# STRATEGIC DEPLOYMENT SUPPORT TO THE MULTI-DOMAIN BATTLE CONCEPT

A thesis presented to the Faculty of the U.S. Army Command and General Staff College in partial fulfillment of the requirements for the degree

MASTER OF MILITARY ART AND SCIENCE
General Studies

by

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2018

# REPORT DOCUMENTATION PAGE

*Form Approved*
*OMB No. 0704-0188*



| **1. REPORT DATE** *(DD-MM-YYYY)* | **2. REPORT TYPE** | **3. DATES COVERED** *(From - To)* |
|---|---|---|
| 15-06-2018 | Master's Thesis | AUG 2017 – JUN 2018 |

**4. TITLE AND SUBTITLE**

Strategic Deployment Support to the Multi-Domain Battle Concept

**5a. CONTRACT NUMBER**

**5b. GRANT NUMBER**

**5c. PROGRAM ELEMENT NUMBER**

**6. AUTHOR(S)**

Major Chris J. Sadoski

**5d. PROJECT NUMBER**

**5e. TASK NUMBER**

**5f. WORK UNIT NUMBER**

**7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)**

U.S. Army Command and General Staff College
ATTN: ATZL-SWD-GD
Fort Leavenworth, KS 66027-2301

**8. PERFORMING ORG REPORT NUMBER**

**9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES)**

**10. SPONSOR/MONITOR'S ACRONYM(S)**

**11. SPONSOR/MONITOR'S REPORT NUMBER(S)**

**12. DISTRIBUTION / AVAILABILITY STATEMENT**

Approved for Public Release; Distribution is Unlimited

**13. SUPPLEMENTARY NOTES**

**14. ABSTRACT**

As the United States emerges from 16 years of planning and executing the counter-insurgency fight, Senior Military leaders have identified a peer threat as the largest threat to the United States. In response to this threat, and how senior military leaders view emerging technologies effecting the modern and future battlefields, a new military operating concept is being developed; Multi-Domain Battle. To fight a peer Adversary in this complicated environment, a large ground force will be required to rapidly deploy into an austere environment and fight applying all domains of warfare. This research attempts to answer the question of does the U.S. Military have the strategic deployment assets and capabilities needed to meet deployment requirements to support the new concept. This thesis studies and compares deployment lessons learned from case studies of Operations Desert Storm, Operation Joint Endeavor and Operation Iraqi Freedom and identifies lessons that can be applied to deployment planning and operations in support of Multi-Domain Battle. In addition, current strategic deployment capabilities are analyzed to identify gaps and poses DOTMLPF-P solutions.

**15. SUBJECT TERMS**

Multi-Domain Battle, Strategic Mobility Triad, Operation Desert Storm, Operation Joint Endeavor, Operation Iraqi Freedom, Army Pre-positioned Stocks

| **16. SECURITY CLASSIFICATION OF:** | | | **17. LIMITATION OF ABSTRACT** | **18. NUMBER OF PAGES** | **19a. NAME OF RESPONSIBLE PERSON** |
|---|---|---|---|---|---|
| **a. REPORT** | **b. ABSTRACT** | **c. THIS PAGE** | | | **19b. PHONE NUMBER** *(include area code)* |
| (U) | (U) | (U) | (U) | 101 | |

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

MASTER OF MILITARY ART AND SCIENCE

THESIS APPROVAL PAGE

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The opinions and conclusions expressed herein are those of the student author and do not necessarily represent the views of the U.S. Army Command and General Staff College or any other governmental agency. (References to this study should include the foregoing statement.)

ABSTRACT

STRATEGIC DEPLOYMENT SUPPORT TO THE MULTI-DOMAIN BATTLE CONCEPT, by Major Chris J. Sadoski, 101 pages.

As the United States emerges from 16 years of planning and executing the counter-insurgency fight, Senior Military leaders have identified a peer threat as the largest threat to the United States. In response to this threat, and how senior military leaders view emerging technologies effecting the modern and future battlefields, a new military operating concept is being developed; Multi-Domain Battle. To fight a peer Adversary in this complicated environment, a large ground force will be required to rapidly deploy into an austere environment and fight applying all domains of warfare. This research attempts to answer the question of does the U.S. Military have the strategic deployment assets and capabilities needed to meet deployment requirements to support the new concept. This thesis studies and compares deployment lessons learned from case studies of Operations Desert Storm, Operation Joint Endeavor and Operation Iraqi Freedom and identifies lessons that can be applied to deployment planning and operations in support of Multi-Domain Battle. In addition, current strategic deployment capabilities are analyzed to identify gaps and poses DOTMLPF-P solutions.

# ACKNOWLEDGMENTS

This paper would not have been possible without the help and guidance of Dr. Eric M. Morrison. He is deserving of a sincere and special thank you for his mentorship and commitment to the growth of my professional development. I would also like to thank LTC Chris R. Johnson and LTC Peter C. Boyer for their guidance, professional development and support in making this paper possible. A special thank you to the Transportation School's Historian, Richard Killblane for his assistance and access to his research materials.

I would like to give a special thank you to my wonderful wife, Lori and my special little girl Kate. Thank you as always for your support, patience and the motivation when I needed it most.

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# ACRONYMS

| | |
|---|---|
| AAR | After action reviews |
| APOD | Airport of debarkation |
| AOR | Area of responsibility |
| APS | Army Pre-positioned stocks |
| AMC | Army Material Command |
| BCT | Brigade Combat Teams |
| CCDR | Combatant Commander |
| COIN | Counter-insurgency |
| CONPLAN | Contingency plan |
| CONUS | Contiguous United States |
| DOD | Department of Defense |
| DOTMLPF-P | Doctrine, organization, training, materiel, leadership and education, personnel, facilities and policy |
| GRF | Global Reaction Force |
| HN | Host Nation |
| ISB | Intermediate Staging Base |
| JOPES | Joint Operation Planning and Execution System |
| LMSR | Large, Medium-Speed Roll-on / Roll-off |
| MDB | Multi-Domain Battle |
| MSC | Military Sealift Command |
| MTM/D | Million ton-miles per day |
| NATO | North Atlantic Treaty Organization |
| NDS | National Defense Strategy |

| | |
|---|---|
| NMS | National Military Strategy |
| OSD | Operation Desert Storm |
| OJE | Operation Joint Endeavor |
| OIF | Operation Iraqi Freedom |
| RF | Radio frequency |
| RSOI | Reception, staging, onward movement and integration |
| SDDC | Surface Deployment and Distribution Command |
| SPOD | Sea port of debarkation |
| TPFDD | Time Phased Force Deployment Data |
| TRADOC | Training and Doctrine Command |
| USTRANSCOM | United States Transportation Command |

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# CHAPTER 1

# INTRODUCTION

> Employing Multi-Domain Battle, joint forces with integrated cross-domain capabilities provide a credible capability to deter adversary aggression, deny the enemy freedom of action, ensure joint force access, secure terrain, and consolidate gains.[1]
>
> — Gen. David Perkins, commanding general
> U.S. Army Training and Doctrine Command

As the United States emerges from 16 years of planning and executing the counter-insurgency (COIN) fight, Senior Military leaders have identified a peer threat as the largest threat to the United States.[2] In response to this threat, and how they view emerging technologies effecting the modern and future battlefield, a new military operating concept is being developed; Multi-Domain Battle (MDB).[3] To fight a peer Adversary in this complicated environment, a large force comprised of all branches of service will be required to rapidly deploy into an austere environment and fight applying all domains of warfare.

The U.S. military transportation community concentrated on planning and deploying for the fight against insurgents as part of the COIN fight, this concentration

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[1] David G. Perkins, "Multi-Domain Battle: Joint Combined Arms Concept for the 21st Century," *Association of the United States Army* (November 2016): 6-7, accessed September 30, 2017, https://www.ausa.org/articles/multi-domain-battle-joint-combined-arms.

[2] U.S. Army Training and Doctrine Command, *Multi-Domain Battle: Combined Arm for the 21st Century* (Ft Eustis, VA: Government Printing Office, 2017), accessed September 23, 2017, http://www.tradoc.army.mil/multidomainbattle/docs/MDB_WhitePaper.pdf.

[3] Ibid.

resulted in the skills sets and infrastructure needed to deploy a large force in support of contingency operations to atrophy. For deployments in support of COIN to the Central Command Theater, U.S. planners have relied on deploying forces with little or no equipment due to the fact that units used equipment left in theater by their predecessors.[4] Not having to plan for the deployment of Brigade Combat Teams (BCT) equipment sets allowed planners to easily move critical supplies into theater but caused the loss of much needed knowledge required for large scale deployment planning. In addition, equipment and personnel were deployed into sea ports of debarkation (SPODs) and airports of debarkation (APODs) that were very robust in their capabilities. Future conflict in the MDB concept will likely occur in an austere environment requiring expeditionary deployment capability.

## Purpose

The purpose of this thesis is to examine the current planning and deployment capabilities of the U.S. for a rapid deployment of an Army Corps plus enablers in a contingency operation in support of a MDB force, determine shortfalls and doctrine, organization, training, materiel, leadership and education, personnel, facilities and policy (DOTMLPF-P) capability gaps, compare those results to previous deployments in support of contingency operations and make DOTMLPF-P recommendations to bridge any identified gaps. Senior Army leaders have identified peer advisories as the most dangerous threat currently facing the U.S. and are exploring the development of the MDB

[4] Combined Arms Support Command, "Chief of Transportation Briefing to Command and General Staff Officers' Course" (Power Point Briefing, CASCOM, Ft Lee, VA, 2017), Slides 5-6.

concept as a way to combat this threat.[5] This thesis will explore the current strategic deployment infrastructure in place to deploy a MDB force and identify additional resources required. This thesis will evaluate emerging MDB literature, current strategic deployment capabilities and lessons learned from contingency operation deployments to identify possible DOTMLPF-P solutions and ways to mitigate risk to deployment operations.

With the United States Military focusing on COIN operations over the previous 16 years, the U.S. has let the knowledge and skill sets required for large scale strategic deployments to atrophy. The U.S. military does not currently have the resources and infrastructure in place to rapidly deploy an Army Corps into an area in support of major combat operations in an austere environment as part of the MDB concept to prevent the enemy from achieving their operational and strategic objectives. Senior Army leaders to include the Joint Chiefs Chairman GEN Dunford have identified the "4+1 framework" as the biggest threat to the U.S. National Defense Strategy and a large force would be required to prevent a peer threat from achieving their operational and strategic goals.[6]

[5] U.S. Army Training and Doctrine Command, *Multi-Domain Battle: Combined Arm for the 21st Century*, 5.

[6] Fred Dews, "Joint Chiefs Chairman Dunford on the '4+1 Framework' and Meeting Transnational Threats," Brookings, February 24, 2017, accessed April 4, 2018, https://www.brookings.edu/blog/brookings-now/2017/02/24/joint-chiefs-chairman-dunford-transnational-threats/.

## Significance of the Problem

The MDB concept requires a large U.S. ground force be deployed to a theater in support of operations against a peer threat.[7] The concept also requires that the ground force be deployed into theater and ready for combat operations in a time frame that allows U.S. forces to prevent the enemy from achieving their operational and strategic objectives. If ground forces are not ready to counter the peer threat as part of a MDB force, the remainder of U.S. and possible coalition forces face the threat of being overwhelmed, rendered ineffective and in the most disastrous scenario, annihilation.

Deployments in support of contingency operations for Operation Desert Storm, Operation Iraqi Freedom (OIF) and Operation Joint Endeavor (OJE) required several months from notification to when units were on the ground ready to conduct combat operations.[8] In the next fight against a peer Adversary, U.S. forces will not have several months and therefor will need plans and resources in place to shorten the deployment timeline.

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[7] U.S. Army Training and Doctrine Command, *Multi-Domain Battle: Evolution of Combined Arms for the 21st Century* (Ft Eustis, VA: Government Printing Office, 2017), 17, accessed September 30, 2017, https://www.tradoc.army.mil/multidomainbattle /docs/MDB_Evolutionfor21st.pdf.

[8] James P. Stucker and Iris M. Kameny, *Army Experiences with Deployment Planning in Operation Desert Shield* (Santa Monica, CA: RAND Corporation, 2015), 4; James A Rupkalvis, "The Operation Joint Endeavor Deployment: Transportation Lessons Learned and Impact on Subsequent Operations" (Thesis, Naval Postgraduate School, Monterey, CA, 2001), 6; Richard E. Killblane, "Delivering Victory" (Unpublished Manuscript), 9.

## Research Question

Does the United States possess the strategic deployment assets and capabilities to rapidly deploy a Corps sized force into an expeditionary / austere environment in support of a MDB force against a peer competitor that will allow U.S. forces to achieve our operational and strategic objectives based on time and distance factors?

## Secondary Research Questions

Currently, Training and Doctrine Command (TRADOC) has not defined the size or composition of a MDB force.[9] There are multiple options of what a MDB ground force will be comprised of; "What does the optimal, rapidly deployable, Joint/Coalition/Allied Force consist of and how is that force regulated, controlled, and echeloned into theater?"[10] Ideally, a MDB force will be scalable and tailorable to the potential enemy threat.[11] There are multiple options of what a MDB ground force could be comprised of. One option for planners to consider would be the deployment of a Corps plus enablers. This option would provide a Combatant Commander (CCDR) with two divisions of combat power, plus the combat power of a Field Artillery Brigade, a Combat Aviation Brigade, and sustainment enablers to support the force. The drawback to this option would be it would take several months to deploy and prepare units for combat. The second option would be a BCT with a small package of enablers. The military already has

[9] U.S. Army Training and Doctrine Command, *Multi-Domain Battle: Evolution of Combined Arms for the 21st Century*, 67.

[10] U.S. Army Training and Doctrine Command, *Multi-Domain Battle: Combined Arm for the 21st Century.*

[11] Ibid.

this capability available in the Global Reaction Force (GRF). This option provides the CCDR a small flexible force, capable of a rapid deployment with multiple enablers allowing the force to conduct a large spectrum of operations.[12] The drawback to this option is that the force would be small in numbers and would need to be reinforced quickly.

The U.S. military has decreased the number of organizations responsible for deployment planning and execution in comparison the military of the 1990s. In addition, the size of the staffs that were not cut during the 1990s that are responsible for the planning and execution of large scale contingency deployments that occurred prior to 9/11[13] have decreased.[14] With force structure changes and budgetary constraints, the Army and U.S. military does not have the same structure in place that planned, coordinated and executed large strategic deployments like OSD and OJE.[15] Some examples of reduction include 44 percent loss of Transportation Officers and General Officers in the Department of the Army G44(D), also the Transportation school has been reduced from a staff of 500 to its current strength of 180.[16]

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[12] Christopher G. Pernin et al., *Enabling the Global Response Force: Access Strategies for the 82nd Airborne Division* (Santa Monica, CA: RAND Corporation, 2016).

[13] Combined Arms Support Command, "Chief of Transportation Briefing to Command and General Staff Officers' Course."

[14] Ibid.

[15] Ibid.

[16] Ibid.

## Assumptions

Time will be the largest limiting factor for a MDB deployment due to the equipment set required versus strategic lift availability. It is a simple matter of math, the U.S. military does not possess enough airframes to deploy a Corps plus enablers unless multiple lifts are conducted. The aircraft available to transport personnel and equipment in support of contingency operations will be required to make several turns IOT deploy a Corps in support of a MDB fight against a peer. Even with maximizing air assets, the majority of combat equipment will be required to be moved by the Military Sealift Command (MSC). Several weeks to months must be built into the planning timeline when moving equipment by sea.

MDB force will deploy into an austere environment and planners must account for little to no support available from the Host Nation (HN) for support. U.S. forces have become reliant on deploying into mature theaters with access to developed infrastructure and support.[17] However, in future conflicts planners will need to account for a lack of available resources and deploying units in support of a MDB operation will need an expeditionary capability.

The MDB force that will deploy will include equipment from other services and other nations. In the modern age of conflict, the U.S. does not employ a single branch, all services are deployed in concert with each other. Also, the U.S. will not enter into future conflicts without a coalition providing needed resources and capabilities.

[17] Ibid.

Current projections call for a MDB force to consist of an element ranging from a BCT, to a Corps plus Enablers. The enablers required from the Army requiring deployment by strategic assets will be; Fires, Sustainment, Army Aviation and Signal.

## Definition of Terms

The following definitions will be used throughout the research paper:

Austere Environment: An operational environment with the following characteristics: little or no HN support; limited pre-existing infrastructure and facilities; immature ports of debarkation; inadequate transportation and communications networks; unsophisticated medical, supply, and other services. It is a particularly difficult environment for conducting operations of expeditionary joint forces.[18]

Contingency Operations: Military operation that: is designated by the Secretary of Defense as an operation in which members of the Armed Forces are or may become involved in military actions, operations, or hostilities against an enemy of the United States or against an opposing force.[19]

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[18] Department of the Army, TRADOC Pamphlet 525-7-10, *U.S. Army Contributions to Joint Land Operations from a Joint Sea Base* (Washington, DC: Government Printing Office, 2009), 136, accessed January 12, 2017, http://adminpubs.tradoc.army.mil/pamphlets.html.

[19] Department of Defense, Joint Publication (JP) 4-05, *Joint Mobilization Planning* (Washington, DC: Government Printing Office, 2014), A-4, accessed October 15, 2017, www.jcs.mil/Portals/36/Documents/Doctrine/pubs/jp4_05.pdf.

Counterinsurgency: Those military, paramilitary, political, economic, psychological, and civic actions taken by a government to defeat insurgency.[20]

Expeditionary capability: ability to promptly deploy combined arms forces on short notice to any location in the world, capable of conducting operations immediately upon arrival.[21]

Expeditionary maneuver: the rapid deployment of task organized combined arms forces able to transition quickly to conduct operations of sufficient scale and ample duration to achieve strategic objectives.[22]

Multi-Domain Battle: Multi-Domain Battle: The Evolution of Combined Arms for the 21st Century describes how U.S. ground forces, as part of the Joint Force and with partners, will operate, fight, and campaign successfully across all domains—space, cyberspace, air, land, maritime—against peer adversaries in the 2025-2040 timeframe. MDB is an operational concept with strategic and tactical implications.[23]

Peer adversaries: Those nation states with the intent, capabilities, and capacity to contest U.S. interests globally in most or all domains and environments.[24]

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[20] Department of Defense, Joint Publication (JP) 3-0, *Joint Operations* (Washington, DC: Government Printing Office, 2017), V-4, accessed December 10, 2017, http://www.jcs.mil/Portals/36/Documents/Doctrine/pubs/jp3_0_20170117.pdf.

[21] Ibid., GL-9.

[22] U.S. Army Training and Doctrine Command, *Multi-Domain Battle: Evolution of Combined Arms for the 21st Century*, 75.

[23] Ibid., 77.

[24] Ibid.

Operational Environment: A composite of the conditions, circumstances, and influences, which affect the employment of military forces and bear on the decisions of the unit commander

Operational Support Area: The area of responsibility (AOR) from which most of the air and maritime capabilities derive their source of power, control, and sustainment as well as where ground forces enter theater, organize, and prepare for rapid onward movement and integration.[25]

Strategic level of warfare: The level of warfare at which a nation determines national or multinational strategic security objectives and guidance, then develops and uses national resources to achieve those objectives.[26]

Strategic Support Area: the area of cross-combatant command coordination, strategic sea and air lines of communication, and the homeland.[27]

Tactical Support Area: the area that directly enables decisive tactical operations in the close and extension of capabilities into the deep maneuver and deep fires.[28]

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[25] Ibid.

[26] Department of Defense, Joint Publication (JP) 3-0, *Joint Operations* (Washington, DC: Government Printing Office, 2017), GL-14, accessed December 10, 2017, http://www.jcs.mil/Portals/36/Documents/Doctrine/pubs/jp3_0_20170117.pdf.

[27] U.S. Army Training and Doctrine Command, *Multi-Domain Battle: Evolution of Combined Arms for the 21st Century*, 78.

[28] Ibid.

U.S. Army Corps: Tactical unit larger than a division and smaller than a field army. A corps usually consists of two or more divisions together with auxiliary arms and services.[29]

## Limitations

This thesis will only cover the timelines necessary for the planning, movement and integration of U.S. ground forces. There will be no review of the shaping operations that would be required to take place prior to U.S. forces arriving in an expeditionary environment. Although reception, staging, onward movement and integration (RSOI) operations are vital to the deployment process and timeline, the resources required to establish and conduct the large-scale operations necessary to generate combat power for the CCDR will not be covered in detail during this thesis. There will be no discussion on how a MDB fight will be conducted and the integration of emerging technologies vital for a MDB force.

The U.S. military has developed a range of strategic deployment plans for contingency operations around the globe but these plans are classified and they were not accessible during the research process. Therefore, elements of this research may have already been researched and incorporated into real world deployment plans.

This thesis will also not cover and compare the deployment timelines required by our allied nations. The U.S. will not conduct large scale combat operations without the

[29] Department of Defense, Joint Publication (JP) 1-02, *Dictionary of Military and Associated Terms* (Washington, DC: Government Printing Office, 2009), accessed January 7, 2018, http://www.jcs.mil/Doctrine/.

support of a coalition and these timelines should be factored into the U.S. strategic planning but were not considered by the author during this thesis.

## Scope and Delimitations

The scope of this thesis will consist of the following areas: reviewing current and legacy Army and Joint Doctrine IOT develop an understanding of the requirements of each branch and service as part of the deployment process. Lessons learned, and After Action Reviews (AARs) from previous deployment operations to compare and contrast best practices and lessons learned and to see if the Department of Defense (DOD) has learned from previous experiences. The intent is to show the linkages of previous operations and the lessons we need to carry forward to meet the challenges of the next deployment in support of contingency operations in support of the MDB concept.

## Summary

As U.S. training and doctrine return to preparing for a conflict against a peer threat, TRADOC has begun the development of the MDB concept in response to emerging threats.[30] Due to the potential requirement for a deployment against a peer threat, it is vital that U.S. planners evaluate the timeline and resources necessary to deploy a force needed in a MDB conflict. The shift to preparing for a large-scale deployment in support of a MDB force will require U.S. planners to create deployment plans for every geographic region of the world in place ready to use. In a conflict against a peer threat, the timeline will not support the time and resources needed to develop a

[30] U.S. Army Training and Doctrine Command, *Multi-Domain Battle: Evolution of Combined Arms for the 21st Century*, 1.

deployment plan for U.S. and coalition forces. Reaction to a peer threat will require rapid action by commanders to initiate action IOT notify, activate and deploy forces across the globe.

Future conflict against a peer threat is likely to occur in an expeditionary environment and will require the deployment of U.S. and coalition forces into an austere, underdeveloped or degraded environment.

In chapter 2 the literature review will analyze case studies for large scale deployments that the U.S. has conducted over the previous three decades, look at what emerging literature exists on the MDB concept and review documents on strategic deployment capabilities. The purpose of this review will be to examine the MDB concept to determine requirements for a MDB deployment, determine what U.S strategic deployment capabilities are and identify lessons learned through a DOTMLPF-P lens from previous deployments that can be applied for a deployment in the MDB concept.

# CHAPTER 2

# LITERATURE REVIEW

The purpose of this thesis is to examine the current deployment capabilities and resources needed for the rapid deployment of an U.S. force in a contingency operation in support of a MDB operations into an austere environment, determine shortfalls and capability gaps and to then compare those results to previous deployments in support of contingency operations. Senior Army leaders have identified peer advisories as the most dangerous threat currently facing the U.S. and are exploring the development of the MDB concept as a way to combat this threat.[31] This thesis will explore the current strategic deployment infrastructure in place to deploy a MDB force and identify additional DOTMLPF-P capabilities required. The basis for this thesis will evaluate lessons learned from contingency operation deployments, future requirements for deployments under the MDB concept to identify possible DOTMLPF-P solutions and ways to mitigate risk to deployment operations.

The previous chapter established what the research question is and established a framework for examining the problem. The previous chapter also laid out the significance of the problem as it pertains to the U.S. Army and military at large. Assumptions were also discussed because they are key in establishing the baseline for this thesis. Finally, the limitations of the thesis were addressed.

[31] U.S. Army Training and Doctrine Command, *Multi-Domain Battle: Evolution of Combined Arms for the 21st Century*, 1.

This chapter will explain the research method that will be used to answer the primary and secondary research questions that were proposed in chapter 1. This thesis will use a qualitative research method to study AARs, case studies, doctrine and white papers. This thesis will examine the requirements to deploy a Corps sized force in support of a MDB operation, determine if current strategic assets can support the needs of a MDB and make DOTMLPF-P recommendations on how to overcome any potential shortfalls in capabilities.

This chapter is structured to examine current studies, doctrine, white papers and various other literature that has been developed and published on MDB, strategic assets to enable a deployment in support of contingency operations and U.S. contingency operation deployments occurring over the previous thirty years. The chapter will cover what authors and U.S. military institutions are producing for the MDB concept and the most current developments on the MDB concept. In addition, previous studies on MDB and lessons learned and comparisons from large deployments U.S. military deployments will be examined. This chapter will also cover the various resources that will be researched to determine current strategic capabilities and how those capabilities compare to capabilities available to the U.S. Military thirty years ago. Finally, a summary and conclusion of why an examination of deployment for the MDB concept is needed and beneficial for the U.S. military transportation community will be provided.

## Multi-Domain Battle

When it comes to MDB and the development of the concept, TRADOC has been the leader in advancing the research and publishing literature.[32] The senior leader who began the research and design of MDB is GEN David Perkins. GEN Perkins has been instrumental in championing the cause and advancing the concept amongst the Army community and other branches of service. The first literature on MDB to be published was a white paper by TRADOC that was authored by GEN Perkins from 24 February 2017.[33] The reason this new operating concept is being developed is to prepare the Army for the battle field of the future. This was the first article published that introduced the need to integrate all branches, services and emerging technologies to create windows of superiority against a peer threat that will enable the U.S. to win their future wars.[34]

Subsequent articles published by GEN Perkins and members of TRADOC have elaborated on the concept and begun to explain how MDB will be fought.[35]

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[32] U.S. Army Training and Doctrine Command, *Multi-Domain Battle: Evolution of Combined Arms for the 21st Century*; Perkins, "Multi-Domain Battle: Joint Combined Arms Concept for the 21st Century."

[33] Perkins, "Multi-Domain Battle: Joint Combined Arms Concept for the 21st Century."

[34] Ibid., 6.

[35] Ibid., 7.

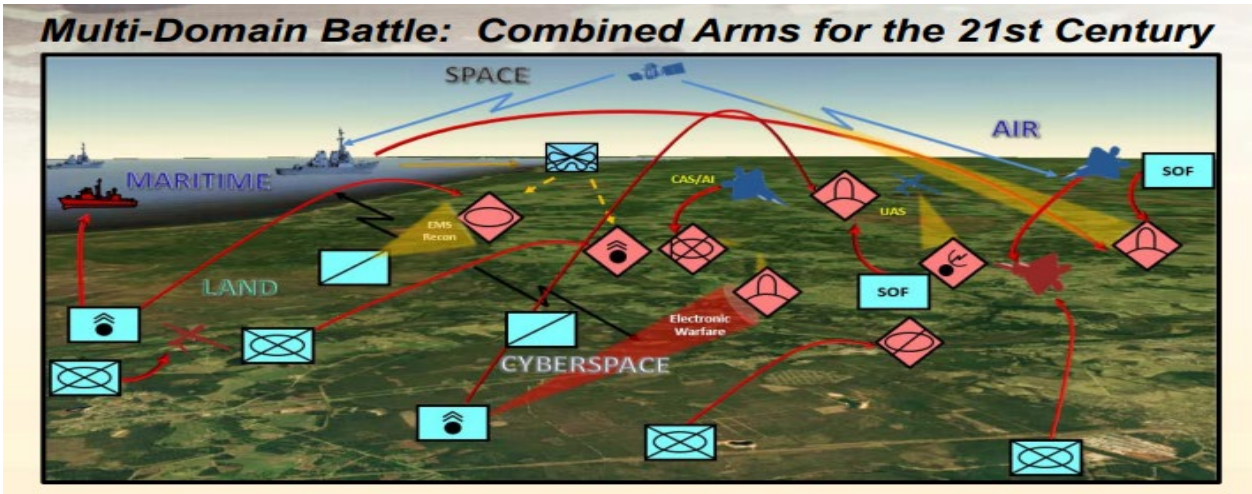


Figure 1. Multi-Domain Battle: Combined Arms for the 21st Century

*Source*: Army Capabilities Integration Center, "Why Multi-Domain Battle," accessed September 20, 2017, http://www.arcic.army.mil/App_Documents /Multi_Domain_Battle.pdf.

The MDB concept calls for "ready ground combat forces capable of outmaneuvering adversaries physically and cognitively through extension of combined arms across all domains."[36] However, in the preliminary stages of development it has not been addressed how these forces will get to the battle field in a time frame where they can prohibit the enemy from achieving their strategic and operational goals.[37] The size, capability and composition of this force has also not been established.

The concept of MDB describes how the Army will partner with other service and coalition partners to operate across all domains of battle—space, cyberspace, air, land,

[36] U.S. Army Training and Doctrine Command, *Multi-Domain Battle: Evolution of Combined Arms for the 21st Century.*

[37] Ibid.

sea against a peer Adversary in future conflict.[38] Within this construct the Army is given the requirement to deploy a force into an austere potentially contested environment within days, not the historical timeline of months.

The most detailed piece of doctrine published by TRADOC in relation to MDB has been; Multi-Domain Battle: Evolution of Combined Arms for the 21st Century, 2025-2040. This literature explains why MDB is important to implement to deter and defeat peer adversaries. Multi-Domain Battle: Combined Arms for the 21st Century defines the central problem as "How will Army forces, as part of the Joint Force and with partners, deter and defeat increasingly capable peer adversaries intent on fracturing allied and Joint Force cohesion in competition and armed conflict."[39]

The future operational environment will be more complicated than any military has encountered due to the advances in technology to include advances made in the cyber and space fields. Evolution of Combined Arms for the 21st Century also defines what the emerging battle field will look like and how the U.S. will need to operate across all domains. The MDB concept identifies five domains that future militaries will be required to operate in. These five domains are air, sea, land, cyber and space. MDB doctrine calls for the U.S. military to create "windows of advantages across multiple domains."[40] The operational framework is also defined and illustrated, and within that framework and rolls and functions of each domain are defined within the different areas of the framework.

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[38] U.S. Army Training and Doctrine Command, *Multi-Domain Battle: Evolution of Combined Arms for the 21st Century*, 1.

[39] Ibid., 21.

[40] Ibid., 23.

The most important piece of information in this document for the transportation community is that the timeline required to deploy forces in support of a MDB operation is dictated to planners. The document states "that Multi-Domain Battle requires a dynamic mix of forward presence forces, expeditionary forces, and partner forces to deter an adversary and, if required, to defeat his plan within days and not months."[41] These elements are directly linked to the portion of the research question addressing whether the U.S. has the ability and capabilities to rapidly project a Corps sized force.

Senior Army Sustainment leaders have identified meeting deployment requirements under the new MDB concept as a priority for the sustainment community.[42] The Army Material Command (AMC) Commander, GEN Gus Perna, the Army Deputy Chief of Staff G-4, LTG Aundre F. Piggee and the Combined Arms Support Command Commander, MG Paul C. Hurley have written articles in the Army Sustainment Magazine discussing the requirement for the Army to rapidly deploy forces across the globe to support a MDB operation.[43]

Evolution of Combined Arms Warfare also lists key required capabilities and supporting actions and future issues for study. Key among these for Transportation officers are:

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[41] Ibid.

[42] Lt Gen Aundre F. Piggee, "A 100-Years-Old Question: Are You Ready to Move Today," *Army Sustainment Magazine* (March-April 2018): 3-4; Maj Gen Paul Hurley and Stacey Lee, "Embracing an Expeditionary Deployment Mindset," *Army Sustainment Magazine* (March-April 2018): 5-7.

[43] Ibid.

1. "Support rapid mobilization, deployment of combat configured forces, and entry operations from multiple locations into austere, complex environments while minimizing the need for reception, staging, onward movement, and integration to sustain operations."[44]
2. "What does the optimal, rapidly deployable, Joint/Coalition/Allied Force consist of and how is that force regulated, controlled, and echeloned into theater?"[45]

Determining how to support a rapid deployment of forces into an austere environment will be the core principal of this thesis.

The Air Force and Marines have also been involved in the concept development process. The other branches of service have specifically studied how they will integrate into the joint environment of the future.[46] Coordination and interoperability between all services will be critical IOT create the windows of superiority that the MDB concept is predicated on. One of the main tenants of the MDB concept is convergence.[47] This concept calls for the integrations of capabilities across domains and functions in time and

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[44] U.S. Army Training and Doctrine Command, *Multi-Domain Battle: Evolution of Combined Arms for the 21st Century*, 59.

[45] Ibid., 68.

[46] David G. Perkins, "Multi-Domain Battle: The Advent of Twenty-First Century War," *Military Review* (November-December 2017): 6-7, accessed March 22, 2018, http://www.armyupress.army.mil/Journals/Military-Review/English-Edition-Archives/November-December-2017/Multi-Domain-Battle-The-Advent-of-Twenty-First-Century-War/.

[47] U.S. Army Training and Doctrine Command, *Multi-Domain Battle: Evolution of Combined Arms for the 21st Century*, 3.

space to achieve a purpose. Integrating the Navy and Air Force capabilities with Army capabilities will be vital in achieving the windows of dominance that MDB hinges on. The MDB literature is emerging and integrating with the other services to produce the doctrine necessary for further development of the concept.

## Contingency Operation Deployments

To facilitate the thesis, unit AARs, RAND Corporation studies, oral histories and a thesis from the Naval War College on deployment operations in support of large scale contingency operations were examined and compared against each other to identify common lessons learned and potential areas to improve deployment planning and operations. Currently no research has been published tying previous U.S. military deployments to the MDB concept.

Data and after actions reviews from ODS, OJE and OIF deployments will be compared in chapter 4.[48] Best practices and lessons learned that can enable successful rapid deployment operations for a MDB operation will be examined through a DOOTMLPF-P lens.

## Operation Desert Shield (ODS)

The Rand corporation published a comprehensive after-action review of deployment planning and operations for ODS in 1993 that was commissioned by the

[48] Stucker and Kameny, *Army Experiences with Deployment Planning in Operation Desert Shield*; Harold E. Raugh and Nels Dolan, eds., *V Corps in Bosnia-Herzegovina, 1995-1996: An Oral History* (Fort Leavenworth, KS: Combat Studies Institute Press, 2010); Rupkalvis, "The Operation Joint Endeavor Deployment"; Killblane, "Delivering Victory."

United States Military.[49] This study was able to identify several areas that the U.S. military was deficient in that caused delays problems with the deployment in support of ODS and made recommendations on how these issues could be fixed for future contingency deployments.

This case study is important to review and study by deployment planners in support of a MDB because ODS was an operation were planners had very little notification, there was no U.S. experience and knowledge of the geographic area and coalition forces were required to deploy into a harsh austere environment against a peer competitor. Factors such as knowledge of the geographic region, having experience in deployment planning and expeditionary requirements are important for current and future planners for a contingency operation deployment against a peer enemy.

This study identified several areas for improvement during the planning and execution phases of deployment operations that have direct implications for planning and executing deployments in support of a MDB operation; creating plans for specific geographic regions well in advance of execution, creation of tailorable force packages must be developed for each contingency plan (CONPLAN) and geographic region and automation systems must be kept up to date and users must remain proficient on the use of the systems.[50]

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[49] Stucker and Kameny, *Army Experiences with Deployment Planning in Operation Desert Shield*, iii.

[50] Ibid., 55.

Operation Joint Endeavor (OJE)

V Corps commissioned an oral history of the deployment planning and operations for OJE.[51] This study conducted interviews with key members of all sections of the V Corps staff and senior leaders. Those personnel interviewed were able to provide insight on lessons learned from the planning process and execution. This study also provided recommendations for future deployment operations.

While Operation Joint Endeavor has several variables that may not be encountered by MDB planners, there are several factors in this case study that will provide valuable insight to MDB planners. Coalition planners had very little notice prior to the planning process, U.S. planners had very little to no knowledge of the geographic region that coalition forces deployed into, Army Pre-positioned Stocks (APS) were used, rail was used for the deployment, an intermediate staging base (ISB) was vital to the deployment, forces required an expeditionary capability and the U.S. enlisted a multi-nation coalition.[52]

Several areas for improvement that have direct implications for planning and executing deployments in support of a MDB operation include; creating plans for specific geographic regions well in advance of execution, effectively using an ISB to conduct RSOI operations when it is not possible to conduct RSOI in the area being contested,

[51] Raugh and Dolan, *V Corps in Bosnia-Herzegovina, 1995-1996*.

[52] Raugh and Dolan, *V Corps in Bosnia-Herzegovina, 1995-1996*, 267; Rupkalvis, "The Operation Joint Endeavor Deployment," 109.

deploying forces into an austere environment that have the appropriate expeditionary capabilities and drawing from APS stock to augment or expedite a force.[53]

The type and capability of deployment assets used for OJE are also analyzed to demonstrate many platforms were required to move a large force incorporating all modes of transportation.[54] The mistakes made and issues encountered during the process such as lessons identified after the operation were incorporated into doctrine, and how that doctrine shaped subsequent deployment operations and planning.[55]

## Operation Iraqi Freedom (OIF)

The U.S. Army conducted numerous interviews with military planners who were the architects of the OIF deployment in the years following the war. These interviews are used to chronicle the history of the deployment and transportation operations of the war. All levels of planner and rank from general officers at United States Transportation Command (USTRANSCOM), to Captains and Majors at the staff level who were the decision makers and developers at every step of the process from inception to when the first units crossed the berm from Kuwait into Iraq were interviewed.[56]

There are lessons learned from the deployment planning and execution that can be used in planning contingency operation deployments today such as the need to have a

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[53] Raugh and Dolan, *V Corps in Bosnia-Herzegovina, 1995-1996*, 267; Rupkalvis, "The Operation Joint Endeavor Deployment," 109.

[54] Rupkalvis, "The Operation Joint Endeavor Deployment," 36-60, 109.

[55] Ibid., 120.

[56] Killblane, "Delivering Victory."

resident knowledge of the geographic area that forces will deploy into and the need to have a deployment plan prepared prior to needing to execute the plan.[57] The issues confronted by senior leaders and planners that were identified as issues during the previous gulf war and were problems for the U.S. in the second gulf war such as planners having little to no knowledge of the area that deployment operations were to be conducted in.[58]

Other areas that the case studies from ODS, OJE and OIF provide insight for a MDB deployment are; experiences of deploying into an austere environment and the effects on units and equipment, the size and composition of the force that was planned for and ultimately deployed and the utility of using units that are forward stationed around the globe to quickly build combat power.[59]

## Strategic Deployment Capabilities

For this thesis all elements of the Strategic Mobility Triad will were examined to determine the capabilities the U.S. has available to deploy combat forces around the globe.[60] These capabilities have changed or been improved since the Operation Desert

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[57] Ibid., 23.

[58] Ibid., 17.

[59] Stucker and Kameny, *Army Experiences with Deployment Planning in Operation Desert Shield*; *Stephen A Carney, Allied Participation in Operation Iraqi Freedom* (Washington, DC: Center for Military History, 2011), 141; Raugh and Dolan, *V Corps in Bosnia-Herzegovina, 1995-1996*; Killblane, "Delivering Victory"; Pernin et al., *Enabling the Global Response Force.*

[60] Military Sealift Command, "Ship Inventory," last modified January 23, 2018, accessed December 10, 2017, www.msc.navy.mil/inventory/inventory.asp?var=PM5; Department of Defense, *Quadrennial Defense Review 2014* (Washington, DC: Government Printing Office, 2014), accessed November 31, 2017,

Shield deployment, to current capabilities available for planners to use in the MDB concept. These changes have come in the form of an increased number of air and sea platforms and a change from the C-141 to the C-17.[61] Some shortfalls and gaps in deploying forces in a future contingency deployment were identified such as the number of air and sea platforms required to rapidly project large amounts of combat power.

The 2014 Quadrennial Defense Report, Strategic Mobility Study and the Mobility Studies Report from 2005 provided a breakdown of what strategic deployment assets are currently in the inventory, and capabilities that are in the current inventory. These assets have changed over time such as the increase in the number of Large, Medium-Speed Roll-on / Roll-offs (LMSRs)[62] and the support that has been provided to major operations such as the increase in the amount of cargo that can be moved by air daily. The MSC website provides data and figures on what the composition and capabilities of the sea lift component of the mobility triad.[63]

The RAND Corporation conducted a study on the employment of the GRF that contains data on the requirements to deploy a BCT in a limited timeline.[64] The RAND

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http://archive.defense.gov/pubs/2014; Kenneth E. Hickins, "Strategic Mobility: Forgotten Critical Requirement of the Contemporary Operational Environment" (Strategy Research Study, U.S. Army War College, Carlisle, PA, 2009), accessed May 9, 2018, http://www.dtic.mil/docs/citations/ADA494718.

[61] Kenneth E. Hickins, "Strategic Mobility," *Army Sustainment* 42, no. 2 (April 2010): 39-45, accessed December 10, 2017, http://www.alu.army.mil/alog/issues /MarApr10/spectrum_strategy_mobility.html.

[62] Military Sealift Command, "Ship Inventory."

[63] Ibid.

[64] Brigadier General Charles Flynn and Major Joshua Richardson, "Joint Operational Access and the Global Response Force: Redefining Readiness," *Military*

study analyzes the type and number of airframes required to deploy the GRF, composition of the unit, timeline for the deployment and the use of ISBs. For the GRF to deploy an augmented BCT to the Middle East or Asia the use of an ISB is be required[65] to provide the Ground Combatant Commander combat ready forces. ISBs provide the U.S. military the capability to house, refuel and build combat power in a location outside of a contested zone.[66] The RAND GRF study analyses the number, type and location of ISBs available for use by DOD planners for a contingency deployment.

AMC is the proponent for the APS assets and also the project manager responsible for the maintenance and accountability for the APS fleet. Information obtained from AMC showed the general location, status and composition of all afloat and ashore stocks that are available in a contingency operation.[67] This data will be useful for planners in the construction of a MDB deployment operation. In addition, historical documents from units that were able to employ APS were researched to determine the effectiveness of applying these assets during a contingency operation. One example of

*Review* 93, no. 4 (July-August 2013): 38-44, accessed January 10, 2018, www.armyupress.army.mil/Portals/7/military-review/Archives/English/MilitaryReview_20130831_art001.pdf.

[65] Ibid.

[66] Ibid.

[67] Derek Povah, "A Brief History of APS," *Army Logistician* (July-August 2000): 6-8, accessed May 14, 2018, http://www.almc.army.mil/alog/issues/julaug00/MS541.htm.

this is the report from the U.S. Army Field Support Command from their deployment during OIF and their experience in fielding APS.[68]

## Peer Threat

To plan for future threats, those threats need to be identified. Senior DOD leaders have identified a peer threat as the most dangerous threat to the future of U.S. national security.[69] More specifically, these peer threats were identified as Russia, Iran, China, North Korea and the threat of an asymmetric conflict as the biggest future threats to U.S. national security.[70] These threats have been classified with the term of "4+1".

## Deployment Planning Infrastructure

The Chief of Transportation, BG Drushal has identified that the transportation community in the Army has lost deployment planning capability and expertise beginning in 2001 due to budget cuts and a shift in national priorities. BG Drushal provided the transportation officers at the Command and General Staff College with a briefing covering the changes in deployment readiness capabilities and infrastructure across the Army and DOD that have occurred during the last 25 years. BG Drushal also made

[68] Ibid.

[69] U.S. Army Training and Doctrine Command, *Multi-Domain Battle: Evolution of Combined Arms for the 21st Century*, 1.

[70] Dew, "Joint Chiefs Chairman Dunford on the '4+1 Framework' and Meeting Transnational Threats."

recommendations on what the DOD, and specifically what the Army can due to increase deployment readiness.[71]

Current Deployment Operations: Pacific Pathways/Atlantic Resolve

Along with acknowledging emerging peer threats, senior military leaders recognized there was a requirement to deter these threats. One option that has been pursued is the positioning of additional U.S. forces in areas potentially at risk to these peer adversaries. To accomplish this deterrence two different operations have been launched by the U.S.; Atlantic Resolve and Pacific Pathways.[72]

AARs and unit standard operating procedures of units that have participated in the Pacific Pathways exercises and Atlantic Resolve were examined to determine if any lessons learned can be applied to the rapid deployment of forces in support of a contingency operation. In addition, U.S. Army Europe and the DOD websites were researched for historical information and what the mission objectives are.[73]

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[71] Combined Arms Support Command. "Chief of Transportation Briefing to Command and General Staff Officers' Course."

[72] Office of the Press Secretary, "Fact Sheet: U.S. Assurance and Deterrence Efforts in Support of NATO Allies," The White House, July 8, 2016, accessed March 23, 2018, https://obamawhitehouse.archives.gov/the-press-office/2016/07/08/fact-sheet-us-assurance-and-deterrence-efforts-support-nato-allies.

[73] United States Army Europe, "Atlantic Resolve," The Official Homepage of United States Army Europe, November 22, 2017, accessed January 15, 2018, http://www.eur.army.mil/AtlanticResolve/; Office of the Press Secretary, "Fact Sheet: U.S. Assurance and Deterrence Efforts in Support of NATO Allies."

## Doctrine

Current Army and Transportation doctrine do not currently contain any reference to MDB, but still provide a valuable resource to research planning requirements and roles and responsibilities in planning and executing deployments. Doctrine and publications from USTRANSCOM Surface Deployment and Distribution Command (SDDC), Joint Publications and the U.S. Army Transportation School did not list MDB. Doctrine was also studied and compared to the lessons identified by the case studies of ODS, OJE and OIF. Several weak points in the deployment process and architecture were identified and current doctrine has tried to correct these areas. In addition, there are areas in the deployment process, specifically the early deployment process that need to be updated in current doctrine. The rolls and responsibilities for deployment planning and release and control of strategic mobility assets like Afloat Pre-Positioned Force and APS listed in JP 4-01: The Defense Transportation System, were examined to determine the release process and authorities. The new Army Field Manual for operations, FM 3-0 was also examined to analyze updates relating to MDB. To research the DOTMLPF-P capabilities process the TRADOC website and TRADOC Regulation 71-20 were examined. These references helped provide context on how the DOD uses DOTMLPF-P to create solutions for capability gaps and requirements.

## Limitations

Due to the sensitive nature of U.S. strategic deployment capabilities in relation to equipment and timelines, there are certain subjects and topics that are classified and cannot be discussed in an unclassified paper. There is enough information from previous deployments that has been unclassified, and a vast amount of open source documents

available. These documents and literature will enable the examination to address the existence of possible capability gaps in planning and deployment requirements for a large scale rapid deployment in support of a MDB fight.

The deployment process is massive and contains many organizations and elements, this thesis will concentrate on the planning process and deployment. Pre-deployment activities, port operations and operations taken by other services will not be discussed. Although a joint force will be integral for a MDB deployment[74] their capabilities, roles and responsibilities in deployment operations was not covered in this thesis.

Due to MDB being an emerging concept there are no manuals, studies or exercise AARs on the subject. This limitation was overcome by reviewing and studying the emerging theories and exploratory literature that has been published.

In the three case studies that were researched for this project, the U.S. and its allies did not face a peer adversary. MDB planners have stated that in future conflicts that the U.S. can expect to fight against a peer threat. The three case studies provided valuable lessons learned for deployment planners but did not include the variable of a peer enemy for study and comparison.

## Summary

In this chapter the current operational environment was addressed to analyze the variables included in the primary and secondary research questions. This process created

[74] U.S. Army Training and Doctrine Command, *Multi-Domain Battle: Evolution of Combined Arms for the 21st Century*, vii.

a framework analyze emerging literature, case studies and strategic capabilities documents to help determine what DOTMLPF-P capability gaps the U.S. military may have in regards to deployment planning for a rapid large-scale contingency operation. Due to the fact that the MDB concept is still emerging, many aspects of the concept have not been fully developed or addressed like the composition of the force and how the force will echelon into theater. However, the MDB literature that currently exists is prescriptive in deployment timeline requirements.[75] This timeline will drive the analysis of what strategic deployment capabilities exist and if they are capable of meeting the required timeline. This thesis will attempt to address and answer the questions of what gaps exist in deployment requirements for planning and capabilities needed to support a MDB fight. The next chapter will look at how the problem statement and procedure for data collection used to gather research information to address the problem statement were determined.

[75] Ibid., 23.

# CHAPTER 3

# RESEARCH METHODOLOGY

This thesis will examine the current deployment capabilities and required resources for the rapid deployment of a U.S. force in a contingency operation in support of a MDB operation. During the research of the thesis, current shortfalls and capability requirement gaps will be identified through a DOTMLPF-P lens and will be compared against previous deployments in support of contingency operations. The reason that the concept of MDB has gained traction in the sustainment community and the Army at large, is that Senior Army leaders have identified peer advisories as the most dangerous threat currently facing the U.S. As a response to the emerging threats, the military community is exploring the development of the MDB concept. This thesis will explore the current strategic deployment throughput assets in place to deploy a MDB force and identify additional DOTMLPF-P capabilities required.

This chapter will address how the design methodology supports the purpose of the thesis to examine the current deployment capabilities of the U.S. for a rapid deployment of an Army force in a contingency deployment in support of a MDB operation.

The previous chapter addressed the current operational environment for answering the primary and secondary research questions. The process included analyzing emerging literature, case studies and strategic capabilities documents to help determine what DOTMLPF-P capability gaps the U.S. military may have in regards to deployment planning and execution for a rapid large-scale contingency operation. This thesis will attempt to address and answer the questions of what gaps exist in deployment planning and capabilities needed to support the required timeline to deploy forces in support of a

MDB operation. The next chapter will look at how the problem statement and procedure for data collection used to gather research information to address the problem statement were determined.

## Data Collection

To address the primary research question, this thesis will be relying primarily on qualitative analysis of case studies, national strategic documents, doctrine and graduate theses to compare and contrast U.S. deployments from the previous thirty years. Data and lessons learned from these sources were compiled to determine requirements for MDB planning and deployment operations, current assets available to deploy a MDB force, how strategic deployment assets have changed and determine if any gaps exist in deployment requirements.

The research began with a review of recently published literature from TRADOC on MDB to review the concept and look at what the concept is, why the change in concept is required and what the deployment requirements are. The information gathered during the analysis of MDB literature helped answer the questions regarding the timeline required to deploy a force in support of MDB. This timeline shapes the information that would be necessary to answer the secondary research questions.

The next step was to review case studies, lessons learned and AARs from previous large scale contingency operation. These sources provided lessons learned through a DOTMLPF-P perspective from the three most recent major deployments from recent U.S. military history, ODS, OJE and OIF. Although all three deployments were unique in the circumstances surrounding them, there were several common variables and areas identified for improvement for future deployments. This understanding made it

possible to answer the subsequent secondary research question of what a MDB force will be comprised of.

To address what a MDB force should be comprised of, the current rapid deployment capabilities[76] already possessed by the DOD and recent historical examples of deploying forces were researched. Once the size of the projected force was established the research moved to what capabilities exist to deploy that sized force in a contingency operation in accordance with the required timeline. Once an understanding of the strategic deployment capabilities was established, the analysis moved to the question of the planning requirements and capabilities needed for a deployment of a Corps sized element.

Other areas that were examined as part of the research process included looking at resources outside of air and sea lift to move a force. This included the capabilities of the APS and the use of ISBs to stage forces and mitigate the time needed for RSOI operations.[77] These sources were valuable to research because they provide planners the tools to rapidly project combat power across the globe.

## Strengths and Weaknesses of the Research Methodology

The thesis will be researched by conducting a case study-based research approach using elements of a qualitative research method. Another weakness of this thesis is that

[76] Pernin et al., *Enabling the Global Response Force*.

[77] Povah, "A Brief History of APS"; John C. Burns, "Strategic Airlift: Our Achilles's Heel" (Research Project, U.S. Army War College, Carlisle Barracks, PA, 2001); Pernin et al., *Enabling the Global Response Force*.

the MDB concept is immature and has not been fully developed. Possible side effects of this are new literature and doctrine being published during the development of this thesis.

Although it was previously listed that the MDB concept being in its infancy was a weakness, it can also be listed as a possible strength. There is a lack of previous literature that could possibly influence the perceptions of the emerging MDB concept. Also, senior Army leaders and logisticians have written articles in Army publications discussing the importance for logisticians to begin preparing to plan and operate in the MDB concept.

## Summary

This chapter presented the research methodology of this thesis. This thesis used the qualitative methodology as shown by the categorical method of data collection and analysis. The design explained how the thesis answered the primary research and secondary questions. Several case studies were examined and compared against each other to determine lessons learned that can be applied by planners for a MDB deployment. Also, common problems and issues amongst the case studies were identified that can be addressed to facilitate the demands of a MDB deployment timeline. The secondary questions were answered through presentation of the research data. The primary research question was answered through evaluation of emerging MDB literature and analyzing case studies. In the next chapter the findings from analysis of the sources will be presented to show how the primary and secondary research questions were answered.

# CHAPTER 4

# FINDINGS

> Our military's strategic advantages are its operational reach and ability to overcome the logistics challenges inherent in projecting our forces forward.[78]
>
> — AMC CDR, GEN Gus Perna

Chapter 3 defined the research methodology for this thesis and how that methodology supports answering the primary and secondary research questions. This chapter uses analyzes the primary and secondary research questions. In review, the primary question is: Does the United States possess the strategic deployment assets and capabilities to rapidly deploy a corps sized force into an expeditionary environment in support of a MDB force against a peer competitor that will allow U.S. forces to keep an enemy from achieving their operational and strategic objectives based on time and distance factors? The secondary questions are: What will a MDB force be comprised of and does the U.S. military have the structure and capacity to plan, organize, resources to execute a large scale contingency operation?

This thesis examines the current deployment capabilities of the U.S. for a rapid deployment of an Army corps in a contingency operation in support of a MDB force, determine shortfalls and DOTMLPF-P capability gaps and then compares those results to previous deployments in support of contingency operations. DOD leaders have identified peer adversaries as the most dangerous threat currently facing the U.S. and are exploring

[78] James S. Moore, "Projecting Our Force: Our Strategic Advantage," *Army Sustainment* 50, no. 2 (March-April 2018): 42, accessed March 5, 2018, https://www.army.mil/armysustainment.

the development of the MDB concept as a way to combat this threat.[79] The current strategic deployment capabilities and requirements in place to deploy a MDB force and additional resources required to meet deployment timeline requirements are the elements of the mobility triad. The lessons learned from contingency operation deployments, current strategic deployment capabilities and future requirements for deployments under the MDB concept to identify possible solutions and ways to mitigate risk to deployment operations are: DOD planners must have a detailed plan for every geographic region on the globe prepared in advance to build a corps sized force of combat power within days of notification using all elements of the mobility triad.

In chapter discusses results and findings analyzed that were discovered from researching emerging MDB literature, case studies, AARs, lessons learned, Strategic Mobility Triad capabilities and doctrine.

## Multi-Domain Battle Concept

MDB is a concept that has been developed to answer the military problem of "How will Army forces, as part of the Joint Force and with partners, deter and defeat increasingly capable peer adversaries' intent on fracturing allied and Joint Force cohesion in competition and armed conflict?"[80] The MDB concept uses all branches of service to

[79] Dews, "Joint Chiefs Chairman Dunford on the '4+1 Framework' and Meeting Transnational Threats"; David G. Perkins, "Multi-Domain Battle: Joint Combined Arms Concept for the 21st Century," *Association of the United States Army* (November 2016): 6-7, accessed September 30, 2017, https://www.ausa.org/articles/multi-domain-battle-joint-combined-arms.

[80] U.S. Army Training and Doctrine Command, *Multi-Domain Battle: Evolution of Combined Arms for the 21st Century*, 23.

converge across all domains to create pockets of superiority and then exploit those pockets. This concept requires the rapid build-up of forces and the convergence of multiple domains and capabilities to deter or defeat a peer enemy. To support this concept DOD planners are required to develop plans that enable the rapid deployment of forces into an austere location.

MDB is an emerging concept so currently published Army doctrine is still evolving, only white papers and a document defining the concept. Other branches of service and Army Warfighting Function communities have begun writing articles defining potential roles and requirements. The Sustainment community specifically has written several articles addressing the concept in the Army Sustainment Magazine. Senior Army Sustainment leaders have identified meeting deployment requirements under the new MDB concept as a priority for the sustainment community.[81] The AMC Commander, GEN Gus Perna, the Army Deputy Chief of Staff G-4, LTG Aundre F. Piggee and the Combined Arms Support Command Commander, MG Paul C. Hurley have written articles in the *Army Sustainment Magazine* discussing the requirement for the Army to deploy forces rapidly across the globe to support a MDB operation.[82] Within the existing documents that have been published in relation to MDB, there is guidance that sustainers can use as planning factors to guide planning for future deployments. Specifically, the sustainment community has been given guidance to conduct deployment planning now in advance of notification of a deployment operation, capture lessons

[81] Piggee, "Multi Domain Battle: Fundamentals in an Evolutionary Environment," 3-4; Hurley and Lee, "Embracing an Expeditionary Deployment Mindset," 5-7.

[82] Ibid.

learned from previous contingency deployments and develop an expeditionary deployment mindset.[83]

In the TRADOC document *Multi-Domain Battle: Evolution of Combined Arms for the 21st Century 2025-2040*, planners propose a radical shift in deployment timeline requirements. This change stipulates that expeditionary forces would be required to deploy within days and not months. This requirement would alter previous military deployment timelines. The previous timeline requirement was given by the Army Chief of Staff to "have the ability to move a medium brigade anywhere in the world in 96 hours, deploy a division in 120 hours, and deploy five divisions in 30 days."[84] This timeline is not viable for the MDB concept, and alternatives to deploy a large ground force must be identified or ways to augment current capabilities must be researched.

There is currently a large missing piece in the MDB concept, the size of the force required to deploy. It is possible that several tailorable forces will be identified based on the CCDR's requirements. For the purposes of this thesis, corps sized element was selected for planning considerations. Based on the assumption that a corps sized force will be the largest force that a CCDR can realistically expect to have deployed into their AOR in the shortened timeline.

MDB planners have identified several options for force posture that will enable the rapid response to defeat an enemy:[85]

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[83] Moore, "Projecting Our Force: Our Strategic Advantage," 42.

[84] Hickins, "Strategic Mobility," 8.

[85] U.S. Army Training and Doctrine Command, *Multi-Domain Battle: Evolution of Combined Arms for the 21st Century*, 19.

1. Increase the number of U.S. military units stationed forward and require these units to be able to respond to contingency operations within a compressed timeline. Having units forward stationed across the globe provides several benefits for the rapid deployment of forces. Fewer key strategic assets like MSC vessels and airlift would be required to move forces. The deployment timeline can also be reduced by not having to complete the RSOI process for units already in a geographic area. Units forward stationed will have an institutional knowledge of the area they are deploying into. Also, units forward stationed will have equipment designed to operate in the environment, the equipment will not require acclimatization.
2. Expeditionary forces will be required to rapidly enforce forward stationed units. CCDRs will be heavily reliant on expeditionary forces to deploy quickly after notification and be fully operational shortly after arrival in theater.
3. Partner forces that are militarily integrated will be critical in providing unique capabilities to augment U.S. units. CCDRs will be heavily reliant on partner nation's ground forces to augment combat power. In addition to ground units, partner forces can also enable access to ISBs, SPODs, APODs or the use of airspace and shipping lanes.

The MDB operational framework uses the previous warfighting concept of Air Land Battle used by the U.S. military and expands on the framework of deep, close and support areas (see figure 2). MDB identified that with the addition of new domains and

capabilities it is necessary to expand the framework by splitting the Support and Deep areas into three separate zones.[86]

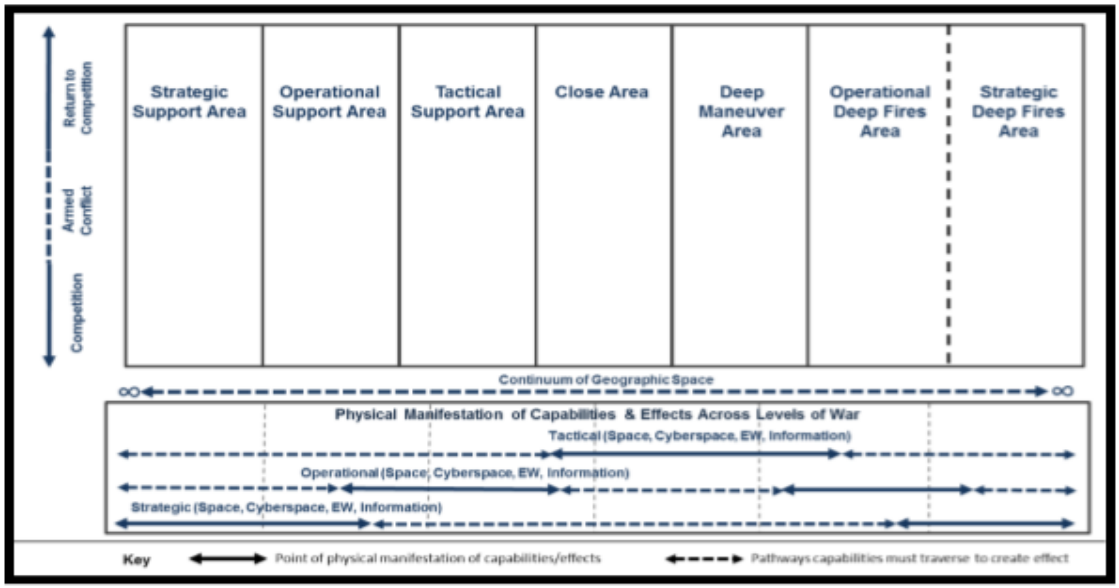


Figure 2. The Multi-Domain Battle Operational Framework

*Source*: U.S. Army Training and Doctrine Command, *Multi-Domain Battle: Evolution of Combined Arms for the 21st Century* (Ft Eustis, VA: Government Printing Office, 2017), 9, accessed September 30, 2017, https://www.tradoc.army.mil/multidomainbattle/docs/MDB_Evolutionfor21st.pdf.

The support areas represent regions where U.S. and allied partners will have the most freedom of movement and are the least contested. These areas extend all the way back to home station but are still susceptible to enemy interdiction from the cyber and space domains. The support areas can cross multiple combatant commands. Coordination

[86] U.S. Army Training and Doctrine Command, *Multi-Domain Battle: Evolution of Combined Arms for the 21st Century*, 8.

will need to occur between several combatant commands to ensure deployment operations are not vulnerable to attack from any of the five domains.[87]

The importance for deployment planners is identifying where deployment operations will occur, what authorities are needed to operate in each area, what threats will be faced, and what resources are available to enable deployment operations. Deployment operations will take place in the following areas:

1. The Strategic Support Area: This area includes air and sea lines of communication and the industrial base. This area is where strategic deployment assets are located, pre-employment activities occur and units begin deployment. This area is most susceptible to attack from cyber and space domains to disrupt and degrade deployment operations.[88]
2. The Operational Support Area: This area is where U.S. units are forward stationed and partnering with coalition nations. This area also contains key command and control, sustainment and pre-positioned capabilities. This area also contains ISBs, SPODs and APODs that will used to receive deploying units and is where RSOI operations will take place. This area is vulnerable to attack from all five domains due to the proximity to enemy weapon systems.[89]
3. The Tactical Support Area: This area directly enables operations in the Close and Deep areas. This area will contain forward stationed units and pre-

[87] Ibid., 10.

[88] Ibid.

[89] Ibid., 11.

positioned stocks. Deployment and RSOI operations will occur in this area as will sustainment operations needed to support a MDB force. This area is also open to attack from all five domains due to the proximity to enemy weapon systems.[90]

Under the MDB framework, all support areas are vulnerable to attack from multiple domains. In particular, deployment assets are vulnerable to attacks in the cyber domain. From the port to the fort, deployment assets and infrastructure are vulnerable to attack and interdiction in multiple domains. In current and future wars there are no boundaries, multiple commands, and agencies will be required to partner to ensure deployment operations security from all domains.[91] The transportation community will be required to partner with the cyber community to ensure vulnerabilities to strategic deployment assets are monitored and protected.

[90] Ibid.

[91] Ibid., 12–15.

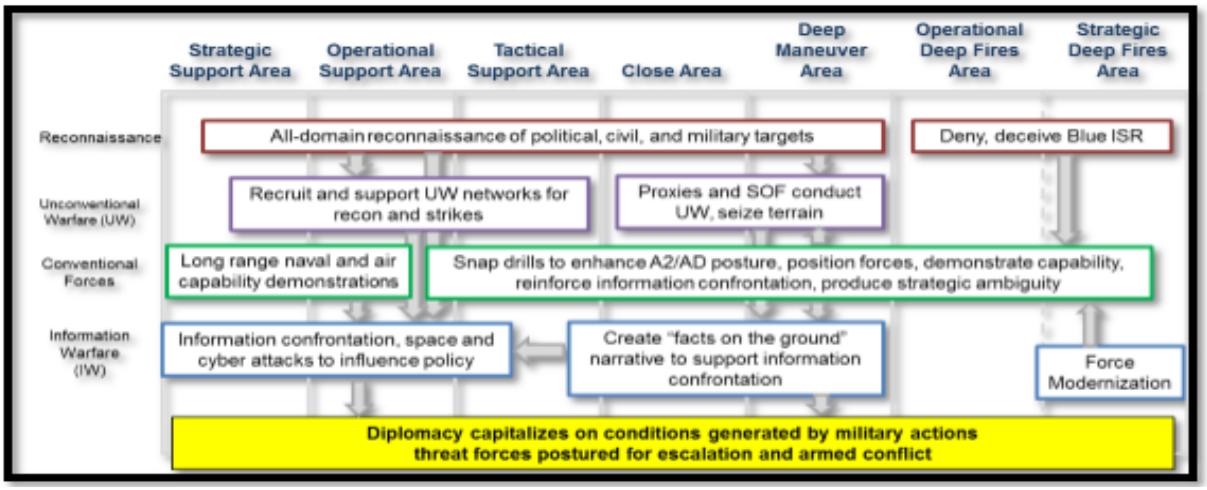


Figure 3. Adversary Military Systems in Competition

*Source*: U.S. Army Training and Doctrine Command, *Multi-Domain Battle: Evolution of Combined Arms for the 21st Century* (Ft Eustis, VA: Government Printing Office, 2017), 13, accessed September 30, 2017, https://www.tradoc.army.mil/multidomainbattle/docs/MDB_Evolutionfor21st.pdf.

Peer adversaries can attack strategic, operational and tactical targets simultaneously across all domains. Peer adversaries have the military systems to monitor deployment preparations and operations at home station and in-transit, conduct information campaigns within the U.S. that could disrupt deployment operations and in a conventional war deploy long range weapon systems capable of damaging strategic deployment assets and facilities.[92]

The MDB concept requires planning an aggressive timeline of deploying ground forces in days not weeks[93] in support of a contingency operation against a peer threat in

[92] U.S. Army Training and Doctrine Command, *Multi-Domain Battle: Evolution of Combined Arms for the 21st Century*, 12.

[93] Ibid., 23.

an austere environment. Planners and senior military leaders need to begin the planning and coordination process now to create plans that will shorten response time and ensure all services will be synchronized in the execution of the operation.

## Case Studies

### Operation Desert Shield

The Iraqi invasion of Kuwait on August 2nd, 1990 came as a surprise to U.S. military planners. There was no early warning and no CONPLAN or Time Phased Force Deployment Data (TPFDD) had been developed for a U.S. deployment to the Persian Gulf Region.[94] In addition to not having a plan for deployment, planners had little to no knowledge of the region, had assumed any large scale deployment planning would be predictable, requirements would be clearly defined and the units needed to deploy and conduct large scale combat operations would be obvious and quickly available.[95] This was the first post-Cold War unplanned for large scale contingency deployment. The U.S. military community learned valuable readiness and deployment lessons the hard way during the planning, preparation and execution of ODS deployment operations.

[94] Stucker and Kameny, *Army Experiences with Deployment Planning in Operation Desert Shield*, ix-x.

[95] Ibid., 28.

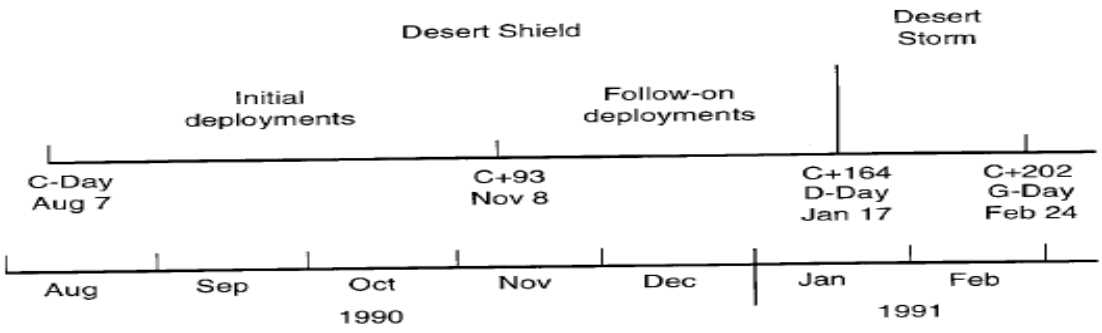


Figure 4. ODS Timeline

*Source*: James P. Stucker and Iris M. Kameny. *Army Experiences with Deployment Planning in Operation Desert Shield* (Santa Monica, CA: RAND Corporation, 2015), 29.

Prior to the planning efforts for the First Gulf War, U.S. planners had experience in real-time, small scale, well planned deployments such as Grenada and Panama.[96] There was little to no experience in planning for a rapid, no notice undefined contingency operation. The planners were operating under the assumptions that future deployments would occur against a known threat, requirements would be clearly defined, the forces and capabilities needed to respond against the threat would evident and ready for deployment and that the plan for the deployment would have already been created and would require few updates or adjustments.[97]

The challenge that confronted military planners was an Iraqi Army that invaded Kuwait with no early warning.[98] The campaign plan and deployment operations had to be

[96] Ibid.

[97] Ibid., 28-31.

[98] Richard W Stewart, *War in the Persian Gulf: Operations Desert Shield and Desert Storm August 1990-March 1991* (Washington, DC: Center of Military History, 2010), 1-4.

created from scratch with no clearly defined force size requirement. In addition, U.S. planners had little knowledge of the Persian Gulf region. They did not know the capabilities of the APODs and SPODs and they did not know the geography, climate, and terrain of the area of operations they were deploying forces into.[99]

DOD planners struggled with what the size, capabilities, and composition of the force that would be required to deploy to meet the Iraqi Army, the fourth largest Army in the world in 1990.[100] Ultimately, planners settled on a force comprised of a corps sized element consisting of an airborne division, an air-assault division, two heavy divisions, an armored cavalry regiment and support units.[101]

A DOTMLPF-P category that U.S. units struggled with was material. Units deployed into an austere environment that did not have pre-established facilities or a life support system. Units were required to deploy with supplies and equipment that would help them survive the austere conditions. Units encountered degraded equipment operational readiness rates due to harsh desert conditions[102] because planners failed to plan and prepare equipment for the harsh environmental operating conditions. Units also suffered degraded capability due to restricted working hours because of the high temperatures.

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[99] Stucker and Kameny. *Army Experiences with Deployment Planning in Operation Desert Shield*, 28.

[100] Ibid., 2.

[101] Ibid., 3-4.

[102] Ibid., 7.

Another material problem that plagued planners and those executing deployment operations were issues with automation. This challenge was partly due to a reliance on aging computer systems that used an integrated planning system that had been developed in 1973 Worldwide Military Command and Control System.[103] Also, the military and different services used multiple automation systems to create and track deployment data and the different systems were unable to communicate with each other. This failure created the problem that different levels of planners did not have a system to link the planning efforts in real time. Another issue affecting the effective use of automation was the lack of training on the systems. The Joint Operation Planning and Execution System (JOPES) version three was fielded during the ODS deployment. This program gave operators little to no time to train on the new operating system. These issues contributed to confusion among planners at all levels and hindered the sharing deployment data needed for planning and execution.[104]

Ultimately, the deployment took over six months to execute, involved the deployment of three hundred thousand service members, moved one million tons of equipment and supplies and used over four hundred ships for the operation.[105] The largest deployment of troops and equipment since World War II deployed into an austere environment where little was known about the terrain or environment.

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[103] Stucker and Kameny, *Army Experiences with Deployment Planning in Operation Desert Shield*, 16-20.

[104] Ibid., 16-22.

[105] Ibid., ix.

Lessons Learned from ODS and the applicable DOTMLPF-P Domains

Detailed pre-existing deployment plans (Policy/Personnel)

Detailed deployment plans for contingency operations need to be prepared prior to a crisis occurring. This planning includes feasibility studies of the throughput capability of potential deployment locations. Planners for ODS had to use valuable time identifying the critical infrastructure needed for a large-scale deployment and determining if the facilities had the capabilities required to receive coalition forces.[106]

Deployment Plans for all Geographic Regions of the Globe (Policy)

Deployment plans need to be created for every geographic region in the world. In the modern political climate our next potential adversary is unknown and CONPLANs must be created and maintained for all possible scenarios. Different environments will require specific types of units which will drive equipment and supply requirements. Each geographic region on the globe has its own problem set that must be taken into account and planned for.

Pre-Established Force Packages (Organization)

Tailorable force packages must be developed for each CONPLAN and geographic region. Potential MDB forces could range in size from a Corps to BCT and each size force will have different requirements for deployment. These force packages should include equipment lists that are uploaded into JOPES to facilitate rapid planning and deployment operations. As part of planning force packages planners need to take into

[106] Ibid.

account available APS and units that are forward stationed in the geographic region. If these steps are taken planners will be able to quickly identify units required to respond to a crisis and dedicate the appropriate strategic deployment assets.[107]

Increased Strategic Mobility Capability (Material)

AARs conducted revealed that the deployment of U.S. forces took too long and our enemy had the opportunity to interdict our deployment. After ODS Congress directed DOD to identify ways to increase U.S. strategic deployment capabilities. As a result, the military acquired the C-17 fleet, twenty additional LMSR vessels and the establishment of the APS program.[108]

Creation of Prepositioned Stocks (Material)

DOD recognized the need for equipment and supplies to be forward stationed around the globe for the U.S. to respond to a crisis faster. Having stocks positioned around the globe decreases deployment timelines and lessons the burden put strategic deployment assets.[109] These stocks are comprised of supplies, combat unit equipment sets and sustainment unit sets.[110]

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[107] Ibid., 52.

[108] Hickins, "Strategic Mobility."

[109] Ibid.

[110] Povah, "A Brief History of APS," 6-8.

Expeditionary Capability (Material)

Units deploying in future operations will need to deploy with the supplies and equipment they will need to be self-sufficient. Future deployments in support of contingency operations will occur in austere environments with no pre-established facilities for units to use. Units will need to deploy with expeditionary capability to conduct operations and sustain themselves until a logistics support system can be established.[111]

Updated and integrated Automation (Material)

Automation systems and software must be kept up to date and able to communicate from the user level to the strategic planners. Also, it is imperative that units keep their Soldiers up to date on training certifications. The knowledge required to operate the required automation for deployment planning, execution and tracking is a perishable skill. When units are called to execute a deployment for a contingency operation time will be a critical factor and units will not be afforded the luxury of conducting refresher training on critical systems.[112]

Austere Environment (Material/Training)

U.S. ground forces deployed into an environment that was harsh and the extreme conditions degraded unit and equipment readiness. Due to the heat, Soldiers were placed

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[111] Stewart, *War in the Persian Gulf: Operations Desert Shield and Desert Storm, August 1990-March 1991*, 7.

[112] Stucker and Kameny, *Army Experiences with Deployment Planning in Operation Desert Shield*, xi.

on a restrictive work schedule that only allowed them to work at night. This created a longer timeline to prepare facilities as part of the RSOI process. Also, the environment had an effect on equipment. The extreme heat and sand created a decreased operational readiness rate of vehicles.[113]

## Operation Joint Endeavor (OJE)

With the signing of the Dayton Peace Accord on December 14, 1995, U.S. and Coalition forces were required to deploy a large multi nation coalition, on short notice, across hundreds of miles of unknown roads, during winter conditions and across a major river. Due to the forward thinking and months of planning by U.S. military leaders and planners in Europe, this deployment was executed within the required timeline and a force of over 31,000 Soldiers were deployed into an austere environment.[114]

> This deployment would prove to be the largest overland deployment of U.S. military forces ever. Over 11,000 pieces of equipment and 160,000 tons of supplies were moved in a very short time frame. To accomplish this, USAREUR used 409 trains, 7,340 rail cars, 507 commercial buses, 1,770 trucks and 1,358 aircraft sorties.[115]

Beginning as early as 1991, U.S. Army leaders in Europe began to develop CONPLANs in response to the crisis that was occurring in the former Soviet Republic of Yugoslavia. The plans centered on deploying a ground-based response force comprised of forward stationed U.S. units, North Atlantic Treaty Organization (NATO) partner

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[113] Stewart, *War in the Persian Gulf: Operations Desert Shield and Desert Storm, August 1990-March 1991*, 7.

[114] Raugh and Dolan, *V Corps in Bosnia-Herzegovina, 1995-1996*, 126.

[115] Ibid.

nations across European roads and railways to respond to a crisis or enforce a future peace agreement. Planners quickly ran into many sustainment issues. Chief among them was being limited by a possible force cap, the number of which was not released by key leaders in Washington DC prior to November 1995. The geography of the region that the coalition forces would occupy was unknown to coalition planners, there was no deployment plan that could be updated and implemented, and the geographic region forces were deploying into was austere and had very few HN facilities that could be used. Finally, even though planning began well in advance, the timeline to complete planning was compressed due to political decision making.[116]

Planners were limited in the number of Soldiers they could deploy by a force cap imposed by senior military and political leaders. Ultimately, the force that deployed across Europe by air, land and sea was comprised of a division sized element plus support elements totaling 14,900 Soldiers.[117]

Army planners did learn several important lessons from ODS that they were able to implement in the execution of the deployment. Chief among these were planners implemented the use of radio frequency (RF) tags to track the movement of items during the deployment and subsequent sustainment mission. The results of the use of RF tags were mixed but planners did see an improvement over operations conducted during ODS.[118]

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[116] Ibid., 228.

[117] Rupkalvis, "The Operation Joint Endeavor Deployment," 17-18.

[118] Ibid., 91-92.

Deployment Plans for all Geographic Regions of the Globe (Policy/Personnel)

Deployment plans need to be created for every geographic region in the world. This issue was identified in the ODS AAR and was also listed as a lesson that should be learned from in the OJE AAR.[119] OJE deployment planners were required to start their planning without a previous deployment plan to reference. OJE planners did not have current maps that they could use, every part of the planning started from scratch. Vital time during an already compressed timeline was spent conducting research and developing concepts that should have already been done well in advance of a plan being needed. The time spent on researching port capabilities, road and bridge statuses and HN facilities available prevented planners from developing a TPFDD. This had large second and third order affects during the deployment. With no TPFDD the sequencing of units flowing into the AOR was desynched from what planners had templated. The end result was that combat units arrived in theater with no logistical support and were stuck in assembly areas and were unable to transition to tactical formations.[120]

RSOI Doctrine (Doctrine)

Prior to the OJE deployment there was no formal RSOI doctrine. There was a lack of emphasis on the importance of RSOI operations and the proper sequencing of units

[119] Raugh and Dolan, *V Corps in Bosnia-Herzegovina, 1995-1996*, 208.

[120] Rupkalvis, "The Operation Joint Endeavor Deployment," 211.

into theater. This led to a compressed timeline with a personnel shortage required to establish the ISB.[121]

Austere Environment (Material/Training)

Croatia, Hungary and Bosnia had very few facilities that coalition forces could use for RSOI operations and basing.[122] In addition, the U.S. units that deployed had very little expeditionary life support capability and units deployed in the coldest period of winter in December 1996 and January 1997. This created very harsh living and operating conditions for the Soldiers and hindered the mission. Eventually the employment of Seabees and an Air Force Red Horse Teams followed by the late deployment of Logistics Civil Augmentation Program personnel mitigated and overcame the quality of life issues. The lack of life support organic to the deploying units and the harsh environment they were deploying into could have been identified, planned for, and solved prior to the deployment. This is a lesson for MDB planners, for each geographic region necessary life support equipment needs to be identified to give deploying units an expeditionary capability.[123]

Use of an ISB to conduct RSOI Operations (Facilities)

An ISB was established outside of the AOR in Kaposvar-Taszar, Hungary and used to conduct RSOI operations. The use of an ISB allowed for a rapid transition from

[121] Ibid., 123.

[122] Raugh and Dolan, *V Corps in Bosnia-Herzegovina, 1995-1996*, 205.

[123] Rupkalvis, "The Operation Joint Endeavor Deployment," 107.

RSOI configurations to tactical formations. The reason staging bases needed to be established outside of Kosovo was for security purposes. Hungary provided an uncontested area to safely build combat.[124] Coalition forces deployed forces from Western Europe by rail, road and air and sustainment units were able to receive all three modes of transport at the ISB.[125]

Use of Automation for TPFDD Development (Material)

OJE planners did not use JOPES to build a TPFDD and the result was strategic level organizations were not able to have visibility of the deployment. These are the same organizations that control the strategic level deployment assets vital for deployment of a force.

Use of Pre-positioned stocks (Material)

OJE planners were able to identify capabilities that were not available amongst active duty units forward stationed in Europe, and that were needed to accomplish operational objectives. To overcome this shortfall, release authority for the use of Army Prepositioned Stocks was granted by the CCDR. An example of APS being used successfully for deployment operations was the release of bridging assets to augment forces conducting bridging operations across the Sava River. The rapid release and

[124] Raugh and Dolan, *V Corps in Bosnia-Herzegovina, 1995-1996*, 236.

[125] Rupkalvis, "The Operation Joint Endeavor Deployment," 93.

deployment of these theater level assets allowed coalition forces to maintain momentum and continue the road march across the Croatian border into Bosnia-Herzegovina.[126]

Forward Deployed/Stationed forces (Facilities/Organization)

The coalition was able to rapidly deploy a large force across Europe because the U.S. had several divisions forward stationed across Europe. The 1st Armored Division was able to deploy by ground movement and rail from home station in Germany to Hungary in 2 to 3 days' time. Sail time from the east coast of the United States to ports in the Adriatic Sea are 5 to 7 days.[127]

## Operation Iraqi Freedom

Planning for the deployment of the second gulf war began in a very similar fashion to the planning process for the first gulf war. The force structure required to deploy had not been identified and the capabilities of facilities of the region the Army was deploying into were unknown. Based on the changing political climate and updates to the strategic guidance given by senior political leaders the deployment plan changed several times.[128] Changes to the plan ranged from the size of the force, capabilities required and sequencing of the units to which countries / region that deployment operations would occur in.

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[126] Raugh and Dolan, *V Corps in Bosnia-Herzegovina, 1995-1996*, 10-11.

[127] Hickins, "Strategic Mobility."

[128] Killblane, "Delivering Victory," 72.

U.S. deployment planners were notified by GEN Tommy Franks on Monday, January 7, 2002 to begin deployment planning for an invasion of Iraq.[129] From the initial notification planners would ultimately have fourteen months to have all required forces in theater and ready to conduct combat operations. Planners quickly realized there was no existing plan from which they could use as a starting point,[130] and they were forced to begin planning efforts from scratch. Also, the port capabilities of Kuwait were unknown and planners had to be deployed to conduct assessments and surveys of key logistics nodes. Fortunately for planners they had time on their side and were able to conduct thorough assessments and plans.

One difference for the deployment planning process from ODS to OIF was that initial guidance given by the senior military commander was to deploy forces through countries to the north and west of Iraq.[131] These plans called for a deployment of units to Turkey to use as an invasion force. Although Turkey is a NATO ally the U.S. did not know the capabilities and condition of the Ports, route network or potential logistic facilities.[132] Additional time and resources had to be committed to studying the feasibility of deployment operations in Turkey.

Military planners were able to request and use APS from around the globe to quickly build combat power in Kuwait. Prepositioned stocks were drawn from Camp

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[129] Ibid., 24.

[130] Ibid., 33.

[131] Ibid., 28.

[132] Ibid., 72.

Arifjan Kuwait, Diego Garcia in the Indian Ocean and Qatar.[133] Activating these strategic stocks allowed planners shorten the timeline required to deploy brigade sized combat units. The average sail time from the east coast of the U.S. to the Persian Gulf is 11 to 13 days, and the average sail time from the Gulf of Mexico to the Persian Gulf is 15 to 17 days.[134] With the employment of APS stocks Soldiers were able to fly directly from home station to Kuwait City International Airport and arrive in less than a day. Soldiers were then able to link up with their equipment and begin the RSOI process.[135]

During the initial buildup of forces, soldiers from the 101st Airborne Division forward deployed in Afghanistan were deployed to Iraq to augment initial forces in Kuwait.[136] A brigade of combat power was quickly diverted to the theater during a critical period of vulnerability. Having a forward stationed presence in the region provided planners with another option to rapidly build combat power in Kuwait.[137] Ultimately the total force that was deployed and used for the invasion was comprised of two Corps sized elements.[138]

For OIF, planners had the luxury of an extended period of time to create and execute deployment operations. Unfortunately, planners were not able to build on the

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[133] Ibid., 26,27,103,136.

[134] Hickins, "Strategic Mobility."

[135] Killblane, "Delivering Victory," 102-103.

[136] Ibid., 84.

[137] Ibid.

[138] Carney, *Allied Participation in Operation Iraqi Freedom*, 6.

plan created for ODS and were required to develop a plan from scratch due to no institutional knowledge being retained from the previous deployment. APS and forward deployed units were leveraged to quickly build combat power while Contiguous United States (CONUS) based units were notified and prepared for deployment.

## Lessons Learned from OIF and the applicable DOTMLPF-P Domains

### Detailed Pre-existing Deployment Plans (Policy/Personnel)

The U.S. deployment community failed to learn from the mistakes made during the first gulf war. When planners began the process of framing the problem of how to deploy a large force across the globe there was no plan to pull from. To support a MDB deployment planners will not have the luxury of starting a plan from scratch. That process takes months, time that the U.S. will not have.

### Pre-Established Force Packages (Policy)

As part of the process to develop detailed deployment plans, these plans need to account for an array of possible force packages. Again, similar to ODS planners for OIF were forced to guess at what size, composition and capabilities would be required to deploy. Civilian leaders changed their guidance on the size and composition of the required force several times during the planning process. If planners had previously built plans with different sized force options valuable time could have been saved in planning.

### Use of Pre-Positioned Stocks (Material)

To build combat power in a matter of days, planners will need to draw stocks from APS sources across the globe. For OIF APS stocks as far away as Guam and Diego Garcia were used. The time required to sail a vessel containing APS that is already afloat

is shorter than sailing from CONUS when accounting for time required to move to the port and load / download operations.

Use of Forward Stationed Units (Facilities/Personnel)

Senior military leaders were able to leverage the capability of units that were in the Central Command area. Units were re-missioned quickly and this gave planners options to build combat power rapidly. OIF showed that having units forward stationed or deployed outside of CONUS allows the U.S. to decrease the timeline required to deploy units that are familiar with the AOR.

## Strategic Mobility Triad

Deployment in the MDB concept will require the movement of personnel, equipment and supplies by every mode of transportation the military has available. The three elements the military has available for strategic deployment are airlift, sealift and prepositioned stocks. The combination of these elements comprises the Strategic Mobility Triad. The triad provides the capability to respond to contingency operations.[139] Each of the three elements has advantages and disadvantages for responding to a crisis and deploying forces across the globe. In an MDB deployment planners will be required to balance the use of all three elements of the Triad to provide a rapid response delivering the correct force.

[139] Hickins, "Strategic Mobility."

## Airlift Capabilities and Inventory

Strategic airlift is the mode of travel that will be used to deploy the initial force package in a contingency operation. Airlift is also the primary means of moving and sustaining forces until sea lines of communication can be secured. Airlift provides commanders a fast and flexible means of deploying forces, but the tradeoffs are employing airlift is expensive, the number of platforms available is limited and the type of platform used is dependent on availability of airfields that can support military aircraft.

Currently the strategic airlift capability is comprised of aircraft from the Air Force, Air Force Reserve and the Air National Guard. The inventory is comprised of 172 x C-17s, 435 x C-130 and 76 x C-5s capable of moving 54.5 million ton-miles per day (MTM/D).[140] The Mobility Requirements Study 2005 (MRS–05) identified that during the early stages of a major theater campaign 54.5 MTM/D will be required to deploy and sustain a force. However, actual need is as high 67.5 based on current operational requirements.[141]

The latest upgrades made to the Airforce fleet occurred from 2001-2010 with the addition of 116 x C-17, 17 x C-130, 7 x C-5 and the removal of the C-141 fleet. Based on an aging fleet, the findings and recommendations of The Mobility Requirements Study 2005 (MRS–05) to increase airlift capacity and the concurrence of the chairman of the Joint Chiefs of Staff the Airlift capacity increased by 18.8 percent.[142]

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[140] Ibid.

[141] Ibid.

[142] Ibid.

> At the end of fiscal year 2001, the military airlift fleet consisted of 58 C–17s, 88 C–141 Starlifters, 104 C–5 Galaxies, and 418 C–130 Hercules. Currently, the airlift fleet consists of 158 C–17s in the active Air Force, 8 in the Air National Guard, and 8 in the Air Force Reserve. No C–141s are left in the inventory. The military has a total of 111 C–5s, and there are 151 C–130s in the active Air Force, 181 in the Air National Guard, and 103 in the Air Force Reserve.[143]

So how do the number of aircraft in the strategic inventory, and the capabilities they possess translate to the MDB concept and the deployment timeline? The so what is how many units can be deployed by air, and how quickly. Using the GRF as a model, a study was conducted by the RAND Corporation that analyzed how long the timeline to deploy would be and what would be required to deploy the GRF. The GRF is comprised of an Infantry Brigade Combat Team plus enablers to include a Stryker company. The study was able to show that the GRF is capable of deploying anywhere in the world within 96 hours. To deploy GRF will require the use of 134 x C-17. Accounting for C-17s that are not available for maintenance or other priority missions, the entire C-17 fleet would be required to deploy a BCT from CONUS to destination across the globe.[144]

Despite the increase in Airlift capacity, operational requirements have increased at an even greater rate and the U.S. military has limited strategic airlift assets to use in a contingency deployment. In summary, airlift capabilities and capacities have increased but the increases are not enough to keep pace with the increased operational needs. In addition, these requirements are only to sustain a contingency operation they do not address the requirements to support a rapid large-scale deployment.

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[143] Ibid.

[144] Pernin et al., *Enabling the Global Response Force*, 45.

## Sealift Capabilities and Inventory

The second leg of the strategic mobility triad is sea lift. This section of the triad has historically accounted for the movement of 95 percent of supplies delivered to a theater of war. Sea lift provides the ability to transport large amounts of supplies and equipment but the tradeoff is sealift moves slowly in comparison to airlift.

The current MSC inventory has eight Fast Sealift Ships (FSS) that together are capable of transporting the equivalent of a mechanized division (200 x C-17 payloads) from the east coast to Europe in 6 days, the Persian Gulf in 18 days or 10 days to Korea from Los Angeles.[145] FSSs travel at a speed of 33 knots an hour, the same speed as when they were commissioned in 1981-1982.[146] The fleet of Fast Sealift Ships are kept in Reduced Operating Status and can be activated and ready to sail in 96 hours.

The MSC has 19 LMSR vessels each capable of transporting one Brigade each (500 x C-17 payloads in total). Transit time for an LMSR from the east coast of the United States to Europe is 8 days, the Persian Gulf in 23 days or 14 days to Korea from Los Angeles. The LMSR fleet increased by twenty ships as a result of the 1992 Mobility Requirements study and the 1995 Mobility Requirements-Study Bottom-Up Review following ODS in an attempt to increase strategic deployment capabilities. However, the LMSR fleet has remained static in capability and capacity since the last LMSR was fielded in 2001 by the MSC.[147]

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[145] Hickins, "Strategic Mobility."

[146] Military Sealift Command, "Ship Inventory."

[147] Hickins, "Strategic Mobility"; Military Sealift Command, "Ship Inventory."

There are other assets that the Navy has in their inventory that are useful for DOD planners, such as the Expeditionary Fast Transport. This vessel is capable of conducting high speed intra theater movement of personnel, equipment and supplies into austere environments. These vessels provide a platform that can operate in shallow ports, has a range of 1,200 miles and can rapidly discharge vehicles and cargo. Currently the Navy has nine of these vessels in their inventory.[148]

The Army does not own any vessels that are in the strategic mobility triad but the Army does own a watercraft fleet that can be used for intra theater transportation in conjunction with an ISB. In the Army inventory there are eight LSVs and 13 LSVs that are capable of providing Intra Theater lift to units in an austere environment. LSVs are capable of transporting up to an armored battalion a distance of 6,500 nautical miles.[149]

In response to studies conducted after major deployments planners have made improvements in the planning and execution of using sealift assets. Planners are now able to configure and load vessels based on how quickly the units will be required to conduct operations and what type of units will be needed to offloaded first. Equipment can be loaded using a combat load configuration which allows equipment to be transported in a near operational shipping configuration. This allows for a faster buildup of combat power but decreases the number of units that can be transported on a vessel.

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[148] Department of the Navy, "Expeditionary Fast Transport (EPF)," Fact File, United States Navy, last modified January 12, 2018, accessed March 10, 2018, http://www.navy.mil/navydata/fact_display.asp?cid=4200&tid=1100&ct=4.

[149] United States Transportation Command, "JLOTS Planner's Handbook" (Power Point Briefing, TRANSCOM, FT Leavenworth, KS, 2017).

Currently the sealift component of the mobility triad can transport several divisions based on loading configuration to any place on the globe in 23 days or less. Unless vessels are already loaded with a unit's equipment prior to notification to deploy in response to a contingency operation, use of sealift assets may not meet the MDB requirement to deliver forces in days not weeks.

Prepositioned Capabilities and Inventory

In a MDB operation ground forces will not have the same amount of time to deploy and conduct RSOI that they have had in Iraq and Afghanistan over the last sixteen years. A strategic asset that can be used to mitigate this compressed timeline is the use of APS. Using APS unit equipment sets, units can deploy and achieve combat readiness in seven to 10 days.[150] The use of APS stocks reduces deployment timelines by reducing or eliminating the time required to load a vessel, sail time and download time.

The U.S. Army has developed a program of pre-positioned stocks around the globe on land and afloat that can quickly respond to a contingency operation. These stocks consist of unit equipment sets and sustainment supplies. The purpose of the APS is to provide a power projection capability that can supply early entry BCTs equipment and a support system. These assets help reduce the initial strategic lift requirements required

[150] David Shlapak and Michael Johnson, *Reinforcing Deterrence on NATO's Eastern Flank: Wargaming the Defense of the Baltics* (Santa Monica, CA: RAND Corporation, 2016), 17, accessed May 9, 2018, http://www.rand.org /pubs/research_reports/RR1253.html.

in a deployment and provide sustainment while sea and air lines of communication are built and protected.[151]

The APS is strategically forward positioned around the globe in areas that DOD planners have identified as the most likely to have the requirement to employ the assets. As a strategic asset it is owned and controlled by Headquarters Department of the Army (HQDA) and they are also the release authority.

Overall, APS assets can provide DOD planners with the option of several sets of BCT equipment.[152] The overall capability of APS is roughly (due to classification restrictions the exact numbers and capabilities cannot be discussed in this unclassified paper) a division plus in combat power to include armor with the required support units. The equipment can be fully mission capable within seven to ten days.[153]

DOD planners have recognized the significant capability that APS can provide in the event of a contingency operation and the APS system has been allocated resources to increase capabilities by 2021. Specifically, BCT sets will be added to the European AOR and afloat. Armor, Fires, Stryker and sustainment capabilities are being added to the APS inventory.[154]

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[151] Povah, "A Brief History of APS," 6-8.

[152] Ibid.

[153] Shlapak and Johnson, *Reinforcing Deterrence on NATO's Eastern Flank*, 17.

[154] Povah, "A Brief History of APS," 6-8.

## Deployment Planning Infrastructure

The military has reduced deployment readiness across the DOD since the ODS deployment. These reductions have come in the form of a 44% reduction in the G44D, the elimination of the G44D Transportation GO, cutting the staff of the Transportation Center / School from 500 to 180 and the downsizing of SDDC and changing it from a direct reporting unit USTRANSCOM not to the Headquarters Department of the Army.[155]

There has also been a shift in deployment readiness in national policy and priorities. In the 1992 National Military Strategy power projection was highlighted as a key component to national security. In the 2015 National Military Strategy, power projection is listed only two times and is not listed as a priority.[156] Due to the nature and environment of the conflicts that the U.S. has been involved in for nearly two decades, the U.S. has not conducted the type of large scale deployment that will be required in a MDB operation.

## Doctrine

An examination of the current deployment doctrine, policies and regulations revealed that several changes and advances have been made to correct issues in the deployment planning and execution from previous deployments. Current doctrine

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[155] Combined Arms Support Command, "Chief of Transportation Briefing to Command and General Staff Officers' Course."

[156] Department of Defense, *The National Military Strategy of the United States of America 2015* (Washington, DC: Government Printing Office, 2015), accessed January 10, 2018, http://www.jcs.mil/Portals/36/Documents/Publications/2015_National_Military_Strategy.pdf.

addressed the deficiencies in unit level deployment planning, tools available for planners and the integration of automation into deployment planning and execution. There is still progress to be made especially in joint doctrine where an emphasis on early deployment planning needs to be made.

## Current Deployment Operations: Pacific Pathways/Atlantic Resolve

In 2014 the U.S. Army Pacific Commander, GEN Vincent Brooks established a series of linked exercises throughout the Pacific to build the capability to respond quickly in the event of a contingency operation in the Pacific.[157] This program has the goals of building expeditionary readiness, building deployment capabilities, building interoperability with partner nations and keeping a trained and ready force west of the international date line.[158]

This program has been successful in building deployment readiness by deploying a BCT into countries throughout the Pacific and gaining real world and institutional knowledge of each country. U.S. Army Pacific has been able to verify and test the capabilities of over twelve nations SPODs, APODs, route networks and ability to receive and host a U.S. force.[159] Detailed knowledge of a countries infrastructure will allow planners to develop a feasible deployment plan and have the confidence that the HN infrastructure will support the force being deployed.

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[157] Povah, "A Brief History of APS," 6-8.

[158] Ibid.

[159] Ibid.

Another benefit of Pacific Pathways is that a trained and ready BCT sized force is forward deployed of the international date line in a region that the U.S. does not have a large ground force stationed. Pacific Pathways provides an asset and an option for the Pacific region that can be used in the event of regional crisis.

In 2014 the U.S. began Operation Atlantic Resolve to build deployment capability, build partnerships, deploy forces forward and deter further Russian aggression.[160] The U.S. has rotated a BCT through Eastern Europe every year conducting exercises in Estonia, Latvia, Lithuania, Poland, Romania, Bulgaria and Hungary. This has allowed the U.S. to build deployment capabilities in every one of these nations and test out the HN infrastructure to ensure if required they can receive a large U.S. Force.

## Intermediate Staging Bases

ISBs minimize the need for reception, staging, onward movement, and integration within a contested area of operations. ISBs allow a commander to deploy forces into an uncontested battle space and rapidly build combat power. ISBs also allow a larger fleet of air assets to support deployment and sustainment operations. Based on the proximity of the ISB to the contested areas FSVs and another Navy or Army Watercraft can be employed. The RAND Corporation conducted a study of all ISBs available to DOD planners around the globe. This study on ISBs was conducted to analyze the capabilities and requirements for the GRF but the findings can be applied to any type of military unit. The study showed that currently there are not primary ISBs (an ISB controlled by the

[160] Office of the Press Secretary, "Fact Sheet: U.S. Assurance and Deterrence Efforts in Support of NATO Allies."

U.S. military) that can support every geographic location on the planet. Therefore, planners must be careful in their planning when selecting an ISB. Planning considerations affecting the selection of an ISB include the size and composition of the force required to use the ISB and the capabilities of the potential ISBs.[161]

## Peer Adversaries

Senior U.S. military and political leaders have identified a peer adversary as the biggest threat to national security. These threats have been identified as Russia, North Korea, China, Iran and the threat of an asymmetric attack, or the "4+1 Threat."[162] These peer adversaries are capable of challenging U.S. forces across all domains, and are able to contest deployments from strategic and operational bases. These adversaries are also capable of challenging U.S. interests in all areas of the globe. The fact that these adversaries can affect every corner of the globe means that deployment planning for a MDB operation will require a force posture of forward deployed units and units that have an expeditionary capability that are prepared to deploy on a short or no notice basis.

## Conclusion

In this chapter, the data from of the analysis conducted on MDB literature, contingency operations lessons learned, strategic asset capabilities, deployment doctrine and other areas of consideration for deployment planning were presented. These finding

[161] Pernin et al., *Enabling the Global Response Force*; Raugh and Dolan, *V Corps in Bosnia-Herzegovina, 1995-1996*.

[162] Dews, "Joint Chiefs Chairman Dunford on the '4+1 Framework' and Meeting Transnational Threats."

helped in answering the primary research question of: Does the United States possess the strategic deployment assets and capabilities to rapidly deploy a Corps sized force into an expeditionary environment in support of a MDB force against a peer competitor that will allow U.S. forces to keep an enemy from achieving their operational and strategic objectives based on time and distance factors? The findings in this chapter also helped answer the secondary research questions of what will a MDB force be comprised of and does the U.S. military have the structure and capacity to plan, organize, resources to execute a large scale contingency operation?

In chapter 5 findings will be presented using the data collected to answer the primary and secondary research questions. Also, recommendations will be made on how planners preparing for a MDB operation can meet the required deployment timeline.

# CHAPTER 5

# CONCLUSIONS AND RECOMMENDATIONS

This chapter presents the conclusions from chapter 4's analysis of the primary and secondary research questions. In review, the primary research question is: Does the United States possess the strategic deployment assets and capabilities to rapidly deploy a Corps sized force into an expeditionary / austere environment in support of an MDB force against a peer competitor that will allow U.S. forces to achieve our operational and strategic objectives based on time and distance factors? The secondary questions are: what will an MDB force be comprised of and does the U.S. military have the structure and capacity to plan, organize, resource, and execute a large scale contingency operation. A thorough review of the literature and documentation on MDB concept, deployment requirements and DOTMLPF-P capabilities were presented in chapter 2. Chapter 3 described the qualitative analysis conducted using that literature, and chapter 4 analyzed the data collected during the research. This chapter will review the analysis from chapter 4 and will make DOTMLPF-P recommendations on how the DOD can meet the deployment timeline required by the MDB concept.

## Conclusions

The U.S. military does not have the capability to deploy a corps-sized ground force from CONUS to a contested battle space using only strategic deployment platforms in a matter of days to support the MDB requirement. This shortfall is due to the United States military deceasing the organization, personnel, and facilities domains of DOTMLPF-P that are related to strategic deployment. These decreases combined with

not having significantly increased the material domain of DOTMLPF-P in relation to national strategic deployment assets capabilities or capacity, prohibit the U.S. from being able to deploy a corps across the globe in days.[163]

In addition to these gaps, the strategic deployment capabilities of the U.S. are vulnerable to attack from multiple domains from home station to forward-deployed locations. An attack during deployment operations would further lengthen the deployment timeline for contingency operations and could result in a peer adversary achieving their strategic goals. The deployment community must closely coordinate and partner with multiple agencies and the cyber community to synchronize protection during deployments from the cyber and space domains.

The U.S. has the capability to deploy a large force into an austere environment in a matter of days, if all elements of the mobility triad are used in conjunction with forward stationed forces, the involvement of coalition partners, and if detailed deployment plans have been prepared prior to the break out of a conflict and are ready to execute. In addition to using all resources available, deploying units operating in austere environments must be self-sustaining. This requirement is due to the need to meet a deployment timeline of days not weeks; units will be required to deploy before a sustainment architecture can be created. Future battlefields will not have a robust sustainment infrastructure that units will be able to plug into and rely upon for support early in a conflict.

[163] Hickins, "Strategic Mobility."

In addition to the traditional threats from the air, land, and sea domains facing the U.S. during deployment operations, under the MDB concept, deployment operations will face threats from the cyber and space domains. Sustainment forces must develop protection plans for deployment operations against threats from both domains. This planning will require coordination between USTRANSCOM, Forces Command, Cyber Command, multiple CCDRs and non-DOD agencies like the Office of Homeland Defense to protect deployment assets and operations from the cyber and space domains from home station to remote locations across the globe.

Current MDB literature does not clearly define how each warfighting function should work together to coordinate a defense against an attack from the new domains of cyber and space. The roles, responsibilities, and authorities for defending against cyber and space need to be defined, including how each warfighting function can communicate needs and priorities within this framework. Specifically, for deployment operations, how does the deployment community ensure movements are synchronized with the space and cyber domains and remain protected from enemy capability in those domains.

Reducing historical deployment timelines will require a holistic approach using assets from all branches of service. This interservice cooperation will require leveraging all aspects of the mobility triad controlled by the Army, Air Force and Navy, employing forward-stationed units, and using ISBs to build combat power. To converge a large ground force in support of a contingency operation into a contested austere environment against a peer enemy, every resource and capability the U.S. military has will need to be employed in concert.

Comparing case studies from ODS, OJE and OIF, several common lessons learned were identified from these previous major contingency operations. These lessons can be studied by current planners, and they can build upon these lessons to shorten the time required to plan, resource, and conduct a major deployment operation:

1. Review of the case studies from ODS, OJE and OIF revealed that ready to use detailed deployment plans did not exist prior to the notification to deploy.[164] Planners for all three operations spent months researching the capabilities of the geographic area they were deploying forces to and the capabilities of the HN infrastructure.
2. The size and capabilities of the force required to deploy for these operations also had not been defined. Also, units capable of meeting those requirements had not been identified prior to the beginning of the planning process. These issues created delays in the planning process, notification and mobilization of the deploying forces.
3. APS have provided key capabilities to planners and CCDRs during several recent deployments and have enabled the rapid build-up of combat power. The strategic basing of APS has enabled the rapid movement of unit equipment sets without using vital strategic deployment platforms. APS can provide capabilities ranging from using several equipment sets that were employed in

[164] Killblane, "Delivering Victory"; Stucker and Kameny, *Army Experiences with Deployment Planning in Operation Desert Shield*; Raugh and Dolan, *V Corps in Bosnia-Herzegovina, 1995-1996*.

OIF,[165] to a specific capability needed like the employment of a bridging company during the Joint Endeavor deployment.[166] When identified early in the planning process, APS can provide combat power without employing vital strategic deployment assets. This achievement is accomplished by releasing equipment sets that are strategically positioned forward in the required geographical region, and then flying the personnel into the theater to draw the unit equipment set.

4. For all three operations, units that were the first to deploy into theater were required to have expeditionary capabilities. The units that deployed first, deployed into an immature austere environment that lacked sufficient life support capabilities. Initially, units provided much of their own life support. Planners for ODS and OJE did not take the environment and weather conditions they were deploying to into account. 1AD deployed to Kosovo during the winter without proper tentage which resulted in lowered moral and units that had a degraded capability.[167] The initial units that deployed in support of ODS did not weatherize their equipment, and operational readiness rates declined as a result. Not factoring in geographic variables into a

[165] Killblane, "Delivering Victory," 84.

[166] Raugh and Dolan, *V Corps in Bosnia-Herzegovina, 1995-1996*, 7.

[167] Ibid., 211.

deployment plan can have operational consequences that affect combat power, readiness rates, and unit moral.[168]

Since ODS, the U.S. military has done little to improve the capacity and capability of its strategic deployment platforms. Outside of replacing the C-141 fleet with the C-17, the United States Air Force has the same deployment capabilities that were used to deploy units during ODS. Currently, the Air Force can move 63.5 MTM/D, which is an improvement from the 54.5 million per day it was capable of moving in 1999, but operational requirements have increased as well, and Air Mobility Command leaders estimate that the true lift requirement is more than 69.5 MTM/D. Overall upgrades have increased the fleet capacity of the Air Force by 18.8 percent, but operational needs have increased at a rate that outpaced those gains.[169]

The MSC increased the strategic deployment fleet by purchasing an additional twenty LMSR vessels from 1994-2003 as a result of lessons learned from ODS, and the majority of these vessels were available and employed for the OIF deployment.[170] However, the sail times of an LMSR have not decreased since the first Gordon Class vessel was built in 1972. Supplies and equipment moving by LMSR take the same amount of time to move from CONUS to the Persian Gulf today as they did for ODS.[171]

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[168] Stewart, *War in the Persian Gulf: Operations Desert Shield and Desert Storm, August 1990-March 1991*, 7.

[169] Hickins, "Strategic Mobility."

[170] Ibid.

[171] Military Sealift Command, "Ship Inventory."

This is a large time lag in improving technology and is an area that should be studied to create improvements.

Vessels and aircraft today travel at the same speeds they did when they brought units and supplies to the Persian Gulf for ODS. Sail time and air speed have remained constant. To put it succinctly, in 2018 the U.S. can move the same amount of supplies, in the same amount of time, over the same distances as the DOD was capable of in 1990.

Beginning in 1995, there have been significant cuts to the Army's strategic deployment planning infrastructure. The Army's Transportation School, SDDC, and the G4 HQDA have all had the size of their staffs reduced. These reductions have led to fewer planners, and those planners have concentrated on the same two known theaters since 2001. The focus on the Central Command AOR and the reduction in infrastructure has led to a degraded deployment planning capability.

Conducting operations like Pacific Pathways and Operation Atlantic Resolve have enabled the military to deploy forces in regions that the DOD has determined could be the location of a future contingency operation. In addition, these operations have enabled the sustainment community to gather and validate information on the deployment infrastructure of countries across Europe and the Pacific.[172] If required to conduct a rapid contingency operation deployment into either geographic region, planners will have the required accurate information to develop a supportable deployment plan.

[172] Povah, "A Brief History of APS," 6-8; Shlapak and Johnson, *Reinforcing Deterrence on NATO's Eastern Flank*; Office of the Press Secretary, "Fact Sheet: U.S. Assurance and Deterrence Efforts in Support of NATO Allies."

## Recommendations

Because of the limitations and vulnerabilities of deploying a large-scale force rapidly using only national strategic mobility assets, the DOD must leverage other assets and resources available. To meet the guidance dictated by emerging MDB doctrine that a large ground force will be required to deploy in days, not weeks, all DOTMLPF-P domains need to be improved. Each of the following recommendations need to implemented together, and they should complement each other. No single resource or capability will enable a rapid deployment in support of MDB; all resources available to the U.S. will need to be used in concert with each other.

### DOTMLPF-P: Organization

The DOD needs to return the manning levels of the G44D, Transportation School and SDDC to the levels they were at in 1995. An increase in those unit's MTOEs would provide more planners for developing and maintaining needed strategic deployment plans. Lessons learned from past deployments have shown that military planners have spent valuable time researching areas of the globe that little has been known of before the beginning of a conflict. Planners have been required to research all variables that can affect deployment operations from the environment, weather, climate, cultural considerations and APOD and SPOD capabilities in order to ensure deployment operations were successful. Having a detailed plan ready to implement will save time that can be used to initiate movement for deploying units, prepare strategic deployment assets, draw equipment from APS, and prepare ISBs to conduct RSOI operations.

These deployment plans should be constructed using the assumption that a corps-sized element will be required to deploy. This assumption will guide the planning and

resources required to move across the globe and receive the force. Having a corps-sized element designated for deployment prior to the beginning of a contingency operation will also reduce the amount of time required to plan and resource a deployment.

### DOTMLPF-P: Policy

Deployment readiness must be emphasized at the strategic level. Power projection needs to be listed as a vital element to national security in U.S. strategic documents such as the Quadrennial Defense Report and National Military Strategy that drive policy and funding. This will help send a message to the entire military community that deployment readiness is vital to our continued success.

### DOTMLPF-P: Material

DOD should increase the APS from its current level to a corps-sized equipment set. To rapidly build combat power outside of the continental United States, the implementation of APS will be vital. Release of all APS assets should continue to be prioritized in every deployment plan. The APS available for release should not be constrained by the location of the deployment operation and the geographic proximity of the APS. APS provides the U.S. with a unique capability that drastically shortens the timeline required to deploy a force across the globe. This capability will be vital to meet the requirements faced by planners in support of the MDB concept. The U.S. military needs to ensure this capability is properly maintained, accounted for, and ready for immediate release.

## DOTMLPF-P: Facilities/Personnel

The U.S. should increase the number of forward-stationed or forward-deployed units. Soldiers stationed in vital geographic regions of the planet accomplish several key tasks for the United States, chief among them are that it enables a fast response to a potential threat against U.S. strategic interests. Several days to weeks of time are saved by not having to load units on MSC vessels, sail them around the globe and then download the equipment. In addition, forward-stationed soldiers are vital in the maintenance, readiness and distribution of the APS fleet. Having units forward deployed also helps in establishing and maintaining key relationships with our allies and provides an institutional knowledge of the capabilities of the geographic region they are located in.

## DOTMLPF-P: Leadership/Doctrine

The U.S. military emphasized deployment readiness and capability. To support MDB doctrine, units should be required to conduct training that develops deployment capability. Commanders need to make deployment readiness training and culture a priority within their units. Deployment readiness and training must also be built into current Army doctrine dictating that units maintain proficiency and certifications in all aspects of deployment operations.

## DOTMLPF-P: Training

Maintain the Pacific Pathways series of exercises and Operation Atlantic Resolve. These exercises provide vital training opportunities for Soldiers and units. These exercises also enable the U.S. to research and test the sustainment infrastructure needed for deployment operations at both home station and countries across the globe. These

exercises also allow the U.S. military to increase the current force posture of forward-stationed units and capabilities across the globe to meet the required deployment timeline to support an MDB operation

## DOTMLPF-P: Policy

Roles, responsibilities, and authorities for coordinating deployment operations across all domains need to be clearly defined by the DOD in policy and doctrine to ensure the deployment operations are protected against an attack from the cyber or space domains. Specifically, policy needs to be created defining authorities and responsibilities for protecting strategic deployment assets and deployment operations.

In review, the primary question is: Does the United States possess the strategic deployment assets and capabilities to rapidly deploy a corps-sized force into an expeditionary / austere environment in support of an MDB force against a peer competitor that will allow U.S. forces to achieve our operational and strategic objectives based on time and distance factors? The secondary questions are: What will an MDB force be comprised of and does the U.S. military have the structure and capacity to plan, organize, resources to execute a large scale contingency operation? The U.S. military does not have the capability to deploy a corps-sized ground force from CONUS to a contested battle space using only strategic deployment platforms in a matter of days to support the MDB requirement. This gap is due to the United States military deceasing the organization, personnel and facilities domains of DOTMLPF-P related to strategic deployment. These decreases combined with not having significantly increased the material domain of DOTMLPF-P capabilities or capacity of national strategic

deployment assets prohibits the U.S. from being able to deploy a large ground force across the globe in days. (MOB Triad MMAS)

To conduct a rapid, large-scale deployment in support of a contingency operation into a contested austere environment against a peer enemy, every resource and capability the U.S. military has will need to be employed in concert. There is not a single solution or area of deployment readiness that needs to be studied and improved to meet MDB requirements. For the transportation community to meet the challenge of supporting the MDB deployment timeline, all DOTMLPF-P domains need improvement. This upgrade can be done by reducing the planning timeline by creating deployment plans prior to the initiation of a contingency operation, increasing APS unit sets and augmenting the number of units forward stationed and deployed around the globe. These changes need to be implemented while concurrently developing protection plans to protect deployment assets at home station, and deployment operations against an attack from the cyber and space domains.

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