating enemy A2/AD spaces in support of an opposed entry. The full range of the MDTF's capabilities and application across the range of military operations indicates that it can be used earlier in the operation during the first phase. This provides several benefits supported by the MDTF's ability to swiftly deploy to a strategically significant location as part of a flexible deterrent option.

As the operation continues the MDTF can act in an operational shaping role by isolating enemy forces and conducting long-range strikes as a flexible response option. In a maritime environment it can use fires to restrict access to the site of a crisis and maintain freedom of movement and operational access for follow-on forces. This serves to protect those forces and increase the flexibility of the operational environment as the combat operation shifts into a phase that is more characterized by dominate activities. At this point the MDTF's role transitions to its normal mission of penetrating A2/AD spaces to enable other operations, although the variety of systems that it employs could also be used against other critical targets and facilities that are unrelated to A2/AD missions as part of conducting long-range precision fires.

Recommendations for the Force

In order to fully realize the potential of the MDTF as described in the answer to the primary and secondary research questions above, there are a total of five recommendations that this study makes to the joint force:

1. Exercise and test the MDTF in an A2/AD capacity to validate the concepts outlined in this study. If they are validated, modify the MDTF's purpose and operational concept accordingly and train to this mission.

2. Develop a concept for deploying the MDTF as a flexible deterrence/flexible response option with a pre-developed movement concept. Train and exercise this concept according to the Brigade Support Battalion's requirement to be able to manage a 96-hour rapid deployment. In order to enhance the capability of the MDTF to conduct deterrence in time sensitive situations this should include an initial operating capability that can execute fires with the first turn of cargo aircraft.
3. Equip and train the MDTF in the Indo-Pacific for reconnaissance and security tasks in the maritime domain and other associated domains by ensuring that multi-function electronic warfare (MFEW) capabilities are available for all UAVs in the MDTF. Develop a version of the Sea Guardian package used on the MQ-9B for the MDTF's Gray Eagle or replace a portion of the Gray Eagle platforms with MQ-9B platforms with that package.
4. To mitigate the MDTF's inability to defend against ballistic missiles the MDTF should either have a Patriot battery added to its Air Defense Artillery battalion or be apportioned a Patriot battery in preparation for future operations. This relationship should be formalized, and the MDTF should then conduct training with the identified unit.
5. To enhance the MDTF's ability to control an airspace in a geographically isolated region where Navy or Air Force may not be able to provide air coverage the U.S. military should develop an extended range anti-aircraft capability. This extended range anti-aircraft capability should have a greater

range than the Patriot PAC-2 and be designed from its inception to receive terminal guidance from forward sensors.

Possibilities for Future Studies

After 20 years of focusing on counterinsurgency operations the United States Army is going through a conceptual reorganization that can be compared to the changes that took place in the 1980s or the interwar period between World War I and World War II. This includes both doctrinal and technological changes, with the MDTF and similar specialized organizations on the leading edge of this movement. Victory in future conflicts will go to the side that makes the most accurate judgments concerning national and international security interests, national defense strategies, offensive-defensive concepts, and requirements and plans for the future of warfare. Making these judgments requires the development of a body of intellectual work that extrapolates from current trends and our best understanding of developing systems.

One of the strengths of the MDTF is that each doctrinal MDTF is expected to be modified for actual capabilities and missions based on the region it will operate while still retaining the same core concept and requirements regarding force structure capabilities and capacities. This allows for future studies similar to this one to be conducted for other MDTFs that consider the unique requirements of each theater. The second MDTF operating in the European theater has to contend with significantly different terrain but may be able to provide unexpected advantages if placed on key terrain in the Baltic Sea or Mediterranean. An MDTF operating in the Arctic will have different requirements and different force structure considerations as well. This provides a unique opportunity to

study those considerations and make recommendations while those units are being designed.

Another possible avenue of study would be examining the MDTF in a multinational construct operating either as part of a multinational joint task force or incorporating similar capabilities from partner nations. The first of these possibilities allows for an expanded appreciation of how the MDTF can operate in concert with other forces as well as how it fits in with a larger military operational concept. A study on similar capabilities existing within partner militaries within a given region could provide a potential framework for using different parts of the MDTF as the core of several task forces to conduct operations in multiple critical locations for an enhanced effect.

The sensitive political climate in the Indo-Pacific means that many nations in the region may be hesitant to directly oppose China also suggests that in some future conflicts a MDTF may be required to operate only from U.S. or Australian territory. Further study in this direction could examine the implications of a MDTF on American Samoa, Guam, or the Northern Mariana Islands. The vast distances of the Pacific Ocean would limit the ability of some components of the MDTF to directly affect China or adjacent waterways but could affect the ability of U.S. forces to access the theater, move within the umbrella of the MDTF, and build combat power in a larger conflict. This placement might also provide an increased role for the MDTF's Long Range Hypersonic Weapon battery.

Finally, a critical assessment of the MDTF's strengths and weaknesses could also be applied against areas where international partners have capabilities that could mitigate those weaknesses. Based on the results of this study, this could include investigating how

allies and partners could assist the MDTF with long range air defense systems. Another promising area would include how other forces could assist in providing defense against ballistic missiles. Additional research could include examining the capabilities of other branches of the Department of the Defense in these areas to create templates for joint force packages that could operate as a quick reaction or rapid deployment force while reinforcing the multidomain capabilities of the MDTF.

The outcome of this research and future research into these areas should be published and widely read to influence the development of doctrine, strategies, requirements, technologies, and operational concepts for future use. Serious mistakes in establishing assumptions, threats, and conditions for designing future forces and understanding their potential can be corrected after the fact, but extract a price in blood, time, and resources when those failures come to light during combat. Study and research supporting mission analysis, threat assessment, and measured responses can help to forestall such a cost or provide a starting point for mitigation efforts once future leaders recognize that an error has been made in the past. The purpose of this study and others like it is to ensure that the MDTF and the rest of the Army's Multi-Domain Operations concept realize their full potential when they are called upon to go into battle.

ILLUSTRATIONS

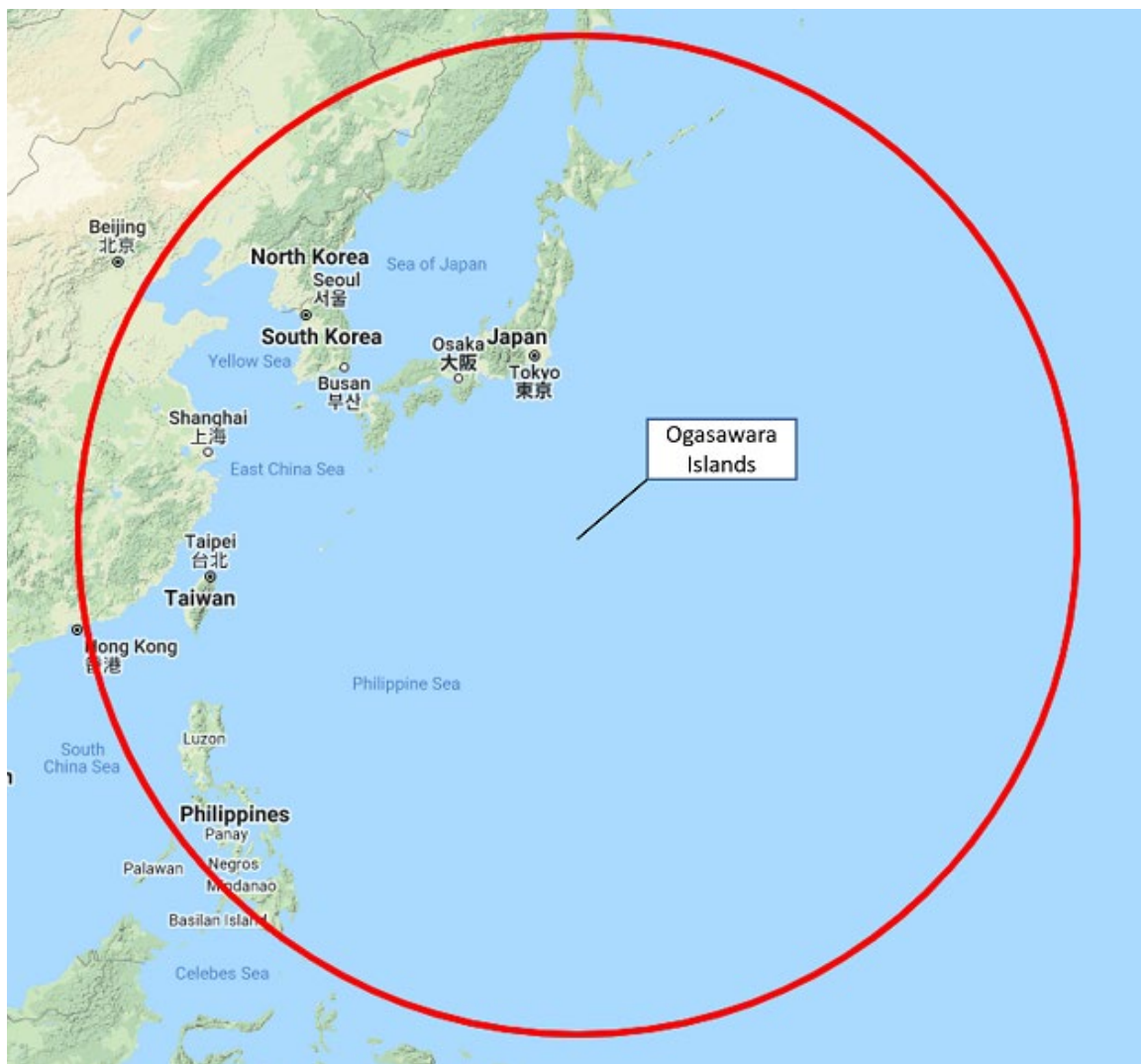


Figure 13. The Long-Range Hypersonic Weapon Battery at Ogasawara

Source: Created by author using map from DigitalGlobe, “Maxar, Global Enhanced GEOINT Delivery,” accessed 15 March 2022, G-EGD Login (digitalglobe.com).



Figure 14. The Long-Range Hypersonic Weapon Battery at General Santos City

Source: Created by author using map from DigitalGlobe, “Maxar, Global Enhanced GEOINT Delivery,” accessed 15 March 2022, G-EGD Login (digitalglobe.com).



Figure 15. The Long-Range Hypersonic Weapon Battery at Christmas Island

Source: Created by author using map from DigitalGlobe, “Maxar, Global Enhanced GEOINT Delivery,” accessed 15 March 2022, G-EGD Login (digitalglobe.com).

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