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THESIS

THE APPLICATION AND EMPLOYMENT OF SPECIAL FORCES TO EFFECTIVELY OPERATE IN THE MULTI-DOMAIN OPERATIONS ENVIRONMENT OF LARGE-SCALE COMBAT OPERATIONS

by

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With the U.S. military's shift in focus to large-scale combat operations (LSCO) in a multi-domain operations (MDO) environment, special forces (SF) must adapt and develop new strategies to operate and succeed in a new technologically enabled combat environment. MDO warfare has evolved and now includes the 4th dimension of information, electronic, and cyber warfare. The prevalence of information through open-source internet, radio, and television as well as a high reliance on electronic communications equipment has enhanced the offense opportunities for both the United States and its adversaries alike. Designed and assembled in an era prior to the MDO environment, the SF force structure currently lacks some of the capabilities to effectively operate and thrive on modern battlefields. Capabilities such as electronic warfare or employment and exploitation of cyber space hold significant influence on the battlespace, which SF units are ill prepared to employ or exploit. As a result, SF units should reconsider their capabilities when it comes to penetrating and disabling the anti-access area denial (A2/AD) bubbles established by our enemies. SF should also consider the tools required to destroy or disable A2/AD. Ultimately, SF must reanalyze how they are positioned and employed within LSCO. A look at modern-era case studies show that SF must adapt its capabilities and force structure if it is to remain relevant and effective in future conflicts.

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ABSTRACT

With the U.S. military's shift in focus to large-scale combat operations (LSCO) in a multi-domain operations (MDO) environment, special forces (SF) must adapt and develop new strategies to operate and succeed in a new technologically enabled combat environment. MDO warfare has evolved and now includes the 4th dimension of information, electronic, and cyber warfare. The prevalence of information through open-source internet, radio, and television as well as a high reliance on electronic communications equipment has enhanced the offense opportunities for both the United States and its adversaries alike. Designed and assembled in an era prior to the MDO environment, the SF force structure currently lacks some of the capabilities to effectively operate and thrive on modern battlefields. Capabilities such as electronic warfare or employment and exploitation of cyber space hold significant influence on the battlespace, which SF units are ill prepared to employ or exploit. As a result, SF units should reconsider their capabilities when it comes to penetrating and disabling the anti-access area denial (A2/AD) bubbles established by our enemies. SF should also consider the tools required to destroy or disable A2/AD. Ultimately, SF must reanalyze how they are positioned and employed within LSCO. A look at modern-era case studies show that SF must adapt its capabilities and force structure if it is to remain relevant and effective in future conflicts.

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LIST OF ACRONYMS AND ABBREVIATIONS

A2/AD	anti-access/area denial
BN	battalion
CF	conventional forces
CTC	combat training center
EW	electronic warfare
GPS	Global Positioning System
LSCO	large-scale combat operations
MDO	multi-domain operations
SF	Special Forces
SFG(A)	Special Forces Group (Airborne)
SFODA	Special Forces Operational Detachment Alpha
SOF	special operations forces
SR	special reconnaissance
WFF	warfighting function

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We owe a tremendous amount of gratitude to COL(R) Bill Davis for his mentorship and the countless hours spent detailing his experiences during the Gulf War. Without his input, very few would know the extent of Special Forces contribution during the war.

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I. INTRODUCTION

When the Special Forces Operational Detachment Alphas (SFODAs) were officially stood up by President John F Kennedy in 1962, the intent was to have an irregular warfare force with all the essential capabilities within its task organization to command and control up to a battalion size element. In 1962, the SFODA construct with its leadership, weapons, demolition, medical, communications, and intelligence specialties was adequate for the era. However, modern developments in technology have created capability gaps in the current SFODA construct. The three-dimensional battle space of 1962 has evolved into four-dimensional battle space with electronic warfare (EW) and cyber taking a prominent place in current and future conflicts. As a result, Special Forces (SF) must adapt both their doctrine and force structure if they are to remain relevant in the future.

The case studies of the Gulf War and the Ukraine-Russia Conflict provide insight into the changing nature of warfare, particularly with regards to the multi-domain operations (MDO) environment. The Gulf War was one of the first conflicts in which the MDO environment was operationalized, and the Ukraine-Russia conflict demonstrates how the capability and prevalence of MDO in large-scale combat operations (LSCO) has only grown. Indeed, the vice-president of Israel Aerospace Industries (IAI), Gideon Fustick, states that "more and more of the activity in warfare is going into the electromagnetic domain…[and] planes, missiles, unmanned aerial vehicles (UAVs) are all using electromagnetic magnetic means, to sense the environment, to navigate, and to communicate."[1] This shift in warfare towards the MDO environment forces leaders and planners to rethink the traditional application of the war fighting functions (WFFs) and how forces are task organized and employed.

While one of SF's core mission sets is the indigenous approach, MDO capabilities must still be considered if indigenous forces are to succeed under SF leadership and

[1] Paul Iddon, "Israel Unveils 'Revolutionary' New Scorpius Electronic Warfare System," *Forbes*, November 11, 2021, https://www.forbes.com/sites/pauliddon/2021/11/11/israel-unveils-revolutionary-new-scorpius-electronic-warfare-system/?sh=5ea34a652fdd.

guidance. The Gulf War provides insights into the MDO environment because it was right at the inflection point of traditional warfare to LSCO with an MDO flavor. The Gulf War also serves as the most recent war in which U.S. Forces have fought against a near-peer adversary in a large-scale combat operation. As a result, it provides leaders and military planners, context in how warfare has shifted in nature to the current conflict between Ukraine and Russia. An examination of the trajectory of technological change the militaries' dependence on it illustrates future trends and the necessity of preparing and equipping SF to operate in MDO environments.

How should military leadership adapt SF to remain effective and relevant in the new LSCO MDO environment. This question is important to answer as evidenced by adversaries of the United States integrating new capabilities to fight conflicts in their region. The Ukrainian conflict has already show cased Russia's use of cyber and EW as a weapon. The threat will only continue to expand as technology improves and becomes more accessible to other adversaries. It is vital that SF adapts to these changes and develops its force to fight and win future conflicts. Because SF is a smaller organization compared to conventional forces (CF), it has the ability to pivot faster and address these concerns and ultimately develop a road map for others to follow or to use its unique capability to bridge the gap with other forces.

The objective of this research is to find and analyze several instances where Special Forces and Special Operations Forces (SOF) have been successful in fighting in LSCO and MDO environments. The analysis, which is broken down by war fighting function, will direct what implementations and changes are needed for SF to be successful in a LSCO MDO environment. SF is already making strides to get ahead of the problem through Doctrine, lessons learned for the combat training centers (CTCs) and sending SF Soldiers to advanced schools. This research builds upon the work SF has done and offers lessons from wars where similar problem sets presented themselves. Leaders within the SF community have a unique opportunity to make an impact on how the organization prepares itself to face the challenges of fighting in a LSCO MDO environment and be ahead of their adversaries.

There are several limitations in the study with regard to the case studies examined. The researchers were limited to the information available in the public domain. The information was drawn from newspaper, articles, academic journals, and books. These sources were then checked against each other to fact check and develop a general consensus. Other reports the researchers were not privy to are not represented. On one occasion, during research for the Gulf War case study, one direct source was available to comment on the experience of SF during the conflict. The information was weighed against published information and then included in the study.

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II. LITERATURE REVIEW

A. INTRODUCTION

The Global War on Terror has significantly transformed much of the military, particularly the Special Forces. Specialized units, operating in denied environments requiring low visibility and partnering with indigenous forces, metamorphosized into direct action (DA) counter terror units with full freedom of maneuver and communications across the battle space. With the U.S. military's shift in focus to Great Power Competition (GPC) and the change in the nature of LSCO due to MDO environment, SF and the rest of the U.S. military will need to adapt and develop new strategies to operate and succeed in the new multi-domain operations environment of large-scale combat operations environment.

B. THESIS QUESTION

While there are many case studies from World War II to The Gulf War detailing the employment of SF in LSCO, limited information exists on how SF should operate or restructure its task organization in a MDO LSCO environment. With advent of the MDO environment facilitated by 21st century technology, another dimension of the LSCO battle space has evolved in which the United States has never before operated. As a result, the question exists: How should military leadership adapt SF to remain effective and relevant in the new LSCO MDO environment?

C. CURRENT DISCUSSION ON SOF IN LSCO

The employment of Special Forces within the MDO environment is a hot topic with a plethora of field manuals (FMs) and books written on the subject. Subjects cover SOF/CF Integration, Interdependence, and Interoperability (I3) and historical case studies of the employment of SOF within LSCO. Books such as *The Competitive Advantage—Special Operations Forces in Large-Scale Combat Operations* or Admiral McRaven's *Spec Ops* provide perspective on how SF and SOF has been employed in past large scale combat operations. The SOF/CF I3 manual published by the U.S. Army Special Operations Command (USASOC) provides guidance on SOF and CF integration during LSCO. While

many of these resources provide excellent guidance for how SF should operate and be used in a LSCO environment, they do not address the MDO piece.

D. CURRENT DISCUSSION ON MDO ENVIRONMENT:

Similarly, there is material on MDO and how the U.S. military might fight in that environment. The TRADOC Pamphlet 525-3-1, *The U.S. Army in Multi-Domain Operations 2028*, provides an analysis on the theory of how the Army should compete and operate in an MDO environment against anti-access/area denial (A2/AD) systems but maintains a higher-level theoretical perspective. With the integration of new MDO technology into LSCO, there are limited historical case studies of militaries fighting in MDO LSCO environments. Much less, information on how SF should adapt the MDO LSCO environment.

E. CURRENT GAP OF INFORMATION ON SF IN LSCO MDO ENVIRONMENT

There is much theoretical material and discussion involving how SF units should be employed in an MDO LSCO environment yet much of the literature and discussion provides few historical events upon which to ground their theory or provide the reader context. The intent of this work is to further the current theoretical discussion by providing a framework of current and historical case studies and using careful analysis to predict how the operational environment of LSCO may evolve in the future.

In the current discussion of how SOF should operate during MDO LSCO, several historical examples have been cited to discuss the problem. Jeffrey Reilly makes the comparison to the Athenian invasion of Syracuse and how the Spartans used the human domain to achieve victory.[2] He posits in the previous example that during LSCO any advantage over a domain might only be temporary and not widespread in previous U.S. wars. This brings in the potential for using SF in multiple ways. Reilly speaks from a U.S. Air Force perspective and describes how airpower can be leveraged in a LSCO

[2] Jeffrey M. Reilly, "Multidomain Operations: A Subtle but Significant Transition in Military Thought," *Air Force Research Institute*, January 2016, 61–73.

environment. SOF having the ability to operate in areas where A2/AD is positioned might have an opportunity to disrupt these threats and temporarily allow the Air Force a brief gap to accomplish their mission during LSCO and tip a conflict in the United States' favor.[3]

Robert Kaplan describes what war with China might look like and the challenges which the U.S. could face.[4] He sees a different role for SF and describers how new stealth boats with less displacement and longer ranges could deliver SF troops right on the beach. This again lacks the understanding of how SF and SOF is actually employed— especially against a peer competitor like China. What Kaplan does argue is the need for access to allies in different countries surrounding China. The role for SF in countries on the periphery of China would again give SF access that CF might not have or be too large to go unnoticed. The point remains that the more forward staged areas and countries that the U.S. can utilize, the better. SF's core mission set has always been in the indigenous approach—working through and with partner forces to gain access and placement to areas that would otherwise be denied.

Watling and Roper write in their paper "European Allies in U.S. Multi-Domain Operations, " the next generation of warfare in MDO will also be fought with partners. This brings up an interesting perspective as the United States will be fighting the war with its allies.[5] In order for the coalition to work, the information and situational awareness must be shared across the entire coalition not just U.S. forces. The importance of the shared understanding allows joint fires to be employed against a potential threat with both speed and precision. In Watling and Ropers example they focus on the European Allies, which offers an interesting perspective and the differences the U.S. would have communicating in the PACOM area. The authors did not mention a role that SOF would play given the access and placement they have. This lack of detail leaves the question of what role SF will

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[3] Robert D. Kaplan, "How We Would Fight China," *Atlantic*, June 1, 2005, para. 32, https://www.theatlantic.com/magazine/archive/2005/06/how-we-would-fight-china/303959/.

[4] Kaplan.

[5] Jack Watling and Daniel Roper, "European Allies in U.S. Multi-Domain Operations," *Royal United Services Institute*, October 2019, 14, https://static.rusi.org/20190923_european_allies_in_us_multi-domain_operations_web.pdf.

have when LSCO occurs? The literature fails to define exact ways of how SF will operate with not only U.S. CF forces but multinational forces all fighting for the same goal.

Perkins a retired U.S. Army general compares today's MDO with Air-Land Battle that was a framework for U.S. planners during Vietnam and the Cold War.[6] The comparison seems valid as a framework for structuring the problem. Perkins gives an example of how a hacker could provide a target to CF and they would destroy the objective. The problem is that these hypothetical situations are grossly exaggerated as to the real capabilities of our current technology and how warfare at the tactical level is actually fought. The scholarly literature that is available lacks the perspective of the SF leader, who knows how to employ his soldiers and the capabilities they possess. Scholars, unless actually having served in SF units, typically lack the perspective and the capabilities that SF employs. This gap in knowledge is what we seek to answer. Hyperbole and Sci-Fi paint a different picture as to how SF will be employed in LSCO. The intent is to provide a realistic answer and recommendation for the future of SF couched on a contextual foundation of historical reality which readers can envision and relate to.

In summary, there is much information on SF in LSCO— both within history and in doctrine. However, the current material does not synthesize the theory with historical or current events which enables readers to envision how the theory might become reality. Events from WWII until the Gulf War provide examples and context to SF operations within LSCO. However, the emergence of technology creating the MDO environment has added a nuance to LSCO which remains relatively unknown and untested. While there is some doctrinal theory on SF in an MDO LSCO environment, the doctrinal manuals also pose many questions that acknowledge a gap in understanding which requires further analysis. TRADOC Pamphlet 525-3 and the U.S. Army Concept for Special Operations 2028–2040 ask multiple questions on how SF and the U.S. Military should operate in an MDO environment. Both USASOC and the U.S. Army writ large recognize and acknowledge there is an information gap that requires further research and exploration. Our

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[6] David G. Perkins, "Multi-Domain Battle: Driving Change to Win in the Future," *Military Review* 97, no. 4 (July 2017): 8.

research will attempt to illuminate at least one aspect of that discussion—how military leadership should adapt SF to the new LSCO MDO environment for it to remain effective and relevant?

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III. METHODOLOGY

A. INTRODUCTION

The study examined the U.S. Special Forces service and contribution in the Gulf War and Russian SOFs action during the Ukraine conflict with Russia in Crimea and Donbas. Previous research on the topic of employment of SOF in MDO and LSCO did not link historic cases where SF was successful and the lessons that can be applied to a future conflict. The lessons learned can be used as a basis for military leadership and commanders to make recommendations based on TTPs and historic actions that achieved success. This chapter describes the research process and the methods used to arrive at the conclusion and the recommendations provided. The chapter further details the selection of the research design, the methods that were used, and the data was analyzed.

B. RESEARCH DESIGN/METHODS

The research used the case study method to arrive at the conclusions and derive the recommendations offered. Yin writes, "the case study's unique strength is its ability to deal with a full variety of evidence—documents, artifacts, interviews, and observations—beyond what might be available in a conventional historical study."[7] In the case of the Gulf War, research was conducted using documents from primary sources and an extensive interview with the former Battalion Commander of 2nd BN 5th SFG(A), COL(R) William Davis, who served during Operations Desert Storm and Desert Shield.

The Ukraine case study involved researching primary and secondary documents detailing the nature of the conflict in Ukraine and how it has shaped the battlespace. As one of the most current conflicts with Russia employing nearly the full spectrum of military capabilities, the Ukraine Conflict provides plenty of vignettes to critically analyze.

[7] Robert K. Yin, *Case Study Research: Design and Methods* (Los Angeles, CA: SAGE Publications, 2009), 11.

C. DATA COLLECTION

The cases studies chosen were aligned closely with employing SOF Forces in conflicts with MDO environments against a peer or near-peer adversary. Currently, there are little to no case studies on how to employ SF in LSCO within a MDO environment. This is due to the relatively new development of MDO technology like the internet and A2/AD systems. Case studies do exist in forces encountering A2/AD systems; however, the conflicts are limited and do not involve gaining air superiority or using SF to provide joint penetration for follow on conventional forces in a LSCO type scenario. Several factors went into deciding wars and conflicts which provide relevant lessons that can be applied to the future. Among them was the use of technology, size, and capability of the military, use of SOF, and the overall success of the nation employing those capabilities. This resulted in the research of SF's role in the Gulf War and the Russian-Ukrainian Conflict.

1. Gulf War

The Gulf War case study was chosen because of the large-scale nature of the conflict as well as the initial use of MDO technology in the war. The research aims to highlight the achievements of SF during the Gulf War where the technological environment was new and the technology that was implemented was untested and not prolific to the force. The war did not have a MDO environment at the time as the cyber domain had yet to be weaponized. Although the war did not encompass all of the current domains listed in MDO (land, air, maritime, space, cyber and the electromagnetic spectrum) it did see the introduction of the space domain. The war saw use of the Global Positioning System (GPS) which incorporated both land navigation and targeting.[8] The Gulf war also saw the extensive use of the space-enabled capability of SATCOM (satellite communications). These new technologies and how SF would be able to utilize them present themselves again when fighting a peer nation and many parallels can be drawn from that study.

The second reason why the Gulf War was chosen was due to the aftermath and how several nations studied the techniques, organization, and the use of technology and began

[8] "Operation DESERT STORM," U.S. Army Center of Military History, accessed November 5, 2021, https://history.army.mil/html/bookshelves/resmat/desert-storm/index.html.

to restructure their own militaries to prepare for the future of warfare. Most notably, China has transitioned their view of future military conflicts from the 1980s "active defense" to the strategy of "local wars under high-technology conditions" based on the conduct of the Gulf War.[9] Analyzing SFs role in the war will inform leaders and allow them to understand the threats from near-peer adversaries as well as options available to them.

The conflict was also crucial for the other traditional domains: land, maritime, and air. This was due passing of the Goldwater-Nichols Act which was passed into law in 1986.[10] The bill restructured the way services interacted and promoted jointness among the services. The Gulf War would be the first conflict that successfully incorporated all of the services working together to accomplish their mission. It was however still new and with it came a lot of valuable lessons.

Besides the MDO environment, the size of the Iraqi armed forces can be compared and even extrapolated to the size of China's active military which consists of 2.18 million personnel.[11] At the time of the Gulf War, Finlan writes, "The Iraqi Army alone was reputed to be the fourth largest army in the world, with approximately one million men under arms, a number that could be doubled with full conscription."[12] . Iraq had over 60 divisions with 6,000 main battle tanks consisting of T-55s and T-72s and close to 200 armed helicopters.[13] Iraq's anti-air systems were also robust with 10,000 antiaircraft guns and the republican guard, the fiercest of Sadam's troops, had 16,000 surface to air missiles such as the SA-2, SA-16s and Roland missiles.[14]

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[9] Taylor M. Fravel, *Active Defense: China's Military Strategy Since 1949* (Princeton, NJ: Princeton University Press, 2019), 182.

[10] Goldwater-Nichols Act, H.R. 3622, 99th Cong. § (1986).

[11] "About the Chinese Armed Forces," ArmedForces.eu, accessed October 19, 2021, https://armedforces.eu/China.

[12] Alastair Finlan, *The Gulf War 1991* (Oxford: Osprey Pub., 2003), 17.

[13] Finlan, 17.

[14] Finlan, 17–19.

2. Ukraine

The conflict in Ukraine provides the most current MDO vignettes of TTPs and specific uses of technology by Russian SOF on the battlefield. Closely related to historical case studies is an analysis of how the MDO environment affects how our peers across the world employ their SF units. Russia has heavily employed their SOF with relatively high success throughout Europe and the Middle East. Many lessons can be drawn from an analysis of their activities. Particularly in Ukraine, which is an MDO combat environment, Russian SOF has significant impact on the conflict. This case study will allow analysis of LSCO in an MDO environment and how Russia is able to use "Little Green Men" (presumably Russian SOF) to infiltrate Crimea and set the conditions for Russian CF.

Russia effectively uses multiple domains, especially cyber through social media, to gain an advantage. The current research gap in many case studies or doctrinally based arguments is twofold: the first is fighting a near-peer adversary. The United States has not engaged directly with combatants considered near-peer in an MDO LSCO environment. While there is much material discussing how an engagement might evolve, there is little historical context to ground the theory. The second gap is utilizing SF to maneuver in the enemy deep area to eliminate A2/AD systems and enable joint forced entry. This gap is the most important because currently this is the presumed mission for SF. To address this gap will require a different approach that historical case studies fail to answer.

D. DATA COLLECTION TECHNIQUES

Data collected from both case studies involved using several primary source documents, news articles, after-action reports, independent studies, and an interview with a primary source. These sources provide ample amount of information which was corroborated with the primary source. Questions were derived from the primary documents and then asked to COL(R) Davis. COL(R) Davis also provided daily journal notes taken during the Gulf War as well as manning rosters and equipment inventories. These valuable documents provided insight and blunt truthfulness as to how the war unfolded for SF. Other interviewees were unavailable for this research which only gives COL(R) Davis's

perspective, but other primary sources have written about their time in SF during the Gulf War and align with COL(R) Davis's recollection.

Data collected for the Russia-Ukraine case study drew from various first-hand accounts, news articles, analysis of the conflict. The sources provided plenty of analysis of the Ukraine-Russia Conflict as well as raw information in the form of news articles. The information provided allows one to draw a comprehensive picture of the nuanced aspects of the MDO environment within future LSCO. Students of future warfare can draw from the Russia-Ukraine Conflict to project how LSCO will evolve against peer and near-peer threats. The value of placing the historical events against the doctrinal conversations and theory is that it assists the reader in contextualizing and understanding how LSCO might play out in an MDO environment and what adaptations to a force are necessary in order to stay effective and relevant.

E. DATA ANALYSIS

Each case study was broken down by the six warfighting functions found in Army Field Manual 3-0. The Army defines the WFF as, "a group of tasks and systems (people, organizations, information, and processes) united by a common purpose that commanders use to accomplish missions and training objectives."[15] The breaking down of an engagement by warfighting function is done regularly throughout the Army and is the how the report is generated to attendees of Joint Readiness Training Center (JRTC) and National Training Center (NTC) rotations as well as countless other after-action reports. The WFF make up one part of the elements of combat power along with leadership and information – the core however are the six WFF as illustrated in Figure 1. The WFF consist of mission command, movement and maneuver, intelligence, fires, sustainment, and protection.
The Army defines the individual WFF as follows:

- Mission Command: the related tasks and systems that develop and integrate those activities enabling a commander to balance the art of

[15] Department of the Army, *Unified Land Operations*, ADRP 3–0 (Washington, DC: Department of the Army, 2012), 3–2, https://www.benning.army.mil/infantry/DoctrineSupplement/ATP3-21.8/PDFs/adrp3_0.pdf.

command and the science of control in order to integrate the other warfighting functions

- Movement and Maneuver: the related tasks and tasks and systems that move and employ forces to achieve a position of relative advantage over the enemy and other threats
- Intelligence: the related tasks and systems that facilitate understanding the enemy, terrain, and civil considerations.
- Fires: tasks and systems that provide collective and coordinated use of Army indirect fires, air and missile defense, and joint fires through the targeting process.
- Sustainment: tasks and systems that provide support and services to ensure freedom of action, extend operational reach, and prolong endurance
- Protection: tasks and systems that preserve the force so the commander can apply maximum combat power to accomplish the mission.[16]

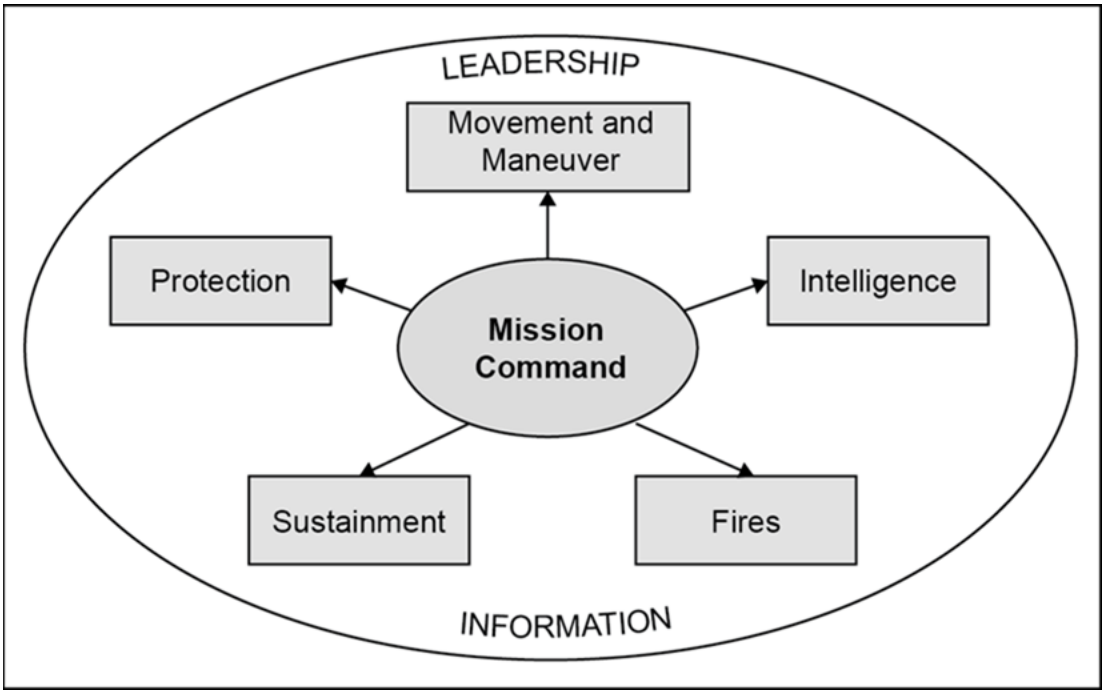

Figure 1. The Elements of Combat Power[17]

[16] Department of the Army, 3–2.

[17] Department of the Army, *Operations*, FM 3-0 (Washington, DC: Department of the Army, 2017), 2–22, https://armypubs.army.mil/epubs/DR_pubs/DR_a/ARN6503-FM_3-0-001-WEB-8.pdf.

Each of the WFF has additional tasks that fall under the greater WFF. The case studies were broken down to each of the individual WFF and the tasks associated with them. The Army WFF are similar to the joint functions that are found in Joint Publication (JP) 3–0 with the exception of information which is its own function. Information fell into the intelligence WFF with the understanding that in the future the Army might make information its own WFF.

Russian SOF and Ukrainian government and separatist forces operating within an MDO LSCO environment of Ukraine were analyzed using the framework of the U.S. WFFs. The intent was to determine if there might be gaps in the U.S. SF's combat capabilities as a result of the recent developments in MDO. The question we sought to answer was what vulnerabilities SF experience and what opportunities SF miss as a result of MDO . Historical case studies and actual events were analyzed against the WFF. To determine the success or failure of the action, primary and secondary sources were used to corroborate the actions. The main focus that provided quantifiable data is how SF destroyed and eliminated its targets from the battlefield. The historical analysis told how effective SF might be at destroying targets and which targets SF should concentrate its efforts on. The analysis of this type of data is commonplace in after-action reports generated along with WFF analysis at the CTCs.

F. RESEARCH POSITIONALITY

The researchers are both SF officers and who have been preparing for the next conflict the SF regiment may encounter. Recently, the researchers worked at the CTCs for the Special Operations Training Detachment (SOTD) where they both worked as Observers/Coach/Trainers (OCTs). There primary function was to train SF units for LSCO in an MDO environment. Until recently, SOTD had focused on unconventional warfare and in 2016 transitioned to LSCO. During the rotations at JRTC and NTC, SF units were faced with fighting a peer adversary and had to think of a different approach to the problem than they have previously experienced. These experiences shaped the researchers' impressions and motivated them to develop a deeper understanding of MDO's effects on

LSCO which the 20 years of war in Iraq and Afghanistan does not provide. The writers seek to draw from historical events to inform future SF doctrine and force structure.

IV. GULF WAR CASE STUDY

A. BACKGROUND

The Gulf War started on August 2, 1990, when the Iraqi Army invaded and annexed Kuwait.[18] This act of aggression was met with international condemnation and immediate sanctions and passage of resolution 660 by members of the United Nations Security Council.[19] UNSCR 661 called for the immediate withdrawal of the military from Kuwait with a deadline of January 15, 1991. This was followed by the deployment of U.S. troops and coalition forces to Saudia Arabia in order to protect Saudi oil fields and deter Iraq from further aggression, the operation was called Desert Shield. During Desert Shield, the months leading up to the January 15 deadline saw the steady build-up of U.S. and Coalition Forces in Saudia Arabia. Once diplomacy failed and the deadline to withdrawal was not met, Coalition forces would cross the border and use force to remove Iraqi troops from Kuwait in what was called Desert Storm.[20]

B. SPECIAL FORCES MISSION

Special Operations Command, Central Command (SOCCENT) was the joint (multi-service) command within U.S. Central Command that was responsible for SOF forces.[21] SOCCENT was composed of 3rd SFG(A), 5th SFG(A), and Task Force 160th. There were several other Special Operations units that contributed including SFOD- Det-Delta (Delta Force), and contributions from the UK (SAS). This case study will focus on the contributions of 5th SFG(A) and their role in Desert Storm/Desert Shield.

The 5th SFG(A) role during the Desert Storm/Desert Shield consisted of several core SF missions, the missions included foreign internal defense (FID), direct action,

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[18] Frank N. Schubert, *The Whirlwind War: The United States Army in Operations Desert Shield and Desert Storm* (Washington, DC: Government Printing Office, 1995), 24.

[19] Finlan, *The Gulf War 1991*, 29.

[20] Finlan, 29.

[21] Thomas Dinackus, *Order of Battle: Allied Ground Forces of Operation Desert Storm* (Central Point, OR: Hellgate Press, 2000), 6–1.

special reconnaissance (SR), combat search and rescue (CSAR) and unconventional warfare (UW). The study will focus on several of the missions that were conducted during the course of the Gulf War and the contributions of 2nd BN 5th SFG(A) commanded by LTC William Davis.

5th SFG(A) was uniquely qualified to contribute during the Gulf War as Iraq was inside the group's area of responsibility (AOR). Because the geographic area connected to 5th SFG(A), its members already were familiarized with the area, the threats, and the partner forces they would be working with. Once Iraq invaded Kuwait, 5th SFG(A) leadership began to specifically prepare for deployment to the Middle East, as it was not a matter of "if," but a matter of "when" and Iraq's invasion solidified that understanding.[22] With the invasion ongoing Soldiers began preparing by conducting refresher classes in Arabic, preparing equipment and plans to move their equipment, and focusing on procedures for the chemical, biological, radiological, nuclear, and high yield Explosives (CBRNE) threat, most notably the use of Sarin gas that was used during Iraq's previous war with Iran.

5th SFG(A) received orders to deploy to Saudi Arabia and arrived in King Khalid Military City (KKMC) 14 September 1990.[23] From there 5th SFG(A) would be placed along the border of Saudia Arabia and Kuwait. This was unique for a SFG to be responsible for frontage along the border which was usually reserved for conventional units. From the beginning of their arrival, 5th SFG(A) was ordered to send liaison elements and fully partner with several of the Arabic coalition armies. 2nd BN was the main effort for 5th SFG(A) and was partnered with elements from Saudia Arabia, Egypt, Kuwait, and Syria.[24] These units fell under Joint Forces Command-North.[25] 2nd BN was responsible for providing liaison

[22] William J. Davis, Interview on the 5th SFG(A) during Desert Storm/ Desert Shield, August 13, 2021.

[23] Davis.

[24] Dinackus, *Order of Battle*, 29–1.

[25] Dinackus, 29–1.

and partner force capability to each of the coalition countries anywhere from a company and even as small as three-man teams.[26]

While 5th SFG(A) was preparing for the order to cross into Kuwait and liberate the country, they assessed their partner forces to ensure they would also be ready to go once the order was given. One particular lesson that 5th SFG(A) prepared for stateside was the familiarity of donning and fighting in their mission-oriented protective posture (MOPP) suits and gas masks.[27] Their partner forces however lacked the adequate equipment to protect themselves against Sarin gas. As a result, 5th SFG(A)ordered protective gas masks to be distributed among their partner forces.

On January 16, 1991, the order was given and 5th SFG(A) along with their partner force crossed the border into Kuwait. Waiting for them where elements of IV Corps composed of 16th and 20th, Infantry Divisions stationed on the border.[28] Even though these troops were not the republican guard they were no less capable opponents who posed extreme risk to U.S. and coalition forces. These forces were primarily destroyed using guided munitions and of the forces that did not retreat eight thousand Iraqi Soldiers would surrender to 2nd BN 5th SFG(A) and their coalition partners..[29] They were also able to recover one F-16 pilot behind enemy lines and without any incident of fratricide or any loss of American life.

C. ANALYSIS BY WFF

The war fighting functions, which consist of mission command, movement and maneuver, intelligence, protection, sustainment, and fires, are used to analyze Desert Storm/Desert Shield as it offers an understanding of the elements of combat power. All of the WFFs are important to analyze with respect to 5th SFG(A) with some functions having

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[26] Davis.

[27] Davis.

[28] "Iraq Ground Forces: Order of Battle," GlobalSecurity.org, accessed August 24, 2021, https://www.globalsecurity.org/military/world/iraq/orbat-ground-91.htm.

[29] Davis.

more information available to research. The ones chosen for this analysis are important as the information that supports them is available and conclusions and recommendations can be drawn from these experiences.

In the case of 5th SFG(A), mission command will concentrate on the partnership with the Arab allies. Intelligence will reflect the lessons learned from the types of missions conducted which include border surveillance and SR missions. Movement and maneuver will focus on the mobility of the HQ element as well as the protection WFF and the lessons that it revealed. Fires will go over the integration SF had with coalition Air Force elements, and sustainment will briefly look at 2nd BN's loadout and resupply available.

1. Mission Command

The mission command warfighting function as stated in FM 3-0, "integrates the other warfighting functions into a coherent whole… it provides a purpose and direction to the other warfighting functions."[30] The 5th SFG(A) Commander COL James W. Kraus was instrumental in allowing his subordinate commanders the latitude to plan and execute the missions they believed necessary to accomplish the overall mission of liberating Kuwait from Iraqi forces.[31] 2nd BN 5th SFG(A) was tasked to partner with the Arab coalition countries of Saudia Arabia, Egypt, Syria, and Kuwait which would become Joint Forces Command- North (JFC-North).[32] SF also fostered a close relationship with the air force and marines which would prove fruitful during the war. These efforts would ensure that commanders had command and control in place and would be able to employ combat power effectively.

SF partnering with the Arab coalition was beneficial for the Arab countries and for CENTCOM. 5th SFG(A) was already familiar with working with partner force militaries through Foreign Internal Defense (FID) and Security Force Assistance missions. They were also uniquely qualified to partner with the Arab countries due to their area of

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[30] Department of the Army, *Operations*, 2–23.

[31] Davis.

[32] Dinackus, *Order of Battle*, 29–1.

responsibility and their familiarity with the Middle East and knowing and understanding the language and culture. Schwarzkopf was weary of the Arab allies and needed SF to give some semblance of the "ground truth" when it came to their capability.[33]

The flexibility given to commanders in 5th SFG(A) played an important role when SF integrated with the Arab coalition. 2nd BN would divide its formations to integrate with several of the Arab armies that made up the coalition and ensured every maneuver and headquarter element had a Green Beret assigned.[34] 2nd BN 5th SFG(A) even created an additional company, Delta Company, to integrate with a Syrian Division as to not feel slighted by the fact full companies partnered with Saudi, and Egyptian units. The company had no more than 25 SF Soldiers, yet the gesture was necessary for the Syrians to feel equal among the other Arab allies.[35] This type of flexibility kept the coalition together and more importantly ready to execute any mission that would be directed. It also provided a level of comfort to General Schwarzkopf that JFC-North was ready to execute the ground campaign.

There were several benefits of having Green Berets advising the Arab coalition militaries that led to a successful partnership. For one, it allowed SF to influence decision making of JFC-North and provided CENTCOM with situational awareness.[36] It also provided a level of comfort to the Arab countries knowing that SF had effective means of calling for fire both artillery and close air support. At the higher levels 2nd BN leadership would help influence the mission planning for the Arab militaries. Prior to the Gulf War, Arab states were never introduced to the methods of the U.S. or its NATO allies, the Iraqis for example were modeled after the British and influenced heavily by the Soviets doctrine.[37] The overall trend in the Arab states was that the mission that was briefed was

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[33] Robert H. Scales, *Certain Victory: United States Army in the Gulf War* (Washington, DC: Government Printing Office, 1993), 123.

[34] Davis.

[35] Davis

[36] Davis.

[37] Murray Davies, "Beaten Before H Hour: An Analysis of the Iraqi Defeat in the Persian Gulf War," *Australian Defence Force Journal*, no. 116 (January 1996): 45.

gospel and any deviation could not and would not be comprehended. With SF embedded at all of the Arab headquarters, SF leadership was able to build flexibility into the planning and plan for any contingencies that occurred.[38]

The final point for how 5th SFG(A) used mission command was the importance placed on jointness and the involvement of the other U.S. coalition services. Early during Desert Shield 2nd BN knew the importance that the other services would provide when the time came to liberate Kuwait. LTC Davis would invite Marines, pilots, and any other personnel from outside their organization to daily operations and intelligence briefings.[39] The relationship fostered between pilots was mutual due to the fact any CSAR operations would be conducted by SF and TF 160th pilots. During combat operations this relationship proved productive when pilots returning to base would check-in with 2nd BN to inquire about any potential targets that needed interdiction, which there was no shortage of.[40]

The mission command function for SF served two main goals of partnering with the Arab coalition and at the SF group level to include every enabler and asset it could. These goals are perhaps two sides of the same coin. In MDO, the future battlefield according to Generals Robert Brown and David Perkins, "will be one where integration into joint and multinational forces is a prerequisite for victory."[41] This was absolutely the case during the Gulf War and especially true in future wars. The Arab coalition of course was not perfect, and SF had only previously worked with a handful of the special operations units, but most of the Arab coalition was comprised of conventional forces. Today, SF infrequently partners with conventional units and instead focuses their training with the host countries SOF. More importantly when SF trains a partner force it is often times during the shaping phase (phase 0) of major military operations. Although the Iraqis did not invade into Saudia Arabia, every day was borrowed time that SF trained the Arab coalition.

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[38] Davis.

[39] Davis.

[40] Davis.

[41] David Perkins and Robert Brown, "Multi-Domain Battle: Tonight, Tomorrow, and the Future Fight," *War on the Rocks*, August 18, 2017, https://warontherocks.com/2017/08/multi-domain-battle-tonight-tomorrow-and-the-future-fight/.

Because of this training and assessing that took place, SF could identify any shortcomings the militaries had and rectify them before combat operations began. The same can be said that time is a valuable asset, and the more time SF has to train and assess before a conflict, the better understanding leaders and decision makers have in utilizing their capabilities.

The same can be said for the joint services working together with SF prior to conflict. The Gulf War saw "jointness" at its infancy and inviting sister services to daily operations and intelligence meetings created a relationship that was leveraged as combat operations and the air campaign began. SF has made leaps and bounds since the Gulf War in strengthening the working relationship with the joint force through multiple exercises and the following wars in Iraq and Afghanistan.

Examining TRADOC's *Multi-Domain Battle: Evolution of Combined Arms for the 21st Century*, the publication list several capabilities and actions required for MDO battle and with respect to mission command.[42] The list has several instances where high importance is placed on maintaining, "highly capable joint, interorganizational, and multinational teams to provide strength to partner forces, even when the U.S. is not the lead nation,"[43] and develop interoperability with partners, "when system interoperability is not practical."[44] SF was able to plan, communicate, and execute missions even though the systems today did not exist, everything was done face-to-face or over comms equipment. This is even more relevant as domains like space become contested and can have effects on systems and communications. Furthermore, less technology forced leaders to be more engaged with their personnel and the battlefield as proximity played a big role. SF from their inception had to work together with foreign partners and joint enablers and the Gulf War was no exception.

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[42] TRADOC, *Multi-Domain Battle: Evolution of Combined Arms for the 21st Century* (Fort Eustis, VA: TRADOC, 2017), 53–54, https://www.tradoc.army.mil/wp-content/uploads/2020/10/MDB_Evolutionfor21st.pdf.

[43] TRADOC, 54.

[44] TRADOC, 53.

2. Movement and Maneuver

SF used many different elements when it came to movement and maneuver on the battlefield. New technology began making its way down to units in the form of GPS receivers giving commanders better situational awareness. Despite the tech advantage, SF continued to utilize the equipment they had and came up with creative solutions to ensure the Arab coalition was effective and that fire control measures were adhered to so as to limit any chance of fratricide. One of the first ways of controlling the formations was for 2nd BN to utilize mobile tactical operations center (TOC). The second SOP 2nd BN created were vehicle markings which would differentiate friend from foe. These low-tech solutions ensured every maneuver element in the desert was tracked, accounted for, and most importantly safe.

The biggest technological change in Desert Storm/Desert Shield was ability for the coalition to use GPS for navigation. It had been said that navigating in the most important technique in desert warfare due to a large featureless desert with few paved roads and a short supply of updated maps.[45] GPS was used with great success as it allowed commanders to have situational awareness in real-time of where their units were located in the vast dessert. It also allowed for the use of precision munitions to be dropped on Iraqi forces. There were however large drawbacks of the system. The first being that the Navstar signal was available in the Gulf region for only 18–20 hours a day.[46] This left a considerable gap in coverage. The second drawback for SF was the lack of GPS receivers. The maneuver elements operating with the Arab coalition lacked the GPS receivers to utilize GPS properly and so SF would have to rely on maps and their compasses along with any identifiable terrain features to navigate in the desert.[47] The desert being vast this was difficult to accomplish especially during hours of limited visibility which was also

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[45] Michael R. Rip and David P. Lusch, "The Precision Revolution: The Navstar Global Positioning System in the Second Gulf War," *Intelligence and National Security* 9, no. 2 (January 1994): 171, https://doi.org/10.1080/02684529408432248.

[46] Rip and Lusch, 174.

[47] Davis.

exacerbated by the oil fires and all the smoke that it created. SF was able to work around the lack of equipment by always falling back on the basics.

There were a number of innovations the 2nd BN created in the terms of command and control and movement and maneuver that were unique to the Gulf War and have been replicated since. Leadership in 5th SFG(A) at the BN level also had to maintain control of their units as they pushed across Kuwait. They were successful by having a mobile BN tactical operations centers (TOC).[48] Their TOC call the "Red Dragon Lounge" consisted of several vehicles with redundant communications systems where they could communicate down and out while maintaining proximity to subordinate units fighting.[49] This put leadership on the front line and increased their situational awareness which placed them in a better position to maneuver their units.

Being integrated with the Arab coalition also identified issue that might arise during combat. This was due to a large amount of Soviet equipment the Arab countries had which was identical to what the Iraqi army fielded as well. Incidents of fratricide were a reality especially when a majority of the destruction that occurred was a result of coalition aircraft bombing. 2nd BN developed markings for every friendly vehicle and ensured the markings were implemented. The markings themselves were visible from the air and the ground.[50] This small detail resulted in zero incidents of fratricide among the Arab coalition and 5th SFG(A).[51]

Movement and maneuver in MDO relies on the ability for forces to "converge" to achieve a purpose.[52] The intent is that units are able to be centrally commanded but execute the commander's intent without continuous communication. SF had used the techniques

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[48] Davis.

[49] Davis

[50] Davis.

[51] Davis.

[52] Andrew Smith, "Convergence within SOCOM – A Bottom-Up Approach to Multi Domain Operations," *Over the Horizon*, April 9, 2020, https://othjournal.com/2020/04/09/convergence-within-socom-a-bottom-up-approach-to-multi-domain-operations/.

mentioned above to streamline and operate with the commander's intent, it also helped that BN leadership were in close proximity to make decisions that required their approval. COL(R) Davis further streamlined the kill chain by "pre-greasing the ROE" (Rules of Engagement).[53] This was done by planning for the worst contingencies that could happen and seeking the approval prior to the mission. In case comms went down the ground force commander could make that decision. It seems like common sense, but in reality, some environments are more sensitive and require higher approval.

The other actions that SF did to allow for movement and maneuver with their Arab partners reflects what SF will have to accomplish in MDO environments. Along with convergence, fratricide becomes more likely as foreign units potentially take the lead or they had not worked with the U.S. military previously. Marking vehicles and having SF collocated with partners brings forth a clearer understanding when commanders are making split second decisions. Any fratricide against a multinational partner is sure to be used against the military in the Information domain as propaganda.

3. Intelligence

The Gulf War introduced many new and improved capabilities that revolutionized how intelligence was collected through the use of sensors. These sensors ranged from AWACS and JSTAR to improved sensors on satellites and on aerial reconnaissance platforms.[54] These assets especially contributed to the air campaign during Desert Storm with providing locations of air defense targets, identifying enemy vehicles and equipment, and targeting supply convoys. There were limitations however as there were a limited number of sensors and the sensors were dependent on satellites and aircraft station time, weather, and visibility. Interdependence and interaction of intelligence, defense suppression and precision guidance, all three depended on intelligence data that identified

[53] Davis.

[54] William J. Perry, "Desert Storm and Deterrence," *Foreign Affairs* 70, no. 4 (1991): 70.

and located the targets.[55] These could be sensors in the air or human sensors conducting reconnaissance.

SF had several missions where they would be tasked as part of their mission to gather intelligence. At higher echelons, missions into Iraq were conducted by Delta Force in an effort to find and destroy SCUD launchers.[56] 5th SFG(A) was also tasked with several missions to conduct SR missions deep within Iraq to gather intel on Iraqi forces. Outside of the SCUD hunting and SR missions, SF would also collect intelligence by conducting border surveillance. Finally, because of the work with the Arab allies, SF would be able to receive information from them or the thousands of prisoners of war (POW) that surrendered throughout the conflict.

One of the most heroic missions was the SR mission conducted by members of 1st BN 5th SFG(A). SFODA 525 was tasked to conduct a SR mission in support of the XVIII Airborne Corps.[57] They were to fly into Iraq and establish a hidden position and monitor enemy troop movement Highway Seven, one of the main routes from Baghdad through the Euphrates valley.[58] When the mission became compromised, the team had to fight their way out of harm's way. The SR mission did highlight a lot of the issues with the intelligence the team did receive, and it reflects on the intel SF had received from higher. The intelligence was often broad or completely inaccurate. One of the examples the team gave was the composition of the soil. They were told the soil would be easy to dig and similar to Saudi soil, where they were rehearsing the mission.[59] This proved to be incorrect and became one of the factors that led to the mission to be compromised. It also highlighted the need for bottom-up refinement of intelligence, meaning that SF teams need to analyze

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55 Perry, 76.

56 "Secret Warriors," *Newsweek*, June 16, 1991, https://www.newsweek.com/secret-warriors-204430.

57 Rhys Thomas, *Danger Close: The Rescue of ODA-525* (RCT Publishing, 2016), 10.

58 "Voices in the Storm: Against All Odds," Frontline, January 9, 1996, https://www.pbs.org/wgbh/pages/frontline/gulf/voices/2.html.

59 Mark Zinno and Chad Balwanz, "Chad Balwanz: Green Beret/ODA 525," October 29, 2019, in *Hazard Ground Podcast*, produced by Matt Pascarella, podcast, MP3 audio, 1:28:34, https://hazardground.com/episode/ep-140-chad-balwanz-green-beret-oda-525/.

their own information to plan and execute operations and not rely solely on intelligence from higher echelons.

Outside of this, the intelligence SR teams were sent forward to the border of Kuwait and Saudi Arabia where SF team members conducted border surveillance and reported on Iraqi troop activity.[60] This use of SF was important as a tripwire in the event Sadam decided to give the order to attack into Saudi Arabia. This mission was run by SF and their partners continuously day and night until the ground war began.

SF's ability to work in small teams and with a partner force are combat multipliers. Under the intelligence requirements in MDO, SR fits the need for conducting, "continuous reconnaissance, surveillance, security, and intelligence operations across all domains, and within dense urban and complex terrain."[61] CF had the ability to use this capability with its long-range surveillance teams, but in 2018 deactivated its three active duty and four national guard companies.[62] This leaves a significant capability gap that SF is well suited to fill. Despite Balwanz's team being compromised, many of the factors that contributed to the failure of the mission where external to the capability of the team. The team was also able to survive because of the training, preparation, and adaptability they possessed. Finally, when the SR mission went from a passive intelligence gathering mission to a kinetic fight it was the team's ability to call-in terminal guidance on the enemy that saved their lives.

4. Fires

The fires warfighting function was one of the most crucial parts in the success of the war. There were two aspects that contributed to the fires WFF, the first was the ability for SF to locate and identify targets and then destroy them using coalition aircraft. The second is reporting to higher echelons of the battle damage assessment (BDA). BDA

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60 Zinno and Balwanz, "Chad Balwanz: Green Beret/ODA 525."

61 TRADOC, *Multi-Domain Battle: Evolution of Combined Arms for the 21st Century*, 53.

62 Alex Horton, "The Army Is Deactivating Its Long Range Surveillance Teams … Again," *Task & Purpose*, January 25, 2017, https://taskandpurpose.com/news/army-deactivating-long-range-surveillance-teams/.

simply is reporting back the status of the target after munitions are dropped. SF contributed to these two efforts and improved the targeting for warplanes to engage the enemy. This was especially crucial for Air Force planners directing sorties. The BDA let commanders know what important equipment, and how many troops are remaining on the battlefield after an attack, so that decisions can be made where to send reinforcements or if needed to change a given strategy. Throughout Desert Storm/Desert Shield, SF was constantly sent out on SR missions to find targets on the battlefield and then call-in airstrikes to eliminate them.[63]

SF used many different technical means to call for fire and direct aircraft to their target locations. Outside of using GPS coordinates, SF had to rely on more primitive means to vector in aircraft to their target. SFODA 525 for example, when they realized their SATCOM radio was inoperable, had to use an emergency radio (PRC-90) in the open to communicate with pilots.[64] The pilots needed confirmation of were SFODA 525 was located and without GPS eventually relied on a signal mirror.[65] SF in 2nd BN would use radio beacons for aircraft crossing the border between Saudia Arabia and Kuwait.[66] These radar beacons aided coalition aircraft in confirming their position on the border.[67] These low-tech options may become useful again when the enemy is able to effect the Space Domain.

In the MDO environment, the fires WFF will play the necessary role of eliminating the A2/AD threat to allow joint forced entry. The fires WFF in MDO capabilities and supporting actions defines fires as, "the capability to converge, integrate, and synchronize cross-domain fires at the operational and tactical-levels to create windows of advantage to

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63 William Rosenau, *Special Operations Forces and Elusive Enemy Ground Targets: Lessons from Vietnam and the Persian Gulf War* (Santa Monica, CA: Rand, 2001), 35.

64 Thomas, *Danger Close*, 126–27.

65 Thomas, 132.

66 Davis.

67 Davis.

achieve friendly objectives, create dilemmas, or defeat enemy systems."[68] The MDO concept further recognizes that the deep fires area is, "beyond the feasible range of movement for conventional forces, but where joint fires, SOF… can be employed."[69] Furthermore, this allows SOF to converge effects from all domains in otherwise denied areas. The SR team was tasked with a similar set of objectives to gather intelligence and if need be, to use fires to destroy the enemy. The difference here will be the added risk of penetrating A2/AD systems that are more capable than the Iraqis air-defense systems. The tactics used by 160th SOAR to avoid detection and time of night inserting the team were all factored in to give the greatest probability of success to the team.

Using SF teams in the deep fires area to perform terminal guidance operations is important due to the access and proximity of those teams. What is more significant is how they were able to direct aircraft munitions. Both the SF teams during the push into Kuwait and the SR team were able to communicate or relay their intent to aircraft when traditional methods were not present. Using older methods from Vietnam to find a way to communicate using an emergency radio to talk to pilots or radio beacons to vector aircraft in on a target might be used again in a comms degraded environment. In the end, using basic methods that are more resistant to jamming and create a smaller electromagnetic signature that avoid detection could become valuable in deep fires areas.

5. Sustainment

Sustainment is often an overlooked war fighting function for its critical importance to war. Sustainment allowed the air campaign over Kuwait and Iraq to be so successful partly due to coalition aircraft having unlimited access to Saudi airbases and fuel.[70] This was also true for coalition troops to have Saudia Arabia as a staging location where supplies and logistics trains had freedom of maneuver. This allowed the U.S and the coalition to rapidly build combat power in anticipation for war with Iraq. Special Forces also benefitted

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[68] TRADOC, *Multi-Domain Battle: Evolution of Combined Arms for the 21st Century*, 57.

[69] TRADOC, 9.

[70] Perry, "Desert Storm and Deterrence," 67.

from this. SF however in 1990–91 did not have the funding that SF currently has in the fight against global terror. This was evident in the equipment they had when they arrived in Saudia Arabia. Historians credit new technological advances for the campaign's success and while true to a certain extent there was a limited supply that the troops had. 2nd BN had only 36 LORN-C Receivers.[71] Communications radios were also limited especially the new SATCOM enabled radios and not every team was signed for one. Even camouflage uniforms were in short supply with each SF soldier only having two sets. Insufficient equipment was only a planning factor for SF. The adage of "you go to war with what you have" was important in the gulf war as it is today.[72] 2nd BN was able to go back to the basics and rely on their ingenuity to find work arounds for the lack of equipment. For example, radio headsets were created where multiple radios were monitored and relayed throughout the formation. It also was advantageous that the BN HQ was a mobile and on the front line with the rest of the formations, which allowed the dissemination of information.

Sustainment for Special Forces was different in Desert Storm/Desert Shield as the campaign was conventional. The campaign was conventional in that there was a front where the enemy was known. If you cross the border into Kuwait and Iraq the enemy would be present. During the Gulf War, this allowed for 5th SFG(A) to establish a rear echelon where supplies and logistical needs could be utilized, and routes established whether through ground convoys or air resupply.

Resupply was still not an easy task as the war was fast paced and the push into Kuwait outran supply chains. 5th SFG(A) was prepared for this contingency by requiring SF operators to carry everything they needed with them and because of terrain remain in their vehicles for the duration of the operation.[73] Vehicles allowed SF to carry equipment and extras for up to a week. The only difficult issue to understand is that in other semi-

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[71] Davis.

[72] Davis.

[73] Davis.

permissive areas resupply may be difficult. Not wanting to fully rely on logistics convoys the teams prepared as if they would not be resupplied and were more self-sufficient.

The sustainment WFF in MDO is, "the capability to sustain forces via a global network of fixed and mobile bases to enable sustained operations at the necessary tempo for the required duration."[74] The Gulf War saw months of opportunity for the build-up of forces and supplies to include support from Saudia Arabia. This had been a more than ideal situation where air and sea routes were uncontested, and a forward staging area was provided. In an event with peer competitors this may not always be the case. China in recent times has enlarged its presence in the South China Sea and elsewhere, making it potentially difficult to sustain SF and coalition forces. Inside of armed conflict sustaining the deep area arises several concerns. The most logical answer and one that occurred during the Gulf War was self-sustainment. This is again echoed by AFC Pamphlet 71-20-4, stating that sustaining SOF in deep areas requires self-sufficiency.[75] Included in the pamphlet are requirements for interoperability with partners, caches, and various delivery systems. Prior relationships with partner forces, both current and future will require thorough assessment of the capabilities, equipment, and locations for SF to prepare the environment prior to armed conflict. Ultimately, the key will be to carry-in the necessary equipment needed for mission success and plan for resupply knowing it may not happen.

6. Protection

There were several threats that SF and coalition troops had to be prepared for and one of those was the NBC threat. Sadam throughout the entire campaign launched SCUD missiles across the border into Saudia Arabia. The missiles most of the time would be intercepted midair and destroyed. This did not stop trace amounts of Sarin to remain suspended in the air and being carried into the atmosphere. Nuclear, biological, and chemical (NBC) detectors and alarms would go off and Soldiers would rush to don their

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[74] TRADOC, *Multi-Domain Battle: Evolution of Combined Arms for the 21st Century*, 59.

[75] Department of the Army, *Army Futures Command Concept for Maneuver in Multi-Domain Operations 2028*, AFC Pamphlet 71-20-1 (Washington, DC: Department of the Army, 2020), 30, https://api.army.mil/e2/c/downloads/2021/01/20/2fbeccee/20200707-afc-71-20-1-maneuver-in-mdo-final-v16-dec-20.pdf.

protective gear. After a while masks would come off and everybody would continue with their missions. It wasn't till after the war when veterans started to fall ill. In the short-term the protective gear worked as designed it was however the sensitivity of the detectors that sometimes did not pick up the trace levels. On top of having to ensure SF Soldiers had adequate protection against NBC threats, they also had their partner force to worry about. The Arab coalition had various degrees of NBC protection which trickled down from Soviet made gas masks for higher ranking individuals to just ponchos and cloth to stop Sarin.[76] It was 5th SFG(A) who eventually provided coalition members with the adequate protective equipment.

Finally, when 2nd BN first arrived in country, they identified the need for military vehicles or armored vehicles if available. The first couple of months on the ground, SF was able to acquire Japanese Type 73 trucks, then chevy trucks, and finally an adequate number of HMMVs all of which were unarmored. With the HMMVs SF would be able to cover and reinforce area with sandbags and steel plates to offer some protection against the armor divisions they would soon face. The key was mobility, and 2nd BN ordered every SF member to stay mounted and to make harden vehicles with sandbags and Flak vests.[77]

SF and military have come a long way with providing vehicles that are able to withstand the threats in their environment. The focus for future armed conflict will be the use of chemical and biological weapons. The AFC pamphlet makes two mentions of CBRN events and the ability for one to detect the threats and continue operations and secondly, to provide early warning for the potential use in order to potentially interdict the threat.[78] At the time of the Gulf War, the ability to detect was difficult as CBRN detectors were not advanced and SF had to rely on the Arab nation's detectors, who used more advanced detection units from Czechoslovakia.[79] SF being placed in the deep fires area and

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[76] Davis.

[77] Davis.

[78] Department of the Army, *Army Futures Command Concept for Maneuver in Multi-Domain Operations 2028*, 40–41.

[79] Davis.

potentially having to detect and preemptively destroy CBRN targets will become a critical capability as mentioned in the fires section. For this SF needs the equipment and training necessary to meet that capability. The Gulf War was an example that these threats exist and given SFs proximity to these strategic weapons; it will be up to them to stop them from being used.

7. Conclusion

The same lessons learned may be applied to future conflicts with future peer competitors like China. China took away several lessons away from the gulf war that can determine the need for SF. One of the biggest was the use of precision guided munitions. The U.S. had great success with SF calling in airstrikes against Iraqi forces. China too saw the need for a comprehensive missile defense system to offset the West's capability to strike in the form of anti-access/area denial systems.[80] These systems make it difficult for the U.S. to gain any form of air superiority against China in areas like the South China Sea, Taiwan, or even mainland China. The task of penetrating the A2/AD bubble is uniquely suited for SF teams who have the ability to use a partner force and SR teams to identify and target these systems. In an environment where technology might deny the U.S. its use of guidance systems or GPS for precision munitions, SF during Desert Storm/Desert Shield used low tech options like placing beacons to vector in aircraft on their targets which might be important once again.[81]

Getting SF into these areas is something the Gulf War shows; however, it does not fully address the scope of the future threat capability. SF and CF had the opportunity to build up their forces in relative safety in Saudia Arabia prior to the launch of Desert Storm. The possibility of finding an uncontested area to build up forces might not exist. To address this issue SF since its inception have been conducting FID and other joint training across the world. This gives SF the needed access to report the ground truth in the event of a crisis. With SF already on the ground working with their partner force, the advantage is critical.

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[80] Si-fu Ou, "China's A2AD and Its Geographic Perspective," *Asia Pacific Research Forum*, no. 60 (2014): 82.

[81] Davis.

SF also has the ability to continually access its partner and identify any short falls in equipment or training like the radios and gas masks that Arab partners were lacking in.

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V. UKRAINE CASE STUDY

A. BACKGROUND

The Ukraine case study provides many exceptional examples of how the multi-domain operations environment during large-scale combat operations has reshaped how militaries should conduct warfare. The specific focus is how Special Forces must adapt to the changes within the domains of the War Fighting Functions of mission command, movement and maneuver, intelligence, fires, protection, and sustainment. As a result of the changing nature of warfare due to the MDO environment during LSCO, military leadership should make some changes to SF if it is to remain effective and relevant in the new LSCO MDO environment.

Analyzing the MDO LSCO problem set through the lenses of the war fighting functions provides a framework of required adaptations SF must make. For the first WFF, the conflict in Ukraine demonstrates that mission command of forces can become increasingly difficult due to the high reliance on signal emitting communication platforms. Additionally, when working with indigenous forces, due to their differences in force structure, equipment, and capabilities, SF partnership is essential to ensure mission command. SF units should expand their capabilities to have organic signal intercept and jamming as part of their task organization so that when partnered with indigenous forces, they can both enhance the lethality, survivability, and mission command of that unit. Russian SOF units have demonstrated the effectiveness of this model in Ukraine.

For movement and maneuver, the SF's core mission set of working through and with indigenous forces shines through. Like mission command, not only does partnership facilitate movement and maneuver, but it also mutually enhances lethality and effectiveness. The conflict in Ukraine demonstrates that movement and maneuver of conventional forces is still required in MDO LSCO and that SF units partnered with indigenous forces optimize phasing and timing in in conflicts.

One of the greatest developments in the 21st century to shape the MDO environment of LSCO is the information domain. The open-source internet provides nearly boundless

opportunities for intelligence collection as well as information operations. In Ukraine, Russian units effectively penetrate and employ the cellular networks to target Ukrainian forces as well as promote information operations. Due to the myriad of sources of information, the information domain enhances the offense since there is nearly no way to inhibit or contain the flow of information outward. SF units must be aware of the new risks posed by the information domain as well as understand how to effectively leverage that domain. As a result, SF units should adjust their task organization to include a cyber/ASOT MOS if they are to keep pace with the information environment and have offensive effects. This MOS would not only provide the United States and an indigenous force offensive capability but also enable SFODAs to understand and mitigate the risks posed to friendly forces by the information domain.

With respect to the WFF of fires, the conflict in Ukraine illustrates Russia's high fusion of signal intercept capabilities within the intelligence WFF and indirect fires. Russia heavily employs its SOF with signal intercept capabilities, EW, and drones to feed into its fires targeting cycle with great lethality. While U.S. SF units have always fed into the U.S. targeting cycle, they should take note of the expanded breadth of MDO capabilities—particularly with regard the signal intercept and drone methods—used by the Russians within Ukraine. Russia's use of signal intercept and EW only further reinforces the concept that the current SF task organization is antiquated and requires an additional ASOT MOS as an organic capability.

As a result of the increased offensive possibilities as a result of the MDO environment and the speed with which they can be brought to bear, the WFF of protection remains just as important as ever. The first, as Ukraine has learned fighting Russia, is increased signal discipline. Units must be careful how, when, and what signals they emit. Second, units much continue to place an emphasis on camouflage due to the increased threat of drones. SF units should take note to both employ these capabilities as well as defend against them.

Finally, for the WFF of sustainment, SF should seek to disrupt enemy supply lines in the deep battle space. With MDO LSCO's potential for increased operational tempo, disruption of supply lines can have a devastating impact on a force. SF should remain

prepared to operate in the deep space and work with partner forces to disrupt enemy sustainment operations in order to buy the Joint Force space and time and maneuver. SF needs to adapt its current doctrine and its force structure to accommodate the new MDO environment of future LSCO.

B. UKRAINE CASE STUDY

One of the most notable changes in the development of multi-domain operations in large-scale combat operations is disaggregation of forces; it's a transformation that has evolved over millennia. The Greek phalanx, which required close formations and direct engagement with the enemy, progressed to standoff with the use of archers with longbows then to muskets. Now, warfare has evolved from 20th century aircraft to cyber systems and unmanned aerial platforms capable of detecting and destroying targets thousands of miles away. This trend in battlefield dispersion is further enabled by the technology of the MDO environment, and leaders must now predict how the progression of battlefield dispersion and lethality will carry into the future. The new era of technological change lends itself to flatter, and more agile networks as evidenced by terrorist networks or corporations.[82] Leaders should prepare for the strategic challenge of fighting with increased dispersion, and they also must understand why such dispersion is necessary and how it is employed by rival forces. John Hyten, the Vice Chairman of the Joint Chiefs of Staff, observed the need for increased dispersion of forces during a classified wargame. Hyten stated that during the wargame the U.S. "failed miserably" and in "today's world, with hypersonic missiles, with significant long-range fires coming at us from all domains, if you're aggregated and everybody knows where you are, you're vulnerable."[83]

For SF to properly adapt in an MDO LSCO environment, one must first understand the nature of the environment in which they are expected to operate. SF can use vignettes from modern international conflicts to project how future conflicts may develop and what

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[82] John Arquilla, "Final Class Lecture in DA4101."

[83] Tara Copp, "'It Failed Miserably': After Wargaming Loss, Joint Chiefs Are Overhauling How the U.S. Military Will Fight," *Defense One*, July 2021, https://www.defenseone.com/policy/2021/07/it-failed-miserably-after-wargaming-loss-joint-chiefs-are-overhauling-how-us-military-will-fight/184050/.

internal and external adaptations are necessary. While not fully escalated to the level of LSCO, the ongoing conflict in Ukraine exhibits elements what one could expect in the employment of SF in an MDO LSCO environment. This conflict which emerged in 2013 between Ukrainian Government Forces, Russian backed separatist groups and Russia provides many examples. Unlike World War Two, the Vietnam War, and to a large extent—the Gulf War, the conflict in Ukraine exemplifies critical aspects of MDO in which there is a high degree of fusion between signal intercept capabilities, weaponization of the operational environment such as the open-source internet and traditional fires. While the U.S. doctrinal war fighting functions remain unchanged, the U.S. can use this conflict to consider how future conflicts might play out and what doctrinal and tactical changes are necessary to increase one's success during LSCO.

According to Howard Altman, "the 'full spectrum' of Russian military doctrine has been on display in Ukraine since the Russians took over the Crimea in 2014 and are engaged in ongoing bloodshed and assisting rebels in the east. That doctrine includes the use of conventional forces like mechanized infantry backed by armor and artillery, special operations forces, assassination and bombings, electronic warfare, cyber-attacks, and the weaponization of information. It is a combination of efforts often referred to as 'hybrid warfare. '"[84] While hybrid warfare is primarily understood to be employed in Russia's gray zone conflicts, Russia would also use it against peer adversaries in LSCO. Indeed, many of Russia's operations against Ukrainian Government Forces could be classified as LSCO considering the large formations of conventional forces employing the full spectrum of Russia's military capability.

Russia's new model of warfare has reshaped the more familiar models of LSCO. World War Two, Vietnam, and the Gulf War emphasized mass formations, mass firepower, and mass maneuvers. Even the most recent invasion of Iraq does not have the latest aspects of MDO which military planners and leaders must now consider in order to effectively both survive and conduct offensive operations in LSCO. The developments of technology

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[84] Howard Altman, "Lessons for the U.S. Military from the Russian Invasion of Ukraine," *Military Times*, March 6, 2020, para. 5, https://www.militarytimes.com/news/your-military/2020/03/06/lessons-for-the-us-military-from-the-russian-invasion-of-ukraine/.

within the 21st Century have reshaped the battlefield with respect to space, time, and force. As a result, military planners and leaders should understand how this affects the war fighting functions.

1. Mission Command

Accustomed to the hyper connected Tactical Operations Centers (TOCs) in the Global War on Terror, military leaders must remain prepared to adapt to limited connectivity in an MDO environment during LSCO. Mission command has increased in complexity with the development of the MDO environment. The U.S. Army Concept for Special Operations 2028–2040 places a heavy emphasis on the challenges the MDO environment creates and states that SOF should seek to enable convergence through command and control.[85] However, advancements in signal disruption and intercept capabilities have increased the challenge to effectively communicate over increasingly large battlespace. Major General Kremenetkyi of Ukraine highlighted this when he stated that "Russian electronic warfare attacks considerably inhibit Ukrainian operations during live combat activity, including causing commanders to lose control of their units at key moments, making their forces vulnerable to artillery fire, jamming counter-battery radar systems, and making it impossible to use UAVs."[86] He further explained how "the Russian electronic warfare operations were continuous and during pauses in fighting they were collecting intelligence on Ukrainian communications networks to be exploited later in combat situations."[87]

According to the London-based Royal United Services Institute (RUSI), "Russian forces have made extensive use of electronic warfare in the conflict in eastern Ukraine, underlying the emphasis placed on electronic warfare to counter enemy military

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[85] Department of the Army, *Army Futures Command Concept for Maneuver in Multi-Domain Operations 2028*, vi.

[86] "Russia Steps up Electronic Warfare Campaign in Eastern Ukraine," Janes, September 19, 2017, 2, https://customer.janes.com/Janes/Display/FG_646618-JDW.

[87] Janes, "Russia Steps up Electronic Warfare Campaign in Eastern Ukraine," 2.

capabilities by Russian military planners."[88] Russia has embedded electronic warfare units within every rebel Russian separatist military formation in Donbas, and these units report to Russian commanders.[89] Russia's effective implementation of electronic warfare throughout its operations in Ukraine demonstrates how vulnerable networked communications and technology dependent militaries such as the U.S. are to becoming blinded. Western leadership and battlefield dominance in these technologies in the MDO environment cannot be taken for granted.[90]

In light of these new challenges and changes to the operational environment, U.S. Special Forces units should not operate in the exact same manner as historically seen. Instead, the Special Forces' mission sets should be modified to accommodate new operational environment and threats. It must adapt to the changing nature of war. Russia's integration of their conventional and special operations forces into the Ukrainian Separatist Forces simultaneously enhances their command and control across a disaggregated battlefield and inhibits their targetability by Ukrainian Government Forces through dispersion. While it is nearly impossible for SF to completely hide its signature due to A2/AD in the MDO environment, SF can increase the survivability, speed, agility, and lethality of a partner force through effective networking of command and control, just as Russia's SOF has done with pro-Russian separatist formations. Russian SOF training and equipping of separatist and paramilitary units both serves as a force multiplier and complicates the movement and maneuver of Ukrainian Government Forces.[91] These irregular forces also benefit from support by conventional Russian units when required.[92] This integration of SOF with irregular forces mutually enhances the capability and lethality of the overall force structure.

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[88] Janes.

[89] Janes, 2.

[90] Janes, 2.

[91] Robert Angevine et al., *Learning Lessons from the Ukraine Conflict*, NS D-10367 (Alexandria, VA: Institute for Defense Analyses, 2019), 6, https://nsiteam.com/social/wp-content/uploads/2019/07/NS-D-10367-Learning-Lessons-from-Ukraine-Conflict-Final.pdf.

[92] Angevine et al., 6.

Modern MDO LSCO is no longer a war fought solely with conventional weapons but also employs a higher degree of signal intercept and jamming capabilities, cyber warfare, and open-source mediums to both monitor and promote information. Thus, SF SFODAs should expand their abilities to gain proficiency and understanding in these capabilities. Just as Russia has employed small electronic warfare teams to identify Ukrainian positions, SF units should prepare to operate in a similar way within the deep space to assist in targeting. Russia operated small cells with separatist troops, both beyond and collocated with the front line, in order to provide specific and advanced capabilities. Such actions were tied to the larger Russian command and control structure and were a key element to Russian SOF's success, and the U.S. SF should take note. While training partner forces in the use of conventional weapon systems is an important aspect of the SF mission set, there is much greater value in integrating technical MDO type capabilities into partner force formations. The disaggregation of electronic warfare and other advanced capabilities throughout a partner force formation also decreases their targetability by adversaries and enhances intel gathering and situational awareness.

2. Movement and Maneuver

Due to both Russia's desire to maintain deniability of its activities within Ukraine and the irregular nature of the Ukrainian separatists, some aspects of their movement and maneuver are probably not typical of how some future LSCO conflicts may develop. However, the conflict demonstrates that conventional maneuver units (artillery, armored vehicles, and tactical formations of ground troops e.g.) are still just as relevant now as in the past. For example, during the Battle for the Donetsk Airport, Russia employed its MDO capabilities of electronic and cyber warfare to place the Ukrainian forces in a compromised position and then employed its conventional combined arms forces to destroy the Ukrainian Forces and their supporting infrastructure.[93] Russia also employed tactical assembly areas

[93] Amos Fox, "'Cyborgs at Little Stalingrad' A Brief History of the Battles of the Donetsk Airport," *The Institute of Land Warfare*, May 2019, 12, https://www.ausa.org/sites/default/files/publications/LWP-125-Cyborgs-at-Little-Stalingrad-A-Brief-History-of-the-Battle-of-the-Donetsk-Airport.pdf.

to stage fire support and refit and employ sustainment capabilities in order to minimize culmination of the conventional maneuver units.[94]

The Battle of Donetsk Airport in Ukraine is just one example of the battles of positional in an MDO environment. Positional warfare has existed through the ages and the conflict in Ukraine seems to indicate that it will continue to exist despite the advances in stand-off weapon technology. Fox highlights this when he states, "Ukrainian forces are dug in along a vast trench array that dots the front, running from Donetsk to the eastern border of Ukraine, shared with Russia along Luhansk oblast [and] Russian-backed separatists periodically make advances toward strategically important cities like Avdiivka and Mariupol but have not yet gone to the lengths they did during the summer and winter offensives of 2014 and early 2015."[95] Seizure and holding key terrain will remain relevant in MDO LSCO. However, modern technology does broaden the spectrum of offensive options during movement and maneuver to modern militaries. The MDO environment widens the aperture of options for maneuver while also providing opportunities for greater insight into the actions and plans of an opponent.

With respect to movement and maneuver, Russian SF units guided and facilitated separatist forces throughout the conflict in Ukraine and highly enabled them to launch effective assaults against Ukrainian Government positions. Russia used its conventional forces to position and cut off Ukrainian forces during the Battle of Donetsk Airport and then employed its SF units to guide the final offensive of the separatist forces. After months of heavy fighting, Russian SOF ended the battle at Donetsk Airport by providing demolition expertise to drop the upper floors of the airport terminal on top of the remaining Ukrainian forces holding the second floor of the airport.[96] Without Russian SF units to guide and facilitate the movement and maneuver of Ukrainian separatist forces, the successful displacement of Ukrainian Government forces and the seizure of the airport by the Separatists probably would not have happened.

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[94] Fox, 12.

[95] Fox, 16.

[96] Fox, 9.

U.S. SF can draw from these lessons on future employment during LSCO in the MDO environment. In conflicts involving allied or partnered forces, SFODAs can expect to integrate into their formations and provide both tactical expertise as well as assistance in the phasing and timing of movement and maneuver. The Russian Ukraine conflict shows that movement and maneuver of conventional forces are still essential in LSCO in order to place adversaries in compromised positions. SF units should look to provide expertise in the more surgical aspects of LSCO; whether that be specialized targeting capabilities or guiding and facilitating a partner force operation.

3. Intelligence

With today's highly networked society, with every cell phone or computer now serving as a sensor, a much higher percentage of information can be readily extracted from open-source platforms and converted to highly actionable intelligence. Janes Intelligence Review highlights this when it states, "the growing reach of global mobile telecommunications networks, the proliferation of smartphone technology and social media usage, and the development of more sophisticated commercially available satellite imagery services are among the developments that are changing the nature of conflict analysis and creating unprecedented opportunities for governments and non-state actors to analyze and anticipate the actions of their adversaries."[97] Russia's hybrid warfare has taken advantage of this new development by leveraging readily available, yet unwittingly provided, information and synchronizing it with their indirect fires as well as Information Operations (IO).

A major focus of Russian electronic warfare operations was penetrating and exploiting information from GSM cellphone networks. Ukrainian General, Maj Gen Kremenetskyi, said this included identifying Ukrainian soldiers in frontline positions from their cell phone usage and then sending them tailored SMS text messages to undermine their morale. Intelligence gathered from GSM networks has also been used to rapidly direct

97 "Social Media Growth Threatens SF Operations," Janes, May 5, 2016, https://customer-janes-com.libproxy.nps.edu/Janes/Display/jir12142-jir-2016.

artillery and rocket strikes."[98] The problem has become so acute that Maj Gen Kremenetskyi said: "We have stopped soldiers sending SMS and we have banned GSM phones in the front line."[99] Cell phones and their associated networks are one example of the myriad of non-military infrastructure options which can be leveraged to great effect within Russia's hybrid warfare strategy. According to Bettina Renz, hybrid warfare is coordinated and combined use of military and non-military capabilities to achieve "synergistic effects in the physical and psychological dimensions of conflict".[100] Valerii Gerasimov, the Russian chief of the General Staff, believes that non-military tools are important to employ within the operating environment of conflicts and believes that the non-military tools in warfare are greater threats to Russia than conventional military capabilities.[101] Not only is Russia able to glean information and intelligence from cell networks but the open-source internet provides a new and limitless source of information for offensive opportunities. Essentially, Russian hybrid warfare, unlike the non-MDO environments of the past, employs the widest breadth of asymmetric and conventional intelligence capabilities in a synchronized manner in order to disrupt and complicate an opponent's response.

With a myriad of open-source information venues to acquire information for targeting an opponent, the MDO environment generally favors the offense. U.S. SF units should look into understanding and employing these potential intelligence capabilities now available in an MDO environment. There are both new risks and new opportunities to find and target threats. SF needs to reduce their visual and digital signature while also seeking to augment its traditional military information systems with open-source information or exploitation of signal intercept. SF operators should gain increased familiarity with new risks posed by the MDO environment while leveraging them to their own advantage. SF needs to understand that the aperture for information collection has increased and they

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98 Janes, "Russia Steps up Electronic Warfare Campaign in Eastern Ukraine," 1.

99 Janes, 1.

100 Bettina Renz, "Russia and 'Hybrid Warfare,'" *Contemporary Politics* 3, no. 1 (June 2016): 286.

101 Renz, 286.

should seek to employ these methods in addition to those traditionally used within the military.

4. Fires

Russia's synchronization of EW with its indirect fires capabilities is one of the most significant aspects of its hybrid warfare. Employing a wide range of signal intercept capabilities to both jam communications as well as identify locations of origin, Russia has been able to systematically target Ukrainian unit headquarters with long-range artillery.[102] Indeed, a Ukrainian officer visiting the Joint Multinational Readiness Center in Hohenfels, Germany observed the antenna farm of a U.S. Infantry Battalion. He noted that, with its current signal practices, a U.S. unit would not last long operating in the Ukrainian battlespace.[103] Russia's preferred method of employing fires is to keep them safe behind the front lines while utilizing EW, drones, radar, and other intelligence means to effectively identify and then destroy adversaries with fires from extended distances.[104] This method of attack both minimizes risk to Russian forces and maximizes success against targets while also proving highly responsive and effective. This close synchronization between intel gathering capabilities and fires is one of the most lethal aspects of Russia's hybrid warfare.

While SF units generally have minimal indirect fire capabilities, their ability to operate in and draw information from the deep space is vital to feeding targets to the fires process. SF units can draw lessons from the conflict in Ukraine on tactics, techniques, and procedures which can be expected in an MDO environment. Russia feeds information to the fires systems with a combination of layered over-head surveillance and multi-input sensors at the tactical and operational ranges.[105] Once detected, the Ukrainian positions

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[102] Liam Collins, "A New Eastern Front: What the U.S. Army Must Learn from the War in Ukraine," *Association of the United States Army*, April 2018, sec. Electronic Warfare, https://www.ausa.org/articles/new-eastern-front-what-us-army-must-learn-war-ukraine.

[103] Collins, sec. Electronic Warfare.

[104] Angevine et al., *Learning Lessons*, 8.

[105] Angevine et al., 8.

are weakened with a barrage of indirect artillery fire and rockets.[106] Following the barrage, Russian or separatist units advance with direct fire weapon systems to displace the Ukrainian forces.

While Russian SOF does not have organic heavy fires capabilities, they do significantly contribute to feeding into the targeting cycle. Similarly, U.S. SF units should look to tying their intelligence cycle into the conventional fires system and reduce the response time from identification of a threat to rounds on target. If SFODAs as well as the U.S. military as a whole are to effectively compete against countries like Russia, who have an extremely short kill chain, they will need to employ the whole spectrum of the MDO environment and tie it closely to the fires process. While the Russian task organization enhances its fires rapid response time by placing organic fires within the brigade combat teams, it also inhibits its coordination for longer-range indirect fires systems that are controlled above the tactical level.[107] Therefore, while the U.S. has better operational control over its fires than Russia, it is less responsive. The U.S. should continue to seek to shorten the kill chain to something comparable to Russia. Russia has given its forces in Ukraine greater autonomy to employ fires, which increases the speed and flexibility but sacrifices coordination and efficiency.[108] However, in light of the fact that one can expect a communications-degraded environment with reduced command and control as evidenced by Russia's EW capabilities in Ukraine, greater autonomy and responsiveness may be required in future conflicts. Commanders should not expect to be fully connected and networked in an MDO LSCO environment and should plan their force structure accordingly.

Additionally with respect to fires, SF units cannot rely on air support as a means of providing fire support. In the Russia Ukraine conflict, the Russian air defense systems were

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[106] Angevine et al., 8.

[107] Angevine et al., 14.

[108] Angevine et al., 14.

extensive and capable of shutting down much of the Ukrainian air support.[109] Russian backed separatists, via manpads through vehicle mounted radar systems, effectually shut down Ukrainian air support to its ground forces. During the Battle for Donetsk Airport, there is almost zero mention of air support due to the effectiveness of the separatist's counter air capabilities.[110] This remains true for much of the rest of the conflict throughout Ukraine. The Russian S-400 anti-air systems can also effectively disrupt air support within a battle space.[111] The S-400 systems force aircraft to fly at lower elevations which then in turn exposes them to manpad anti-air weapons. Thus, U.S. Forces cannot take their joint capabilities for granted in an MDO LSCO environment.

5. Protection

Protection is increasingly difficult given Russia's broad spectrum of capabilities available to find, fix, and finish. With a heavy emphasis on over-head surveillance platforms, Russia is able to identify and quickly mass highly lethal indirect artillery and rocket fires on Ukrainian positions.[112] One of the defining aspects of Russia's fires in Ukraine is the speed—usually minutes—with which they can place indirect fires on a target once identified by a UAV or signal intercept platform.[113] As a result, camouflage, light, noise, and signal signature discipline remain as important as ever. The fundamental basics of blending with the operational environment remain the same with the additional requirement of signal signature discipline. The Ukrainian forces now use either electronic cables to communicate or operate their radios away from the bases in order to avoid their detection.[114] Considering the speed with which Russia can identify a target and then mass

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[109] Collins, "A New Eastern Front: What the U.S. Army Must Learn from the War in Ukraine," sec. Air Superiority.

[110] Fox, "Cyborgs at Little Stalingrad," 12.

[111] "Russian Armed Forces," Janes, June 25, 2021, 5, https://customer.janes.com/Janes/Display/russs100-CIS.

[112] Angevine et al., *Learning Lessons*, 8.

[113] Angevine et al., 9.

[114] Angevine et al., 20.

fires on it, units should place increased emphasis on not being detected rather than on speed of maneuver. Ukrainian Forces understand this and heavily employ the use of camouflage on their vehicles and many of them look like vegetation clusters due to the netting and natural foliage place on them.[115] Conversely, most NATO forces operate on the assumption that speed is their security and once they stop, slowly emplace (often substandard) camouflage.[116]

6. Sustainment

Russia's heavy employment of fires within Ukraine also requires a robust sustainment plan to support the number of fires utilized. The increasingly faster pace of LSCO in the MDO environment requires logistical systems capable of sustaining the new pace of war. It is reported that during operations in Ukraine, Russia frequently negotiated cease-fires in part to resupply its artillery units.[117] With the potential of a higher op-tempo in LSCO, logistical supply chains incapable of supporting offensive units will result in early culmination of a force. In addition to supplying its own force, Russia has also demonstrated the capability to disrupt Ukrainian supply lines through employment of proxy-organizations which target and disrupt Ukrainian supply lines within the deep area.[118] This reinforces the importance of a robust and multi-layered sustainment structure within the LSCO MDO environment.

Since sustainment and supply chains are generally operated behind the front lines and throughout the operational and strategic deep fires areas where U.S. SF units are supposed to operate, U.S. SF units can facilitate early culmination of an enemy force through effective targeting to supply lines and units. Considering that the pace of warfare has increased in an MDO LSCO environment, even minor disruptions of an enemy's supply lines can have significant effects on the battlefield. While the Center of Gravity

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[115] Collins, "A New Eastern Front: What the U.S. Army Must Learn from the War in Ukraine," sec. Air Superiority.

[116] Collins, sec. Air Superiority.

[117] Angevine et al., *Learning Lessons*, 16.

[118] Kurt Carlson, Interview on U.S. SOF Operations in Ukraine, June 22, 2021.

(COG) within an enemy force may be beyond the capabilities or reach of U.S. Forces, their sustainment and supplies are a critical requirement. The dispersion of the supply lines across the battlespace may be a critical vulnerability which SF units can seek to exploit much in the same way that the Russian's target Ukrainian Government Forces supply lines far to the West of the conflict.

C. HOW HAS RUSSIA MODIFIED THE LSCO ENVIRONMENT? WHAT ARE THEY DOING DIFFERENTLY? HOW DOES THIS APPLY TO SF

Task organized as a highly modular, small and dynamic force; SF is one of the most prepared units for LSCO in the MDO environment. However, some adaptations to force structure and doctrine may be necessary to fully optimize its effectiveness. Lieutenant Colonel Luke Wittmer presents some concepts and lessons learned on the employment of SOF in LSCO in his article "SOF in Large-Scale Combat Operations: A Theory of Action." Wittmer argues that SF provides the least value in the close fight area dominated by tanks and heavy weaponry but instead provides the most value in deep sensing as well as direct action against A2/AD and long-range weapon systems.[119] Since the MDO environment is one which favors the offense through its myriad of sources of endless information, SF units should look to tap into these additional networks to enhance its targeting and offensive capability while also remaining aware of the new threats.

SF units should also remain prepared to operate in an analog environment. As Russia has demonstrated in Ukraine with its electronic warfare capabilities, the MDO environment of LSCO can rapidly disrupt or shut down the technology which facilitates interoperability. As a result, SF units should not discard the analog functions of the past but instead, add them to their tool kit if they are to remain effective in a comms degraded environment.

Additionally, in order to adapt to the new technology of the information age and the operational environment of MDO, SF units should modify their force structure and task organization with an additional 18 series Military Occupational Specialty (MOS) that

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[119] Luke Wittmer, "SOF In Large-Scale Combat Operations: A Theory of Action," *Special Warfare Magazine* 34, no. 1 (January 2021): 21.

specializes in EW and cyber. The current SF task organization is not designed to operate in an MDO LSCO environment where cyber or EW is heavily employed. Considering that one can expect EW and cyber to be heavily employed similar to operations in Ukraine by Russia, it is imperative that SF units be prepared to both employ the offensive opportunities that MDO presents as well as remain aware of the threats it poses to their own survival. While USASOC does have the capabilities to conduct EW and cyber activities, these skill sets are not organic to a SFODA nor are they taught in the SF Qualification Course (Q-Course). Instead, these skills are augmented from either Special Operations Team Alpha's (SOT-As) or Cyber command. While this is certainly an option to incorporate specific and necessary skill sets into SF formations, it does not instill a heightened state of readiness in the units. Rather, it simply patches a gap in capability. If SF units are to keep pace with modern warfare, they need to adapt the force accordingly.

To accomplish this, SF units should, at a minimum, add an EW/cyber MOS to the current team structure. This would increase the size of the team by two pax from 12 personnel to 14. The EW/Cyber MOS would conduct SOT-A activities as well as offensive and defensive cyber. The Russia-Ukraine conflict has clearly demonstrated the necessity of such capabilities. Some might argue that SOT-As can just as easily be attached to a team when the mission requires, but unless the SOT-A members are trained to the same level of proficiency and capability as the rest of the team members, the team's full capability will be handicapped. An example of this could be that most SOT-As or cyber personnel are not dive or freefall qualified or if they are, they have not conducted a full train-up and validation exercise with a team. As a result, should a team be required to conduct a dive or freefall to enter the deep fires area of the battlespace, it will be extremely difficult to infiltrate that capability as it is not organic to the team. Additionally, team members must consistently train together to develop trust and confidence to operate as an organization. In summary, not only should team members have the same baseline level of training and capabilities but they must also consistently train together. Indeed, military leadership recognizes that simply putting 42 infantry personnel together does not constitute a trained or effective infantry platoon. Neither does putting 12 SF personnel together comprise a SFODA. Effective and combat ready teams are comprised of individuals who are

comparably trained and have trust, confidence, and a shared understanding of each other through collective training and experiences.

Drawing on the historical examples in the Russia-Ukraine conflict, one can see examples of how a SFODA might be employed in a MDO LSCO environment. LTC Luke Wittmer's article, SOF in Large-Scale Combat Operations: A Theory of Action, provides an exceptional doctrinal explanation of how SF units could be employed. However, it leaves the reader to envision how the theory might actually be executed. When overlayed with Wittmer's article, the Russia-Ukraine case study provides tangible and physical examples of how this theory of action might transpire. Wittmer states that USASOC's MDO concept advocates the employment of SOF (SF units specifically) in the strategic deep fires area to extend the Joint Force's reach and attack the enemy throughout their operational framework.[120] He further elaborates that SOF contributions involve,

Physical, virtual, and cognitive disruption/defeat of enemy activities in the operational and strategic deep fires areas, in addition to deep sensing/informational understanding and knowledge across the battlespace both align with the central idea of SOF effects being optimized in the deep space and peripheral areas of interest. Disaggregated further, targeting enemy anti-access area denial and long-range fires systems while enabling friendly fires across all domains to gain time and extend the penetrating reach of the joint force is the niche for the application of SOF in the not-so-distant future of LSCO doctrine…[while] CF is optimized for the direct approach and the close, combined arms fight of LSCO where speed, mobility, and the rapid concentration of over-whelming combat power are required to prevail…The method for employing both [CF and SOF] on the various ends of the competition continuum should vary to enhance the strengths competencies, and capabilities of both while minimizing the vulnerabilities of each. The synergy is the logic of CF-SOF interdependence, the purposeful reliance of military forces and other partners on each other's capabilities, authorities, and actions to maximize the complementary and reinforcing effects of all…SOF power applied in LSCO resides more in the "deep areas" beyond the fire support coordination line, rear of the

[120] Wittmer, 21.

enemy's concentrated combat power where support areas are typically less heavily fortified and defended.[121]

Russia has employed this theory of doctrine via specialized cells that: conduct EW (active and passive), deep sense with drones, and coordinates calls for fire to conventional force units. Russia has effectively employed its own SOF and specialized cells in the deep and forward battlespace to support both its forces and the separatists' conventional forces to great effect. Russian specialized units disrupt and defeat Ukrainian C2 and joint force structure, thereby creating opportunities for separatist or Russian conventional forces to isolate and destroy the Ukrainian Government Forces in a piecemeal fashion. Russia has created a force structure where most of the military elements complement and support each other throughout both the close fight and the deep strategic fires battlespace. U.S. SF units need adjust and adapt their doctrine and force structure to do the same.

[121] Wittmer, 21.

VI. SUMMARY, DISCUSSION, AND RECOMMENDATIONS

The study examined the dynamic between evolution of the MDO environment and the current force structure and employment of the United States Special Forces. Using the case studies of U.S. Special Forces operations during the Gulf War and Russian SOF's actions during the Ukraine conflict with Russia in Crimea and Donbas, the authors sought to illustrate how current SF force structure must be adapted to the changing era of warfare. Previous doctrine and research on the topic of employment of SF in MDO and LSCO did not link historic cases where SF was employed or how the lessons could be applied to a future conflict. The lessons learned can inform military leadership on necessary adaptations of TTPs and force structure. The research used the case study method to arrive at the conclusions and derive the recommendations offered. The case studies were broken down into individual WFF and analyzed against the success of the action. The data was collected by various means including primary source documents, news articles, after action reports, and an interview with a primary source. This chapter will summarize the research conducted and discuss the findings of the study. Finally, the researchers will offer recommendations which SF should consider when fighting LSCO in an MDO environment against a peer adversary.

A. SUMMARY

The technological developments which have emanated the MDO environment of LSCO has forced militaries to rethink their approach to warfare and adapt their force structure and tactics to remain effective and relevant. Using the Army's war fighting functions of movement and maneuver, mission command, intelligence, fires, protection, and sustainment as the foundation from which to analyze the MDO environment, the case studies illuminated the subtle and nuanced shifts in warfare.

The most significant aspect of changes as a result of the MDO environment with respect to the WFF of movement and maneuver is that positional warfare with conventional units remains just a relevant as ever. However, the conventional units must coordinate closely with SF units and units with specialized skills if they are to be effective. SF units

in close collaboration with an indigenous or partner unit can provide the specialized skills such as tactical expertise, phasing and timing within the battlespace, or electronic signal capabilities. These surgical skills minimize risk to the force while also enhancing unit lethality. Both the Gulf War and the Ukraine-Russia Conflict case studies illustrate the potential for how well-placed and properly resourced SF units can have on tipping the conflict in its favor.

With growing diversity in partner forces and disparity in communications capabilities, the WFF of mission command becomes increasingly complex. The MDO environment with its EW capabilities has shifted to enhance the offense by shutting down the ability of adversaries to communicate safely or effectively. The Russia-Ukraine conflict illustrates how well placed and effective use of EW with SOF can effectively cripple a unit's ability to communicate and control its forces. The Gulf War case study shows how SF can guide partner forces and also provide real-time, ground-truth assessments of that partner force. The US' battlefield dominance in communications and technology can no longer be taken for granted. SF units should be technologically enabled to inhibit an adversary's mission command while simultaneously working with partner forces to enhance their information gathering and situational awareness.

One of the most notable developments in warfare as a result of the MDO environment is within the WFF of intelligence. The case studies showed that as a result of the internet, open-source platforms, cell phones, and computers, they are now a near limitless sources of information and intelligence. Additionally, these platforms present the opportunity for various forms of messaging. As a result, adversaries are able to glean viable inform from the MDO environment to target threats. In order to adapt to this new threat, the military must augment SF with signal intercept capabilities to identify threats as well as means to confirm and action them. The signal intercept capabilities also allows SF to monitor its own digital signature and enhance its own survivability and that of its partner forces.

Closely tied to the WFF of intelligence and signal intercept capabilities, the WFF of fires crucial in the MDO environment. The case studies showed that without fires, SF units will have limited effects on the battlefield. Employing the MDO environment to their

advantage, Russia has leveraged EW to feed its fires with speed and precision. SF units must also have an EW capability to feed U.S. and coalition fires if it is to compete in the new MDO environment. The EW capability would also enhance the survivability of teams operating in the deep to operational fires areas.

Protection for SF remains as important as ever with the MDO environment providing additional means of identifying threats. Thus, SF units must increase their signal discipline in addition to the fundamentals of light and noise discipline. As stated in the WFF of fires, SF should include an EW MOS to not only enhance its offensive capabilities but also understand and enhance its survivability. The CBRN threat on the battlefield will also be a factor in the future. Identifying threats early will allow SF to preemptively strike these targets before they cause extreme risk to troops and civilians in the battlefield.

Finally, the WFF of sustainment remains as vital as ever in the MDO environment. The MDO environment has only accelerated the pace of warfare and as a result sustainment is only more critical. Units that are dynamic and responsive and can remain so hold a significant advantage over those who may culminate early. While disruption of an adversary's supply chain in the deep space is nothing new for SF, the fact that sustainment is only more critical further reinforces the importance of SF's role in MDO LSCO.

B. DISCUSSION

The MDO environment in LSCO has shaped the WFFs in subtle yet significant ways. The first area to address is the type of mission set or sets SF needs to focus on. The Gulf War study highlights the added value of the special reconnaissance mission both along potential borders with adversaries and the deep fires area. The second areas of added emphasis are on the missions with partner forces this includes Foreign Internal Defense (FID) and Security Forces Assistance. SF's strength is fighting by with and through their partner forces. SF needs to continue and place more emphasis on training for these missions as they are more likely to be needed in a LSCO MDO battlefield.

Next, the old SFODA structure is antiquated and must adapt to the future of warfare. The case studies showed that warfare is shifting to a greater employment and dependence of the signal's domain and the internet. The current SFODA team structure is

not designed or prepared to operate in these newly evolved domains of warfare. When the SFODA concept was introduced during the Vietnam War, the signal domain did not pose nearly as inherent a threat or carry the level of exploitable information that it does today.

At the tactical level, SF at the CTCs has already started to implement "Fighting AOBs" meaning the SF company headquarters team is located as a command-and-control element on the battlefield along with SFODAs. There can be an several advantages to including the SF battalion headquarters element within the proximity of the AOB and SFODAs. The main advantages are the situational awareness gained by the close proximity. This allows leadership to quickly assess a situation and authorize actions that lower-level leadership cannot make. Depending on the type of partner force, the added rank brings added credibility to SF and allows more directed influence on mission selection and planning at higher echelons of a partner force. This does rely heavily on the location of the partner forces headquarters and the elements size whether a division/corps or equivalent size. Finally, as the conflict progresses and missions change based on the threats, BN level leadership can adjust their intent and execute more quickly as the speed of warfare has increased.

Lastly, it is important for SF to be ahead of any potential threat. SF has a long history of conducting yearly Joint Combined Exchange Training (JCET), multinational exercises, and other training events with various foreign militaries around the world. The Gulf War has shown that the time in Saudia Arabia before crossing into Kuwait provided ample time and opportunity to train with new partner forces as well as stockpile supplies. The luxury of this amount of time is becoming rarer and instead conflicts may appear suddenly with combat following in short order. This is why it is important to continue to interact with our partners and allies at every opportunity possible to ensure a common understanding prior to combat. It is also important for our partners and SF to have plans and sustainment for when conflict is introduced. In LSCO MDO environments freedom of movement may be inhibited resulting in forces with limited resources to sustain combat.

C. RECOMMENDATIONS

At a minimum, SF needs to add an EW/cyber MOS to its team structure if it is to remain relevant. While these capabilities already exist and are frequently attached to teams when required, they are not permanently incorporated into a SFODA. This leaves a gap in capability as the attachments are usually not trained to the same standard of the SFODA. SFODAs were created and designed to operate as an autonomous unit capable of advising and guiding an indigenous force in all aspects of warfare. The MDO environment has changed warfare and SFODAs must adapt if it is to maintain its preeminence as the U.S. autonomous and advisory force. SF doctrine should include a careful analysis of how SF will be employed in the future environments of MDO. There is already much discussion and theory on this with the U.S. Army Concept for Special Operations 2028–2040, Army Futures Command Concept for Special Operations 2028, and other various doctrinal manuals on the MDO environment. SF doctrine should be expanded to include the EW/cyber MOS. The Special Forces Qualification Course should add an additional MOS training program specifically focused on EW and cyber capabilities. The skills could be the same as those already taught by other programs. While this would require a comprehensive reshaping of the SF Qualification Course, the important aspect is that it would place an essential capability organically within a SFODA formation. SF operators of the EW/cyber MOS should hone their proficiency through various cyber and EW military schools and other educational programs when their training cycle allows. Finally, the material and hardware for the EW capability already organically exists at the various SF Groups within the SOT-A's and most of the material for cyber is in the form of either computers or software which can be readily provided. The Army must now unify these essential capabilities into a coherent operational structure, capable of effectively operating in the battlespace of tomorrow.

Further research will be required in several areas not covered by this study including specific effects of emerging technology. These new technologies have already begun to proliferate the battlefields of today and include drone warfare, communications intercept (cell phones/social media for targeting) and A2/AD systems which make any aerial penetration incredibly difficult. Whie there is data available from the CTCs on these

types of threats more research is needed. CTCs will however become even more relevant as SF and the rest of the military use training rotations to develop new techniques and procedures and adapt to next generation of warfare.

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