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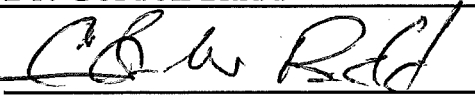
# **FUTURE WAR PAPER**

## **Fighting the MAGTF across New Domains: Versatility to Empower the Middleweight Force**

**SUBMITTED IN PARTIAL FULFILLMENT  
OF THE REQUIREMENTS FOR THE DEGREE OF  
MASTER OF OPERATIONAL STUDIES**

*Major Benjamin Davenport*

AY 2015-16

Mentor: Dr. Gordon Rudd  
Approved:   
Date 6 MAY 2016

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## Executive Summary

**Title:** Building a MAGTF for New Domains: Versatility to Enhance the Middleweight Force

**Author:** Major Benjamin Michael Davenport, United States Marine Corps

**Thesis:** this paper proposes a dual-track MOS concept for future force design in order to develop the MAGTF as a rapidly responsive and scalable middleweight force, sufficiently survivable, and able to exploit opportunities when aggregating forces to fight in emerging domains of future war.

**Discussion:** Fiscal austerity is the new norm in future warfare. The future operating environment will also be characterized as increasingly disparate adversaries enable by globalization and increasingly agile communications. The Marine Corps faces a unique challenge to maintain service competency as a crisis response force and secure littoral access while pursuing means to develop capabilities in future warfare domains like cyberspace. As a result of national defense requirements and increasingly constrained resources, the Marine Corps invested in brigade-sized and special purpose MAGTFs in order meet challenges to the current global security environment. However, these forms of deployment incur unknown and ill-defined risk when rapidly deployed across broad geographic regions supported by extended lines of communication. an opportunity emerges to reexamine how the Marine Corps could train and organize to support current operational plans, provide enduring combat capabilities, and adapt to the future operating environment in order to improve scalability and rapid response of the “expeditionary force in readiness.”

**Conclusion:** A middleweight MAGTF force requires a design that prioritizes versatility in order to respond to the demand of future war. Flexibility and agility are both inherent when versatility is achieved within an organization. A recommended method to achieving organizational versatility is to, first, seed individual versatility at the inception of training and foster a culture of cross-training during the development of the Marine’s career. Second, implement a dual-track MOS concept to increase capability of individual Marines that will support increasingly dispersed MAGTF operations during rapid response to crisis at the time of critical vulnerability. If the Marine Corps implements a concept of versatility from initial training, they could incorporate new emerging domains like cyberspace and mirror many of the structural capabilities of current special operations forces while still retaining greater capacity to assume a larger role as an “Expeditionary Force in Readiness” and “America’s Amphibious Force.”

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## Introduction: Sustained Austerity in an Age of Evolving Warfare

*"It is this inherent tension between the creation of disciplined, obedient military organizations, responsive to direction from above, and the creation of organizations adaptive to a world of constant change that makes military innovation in peacetime and adaptation in war so difficult. And one should not forget that adaptation and innovation often require those military organizations to abandon proved equipment, organizations, and methods in favor of untested alternatives. Nor is that reluctance entirely unjustified. Adaptation, for example, inevitably incurs risks, when the test of battle is difficult to approximate." – William Murray, Military Adaptation in War<sup>1</sup>*

### Sustained Austerity

Fiscal austerity is the new norm in future warfare. Therefore, what does the Marine Air Ground Task Force (MAGTF) need in order to operate in this environment? Specifically, what does MAGTF need in order to be rapidly scalable and sufficiently joint-capable in the future? With the enactment of the 2011 Budget Control Act, decline in defense appropriations to sustain current warfighting capacities may increasingly impact future service capabilities as each service prioritizes Operations and Maintenance (O&M) appropriations in order to sustain service-specific materiel and manpower. According to the 1989 RAND Corporation defense budget review, future military appropriation was anticipated to decline from 6.2% of Gross Domestic Product (GDP) annually to less than 3.5% by 2010.<sup>2</sup> As of 2015, the US Government (USG) spent less than 3.3% of the GDP on national defense.<sup>3</sup> Using information provided by the

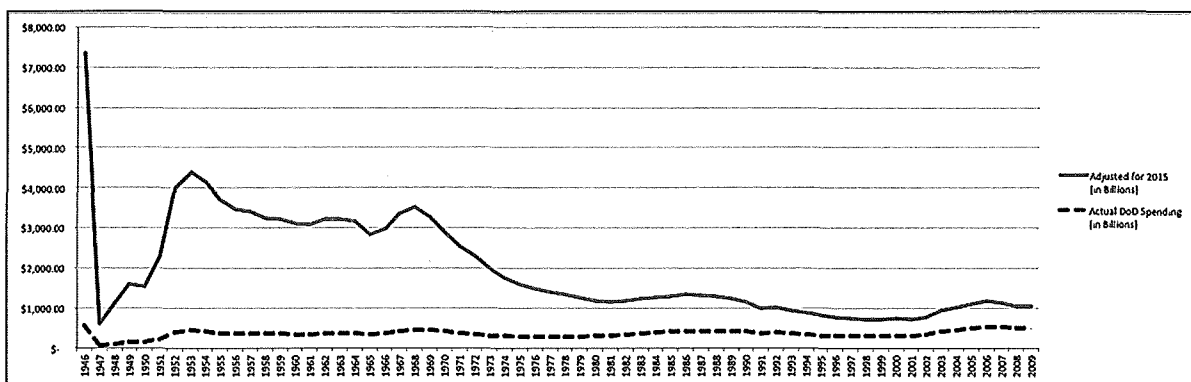


Figure 1: DoD Spending 1946-2009 in Actual and Corrected for 2015 Consumer Price Index Inflation Rates

Bureau of Labor and Statistics, Figure 1 graphically depicts both actual appropriation and appropriation adjusted for 2015 consumer price index inflation rates.<sup>4</sup>

Defense Department reorganization was widely debated during interwar periods, particularly when compounded by fiscal austerity. Beginning in 1968, which correlates with a shift in support of operations in Vietnam, figure 1 indicates a general decline in congressional support for Defense Department operations overseas. The impact of declining appropriations on Marine forces was captured in a series of Marine Corps Gazette opinion articles in late 1970. LtCol D.R. Tyler wrote a timely Marine Corps Gazette opinion that reflected growing fiscal and material readiness concerns. In response to declining material readiness and recruiting problems, he proposed “a different method of resource allocation during peacetime” that would create a dual Military Occupational Specialty (MOS) concept in order to more efficiently support critical material readiness requirements and improve manpower productivity across the fleet.<sup>5</sup> In response Col Fred Edwards Jr, a Marine Corps Intelligence Officer at the time, provided a rebuttal to LtCol Tyler’s concept stating that, rather than an adaptive general force of dual-track MOSs, a minimum specialized force needed to be maintained. He supported his argument stating each Marine needed to be physically prepared to conduct their specific task and the idea of adapting a headquarters unit to operate as an infantry unit made him cringe.<sup>6</sup> Both articles identified a need to make changes to the force in order to preserve readiness. LtCol Tyler’s article, however, provided at least an idea of how to adapt a force to growing fiscal constraints and, rather than simply fighting to preserve a minimum force strength, suggests a model to improve versatility while adapting the MAGTF to fight in future operational environments.

The operating environment continues to evolve due to globalization, rapid technological advances, and volatile political relationships. By law, the Marine Corps must man, train, and

equipped to rapidly conduct expeditionary operations.<sup>7</sup> However, since 1970 two variations in conflict emerged. First, globalization, a rise of technology-enabled non-state actors using communications and computers, became commonplace. Second, the character of warfare became increasingly irregular with smaller elements enabled by diffusion of greater forms of power.

## **Evolving Warfare**

MCDP 1 describe belligerents as, “a system consisting of numerous physical, mental, and moral components” and that a combination of these elements determines the belligerent’s unique “character.”<sup>8</sup> Barbara Torreón, a defense budget and military manpower analyst, highlighted some of the shifting character of conflict in her concise analysis of each US engagement since 1789. According to Ms. Torreón, from February 1991 until September 2001, the United States engaged in over 75 peacekeeping or combat operations.<sup>9</sup> Her research further identified an increasing number of transnational or non-state actors operating in weak or ungoverned areas enabled by increasingly prolific technology.

The combination of diverse adversaries, defused technological capabilities, and ubiquitous information capabilities characterize an evolution in the nature of future warfare. In 1989, Lind, et al, theorized that conditions indicated warfare in the future may be characterized by blurring of distinct paradigms and roles, thus preceding a fourth generation of warfare (4GW) due to advances in technology and use of terrorism as a tool to disrupt and obviate 3GW tactics of maneuver and firepower.<sup>10</sup> Following the September 11, 2001 attack on the World Trade Center and Pentagon, Frank Spinney and T.X. Hammes elevated the argument, that tragic events surrounding 9/11 are evidence of the 4GW “blurring of the distinction of peace and war and of the distinction between civilian and military.”<sup>11</sup>

An increasingly tech savvy all-volunteer force matured with the development of today's changing security environment. While both the rapid advance of technology and the increasingly non-attributive nature of terrorism will likely endure for at least the next decade, the Marine Corps continues to recruit from a population where internet programming, cellular phones, and integrated information technology are affordable and universally available to anyone interested. Thus, given the persistent defense appropriation constraints and the likely evolution of future war, an opportunity emerges to reexamine how the Marine Corps could train and organize to support current operational plans, provide enduring combat capabilities, and adapt to the future operating environment in order to improve scalability and rapid response of the "expeditionary force in readiness."

### **Response to Austerity: Forced Innovation by Adaptation**

Marine Corps structure and organization will likely change to meet challenges of future war. In 2010, the Secretary of Defense directed a Marine Corps Force Structure Review in order to "right-size and rebalance the Corps as a middleweight force to meet future threats."<sup>12</sup> Later that year LtGen Michael Flynn, Commanding General, Marine Corps Combat Development Command, described the Corps as an "expeditionary force in readiness" rather than "America's amphibious force", which seemed to be an adaptive response to changing political and fiscal constraints while trying to meet evolving tactical and operational security challenges.<sup>13</sup> With the reduction of naval amphibious ships, the Commandant of the Marine Corps also informally reframed the organizational purpose of the Marine Corps by stating it was an, "expeditionary force in readiness" optimally structured to support Geographic Combatant Commanders (GCC) to rapidly respond to crisis and gain littoral access in future war.<sup>14</sup> Formally, in response to the Secretary of Defense directive, the Marine Corps established a Force Structure Review Group (FSRG) to analyze the

“organization, posture, and capability” of the Marine Corps in a fiscally constrained environment in the midst of counterinsurgency operations.<sup>15</sup> The FSRG clarified the role of the Marine Corps as “strategically mobile, middleweight force optimized for rapid crisis response and forward presence.”<sup>16</sup> The Marine Corps reinforced this perception in the Concepts & Programs publication, stating it “fills a void in our Nation’s defense structure between light Special Operations Forces (SOF) and heavier conventional units.”<sup>17</sup> This comment reflected the Marine Corps’ anticipation that tilt-rotor and information technology could enable the MAGTF to deploy across a broader, more dispersed operational area, thus implying the Marine Corps possessed some SOF capabilities. Also, when heavier conventional combat operations are needed, the Marine Corps still was able to aggregate from disparate locations to concentrate combat power at the decisive point. Central to this reorganization remained the MAGTF concept as a means to command and control aggregating and disaggregating forces during crisis response within a broad geographic area and across increasingly diverse domains of land, sea, air, and cyber.<sup>18</sup>

The future operating environment will likely see persistent decline in defense budget appropriations, increasingly ambiguous adversaries seeking to disrupt or obviate Marine Corps methods of maneuver warfare, and increased transnational and non-state actors operating with ubiquitous forms of technology and information to gain equal, or asymmetric, advantage in ungoverned space. Concomitantly with this evolution in fourth generation warfare, is the Marine Corps current operating concept of aggregating and disaggregating MAGTF structure to ostensibly provide a rapid response to future crisis. Finally, future generations of Marines who grew up with these technologies are still tasked and organized within traditional structure.

## **Operational Concept**

While Marine Expeditionary Brigades could rapidly deploy to intervene in future crisis, the risk incurred by deploying forces across a broad geographic area, while also sustained along extended lines of communication, likely incur unknown or ill-defined risk to the lives and welfare of the expeditionary force. Therefore, as the Marine Corps seeks to find ways to integrate future technologies in emerging warfighting domains like cyber, this paper proposes a dual-track MOS concept for future force design in order to develop the MAGTF as a rapidly responsive and scalable middleweight force, sufficiently survivable, and able to exploit opportunities when aggregating forces to fight in emerging domains of future war.

## **Opportunity: Versatility within Current Organization**

Historically, aggregating multiple MAGTFs without cooperative training is problematic. Alternatively, disaggregating a MAGTF is common. Since 2009, nearly every Marine Expeditionary Unit (MEU) disaggregated when deployed. From March 2011 to February 2012, the 22<sup>nd</sup> MEU (22MEU) conducted split-Amphibious Readiness Group (ARG) operations which demonstrated MAGTF ability to adapt during competing maritime tasks.<sup>19</sup> Subsequently, the 22MEU staff proposed future recommendations largely focused on how to improve aggregation in MEU operations. Three of these recommendations provided opportunities to enhance MEU-sized MAGTF operations in future war. Each of these recommendations could be enabled by implementing a dual-track MOS concept, thus increasing versatility within current force structure.

First, the 22MEU staff recommended future MAGTFs submit request for forces (RFF) to augment command and control during split-ARG/MEU operations.<sup>20</sup> This recommendation is problematic considering that each MAGTF deployed is designed and resourced to meet a finite series of essential tasks. Therefore, requests for more personnel to conduct the same mission in

two different locations likely increase the logistic and training requirements to integrate new personnel into a MAGTF that is already trained and prepared to conduct operations using a series of standard operating procedures. These constraints provide the first opportunity to incorporate versatile force design, rather than increasing current force structure to meet emergent needs. For example, if each officer within the MEU Ground Combat Element (GCE) was proficient in infantry operations (03XX) and at least current in a secondary critical-skills occupation such as supply management and operations (30XX) or MAGTF intelligence operations (02XX), the MAGTF commander would have more organizational flexibility to conduct disaggregate operations. The inherent depth within one element of the MAGTF could provide additional depth of capability in another element and further promote cross-element integration within the MAGTF.

Second, implementing a dual-track MOS concept may provide opportunity to integrate future warfighting domains such as cyber, space, or information, while increasing the depth of low-density critical MOSs in future operations. Historically low-density occupations like communications (06XX) tend to be critical enablers within the MAGTF and also challenging to retain and maintain due to high operational demand expanding employment opportunity.<sup>21</sup> One of the 22MEU critical shortfalls in disaggregation, particularly when separated by significant geography, was insufficient depth in Cyber Network Operators (0651) and Cyber Security Technicians (0689). Generally, this challenge is not isolated to maritime operations; with advances in aircraft capability such as the MV-22 osprey, able to extend the range of increasingly smaller elements and likely disaggregation of the future MEUs, elements of the MAGTF will likely demand greater numbers of small units to achieve the same mission as historically larger units with shorter lines of support. By cross-training occupations within current force structure, the MAGTF Commander could gain depth to deploy forces in future domains based on

intelligence assessments rather than organizational constraints due to one-dimensional occupational specialty.

Third, 22MEU staff identified logistics personnel as critical to successful disaggregated operations.<sup>22</sup> While supply processes, maintenance actions, and logistics functions are highly procedural and require in-depth training, successful strategies in future operations could greatly benefit from defusing competency in logistics, maintenance, and supply within the larger expeditionary force.<sup>23</sup> Joint Capabilities Integration Development Systems (JCIDS) continue to shape future non-material solutions by integrating joint and SOF operations within the current services. Likewise, the Planning, Programming, Budget, and Execution (PPBE) reinforce joint interoperability through material acquisition. Both JCIDS and the PPBE process continue to compel future MAGTF planners to rely on joint, rather than organic, forms of supply and logistics to achieve GCC assigned tasks. While increasing the MEU table of organization and equipment (T/O&E) to meet these growing demands could be a method to solve the growing staff requirement, it is not cost efficient, nor does it provide logistics support directly to the front-end of the projected force. Rather it would increase requirements to project additional trained personnel forward.<sup>24</sup> Comparatively, if the 22MEU possesses additional Marines trained in theater logistics, conceivably they could internally assess the risk of employing cross-trained personnel to augment primary staff or support increasingly dispersed elements of the MAGTF.

If armed with a cadre of dual-track MOS Marines, The MAGTF could create numerous combinations of Marine teams across each combat element and potentially integrate them with rapidly deployed forward echelons. While the cost associated with implementing a dual-track MOS system would likely increase training requirements for the organization and the individual, a balance would also likely emerge between individual preference and an overtraining a cadre force

to meet endogenous conditions. Therefore, a metric of value would be needed to quantify additional training efforts to enhance future versatility.

### **Value of Versatility**

The Marine Corps institutionally values a versatile force. Since initiation at recruit training or Officer Candidacy School (OCS), every Marine is told, “ever Marine a rifleman, every Marine Officer is a provisional rifle platoon commander.”<sup>25</sup> This aphorism illustrates the Marines are, at least in initial training phases, versatile enough to assume a variety of roles in future operations. Currently, the Marine Corps uses an organizational utility model to meet emerging threats in order to reduce cost of specialization and meet force constraints. Therefore, since the Marine Corps finds value in organizational utility, a dual-track MOS concept would likely compliment the MAGTF by enhancing capability for a disaggregated force arrayed along long lines of communications.

### **Value of Utility**

The Marine Corps currently employs organizational utility to respond to emerging crisis in ill-defined future operating environments. The reorganization and purpose of Marine Corps artillery battalions, tank battalions, and Marine Wing Support Squadrons (MWSS) in Operation IRAQI FREEDOM and Operation ENDURING FREEDOM evolved as a result of endogenous requirements to augment infantry operations without increasing force structure of cost. To place a dollar amount on this reorganization, the Office of the Secretary of Defense (OSD) estimated the annual training cost for a Marine Infantry Battalion scheduled to deploy exceeded \$55 million.<sup>26</sup> Of that total OSD estimated \$22 million was required to mobilize the battalion for rapid deployments. Therefore, by mobilizing units as provisional infantry battalions to conduct force protection and route security missions, the Marine Corps potentially saved \$33 million without

exceeding congressionally directed manpower levels or failing to meet GCC requirements. Pragmatically, organizational utility seems like an obvious solution to meet staffing goals and comply with increasing budget constraints. While risk is incurred in employing units or individuals in alternative roles, the Marine Corps consistently demonstrates its ability to rapidly train combat elements using the MAGTF construct to meet emerging threats. Therefore, the elements of the MAGTF are likely opportunities for change to meet challenges of future war.

### **Prospect of Versatility**

If artillery, tank, and MWSS Marines are able to rapidly assume a secondary mission or task, then other elements within the MAGTF might also be able to conduct missions outside of their primary assigned MOS. Current mission essential tasks (MET) are itemized within the Total Force Management System to provide clear task guidance to each commander by nesting each MET within higher command echelon tasks and integrated along adjacent units of the MAGTF to support a single battle concept.<sup>27</sup> While this applies an organizational construct to extend potential contributions of different elements of the MAGTF, the concept of dual-track MOS training seems to naturally diffuse this practice to the individual Marine.

As new domains are included into future operations, tasks not yet fully could become more critical to mission success. For example, every Unified Command (UC), Joint Task Force (JTF), and Combined Joint Special Operations Task Force (CJSOTF) largely depend on the GCC Joint Support Communications Element (JCSE) to establish inter- and intra-theater communications. Likewise, current Marine Corps Aviation plans promote the concept that digital interoperable systems controlled by individuals in the future are enablers of the entire MAGTF command and control system.<sup>28</sup> As the MAGTF disaggregates, or is forced to operate elements across broader geographic regions (e.g. multiple GCCs) the MAGTF Commanders requirement for more depth in

strategic communications capabilities also increases. Therefore, in the future operating environment, every Marine may not be just a rifleman, but also a critical element in the cyber and information domains. In this example, we see how incorporating emerging domains like cyberspace and information challenge the Marine Corps paradigm of organization and individual training standards and may require versatile integration of technical tradecraft along with more traditional training requirements to achieve supporting tasks in the future.

### **Opportunity: Implementing Versatility**

Since the disruptive implementation of sequestration in 2013, the Marine Corps continued to struggle with achieving assigned missions with increasing constraints on the force.<sup>29</sup> This raised organizational risk associated with unyielding operational tempo and decreased resources. In 2014, General James Amos suggested the Marine Corps needed to develop a new way to train the force for future war. He convened a General Officer board that later determined “bolt-on” methods of training only achieve compliant-based training goals and do not adequately prepare forces for future war.<sup>30</sup> In other elements of the MAGTF, the impact of adaptive training methods to meet new security threats resulted in a measurable lag within the support service organizations where organizational processes are normally used rather than performance or production models. Aviation maintenance and ground supply management both are subject to potential lags in service support and are currently subject to significant scrutiny within the Department of Defense.<sup>31</sup> However, even within these structurally complex organizations, opportunities exist to develop cross-training and implement a versatile dual-track MOS concept that could improve performance.

### **Implementing Versatility in Aviation**

Naval aviation maintenance complies with a structurally complex process to ensure safe maintenance and production of aircraft.<sup>32</sup> Aviation Skills Management (ASM) is a tool to track

currency and proficiency of individual Marines with the each aviation unit.<sup>33</sup> The ASM program provides electronic database tracking and assessment of each individual maintainer within all hierarchy of maintenance processes. Since 2008 Aviation Maintenance Marines each have a digital log of all initial currency and subsequent proficiency training that validate their maintenance qualifications.<sup>34</sup> Many of the routinely tracked tasks associated with organizational maintenance are common among every type-model-series (T/M/S) aircraft in naval aviation.<sup>35</sup> Therefore, opportunity exists to cross-train multiple aviation specialties across multiple T/M/S, further providing depth to possible low-density occupations.

### **Implementing Versatility in Logistics**

Aviation logistics (66XX) and Ground Supply and Administration (30XX) share significant commonality across the spectrum of supply management. Initial aviation supply and logistics training is currently 17-weeks and focuses on both aviation logistics and financial management while initial ground supply training is 8-weeks long and focus primarily on ground supply and transportation. In both courses, however, Marines are trained to be, “responsible for procurement, receipt, accounting, repair, storage, issue, disposal, computation, and maintenance of stock levels.”<sup>36</sup> Additionally, within aviation logistics, significant commonality exists between Aviation Logistics Information Management Systems (6694) technicians and Cyber Network Operators (0651), which are increasingly in demand when facing operations in cyber and information domains.

Frank Hoffman, a Senior Research Fellow at the National Defense University, succinctly stated that versatility usually requires, “adequate training resources and time to experience a wide array of scenarios.”<sup>37</sup> Given previous examples like supply and maintenance, these opportunities emerge to cross-train Marines into a variety of billets across the MAGTF. If the Marine Corps

seeds versatility during initial training, individual Marines become more than simply primary occupations and provisional riflemen; they quickly become multi-purpose with transferrable skills. The cumulative result from a field of versatile Marines provides commanders at every level opportunity to plan for more distributed operations regardless of domain.

### **Risk: Proficiency Verses Currency**

A broad discussion of risk is warranted when considering a versatile force instead of a specialized force. Analysis of risk is incurred either through training proficiency or in force deployment planning before a rapid response is required. While risk is inherent in assuming a wide array of tasks, both the commander and the individual Marine are more aware and actively work to mitigate operational risk to mission and the force at the source. Without versatility, planners might make assumptions of the operating environment and potential adversaries without the added benefit of a more broadly informed force. The risk assessed by commanders and individual dual-track MOS qualified Marines could provide at least a modicum of time to prepare for, and improve proficiency, before executing operations. Equally risky, when organizations staffed with specialists encounter uncertainty, the commander may not be able to mitigate risk incurred from the uncertain situation. Therefore to mitigate inherent risk in versatility, Frank Hoffman provides a framework to incorporate versatility into military organizations.<sup>38</sup>

First, versatile organizations incorporate uncertainty.<sup>39</sup> As the Marine Corps incorporates versatility, greater levels of redundancy emerge that provide for more depth in capability, which translate into capacity. While some primary occupations may require significant technical acumen to achieve competence, efforts to implement a dual-track MOS concept and broad versatility within the Marine Corps could alleviate the overall burden in areas that require more technical operations.<sup>40</sup>

Second, versatile organizations informed by nested strategic policy create responsiveness necessary in future operating environments.<sup>41</sup> Within a strategically informed versatile organization opportunity may exist at each level of command to design pre-deployment and sustainment training to meet the most likely scenario. While this is still subject to a “black swan” event, it makes the more likely scenarios more like “grey swans.” Culturally, vertically nested strategy and operational intent conforms to task organization of the Marine Corps. Therefore, as strategy and policies shift, so can the training effort within the dual-track MOS MAGTF. For example, in Anti-Access/Area Denial (A2AD) operations, if Aviation Marines dual trained as network communication specialists are employing advanced digital interoperability equipment with a networked aviation package, they will more likely understand, troubleshoot, and repair systems critical to the communications architecture, thus be able to laterally support adjacent elements of the MAGTF during future operations.

Third, a versatile Marine Corps design is inherently risk-informed.<sup>42</sup> Operationally, the Marine Corps Training and Readiness manuals consider qualified as current, and competent as proficient.<sup>43</sup> However, even with a series of comprehensive metrics in place, risk is not reduced, simply deferred as a result of the high-risk process or worse, assumed by those conducting the mission. Training and Readiness models seek to specify compulsory tasks and training metrics to establish currency and validate proficiency.<sup>44</sup>

Fourth, responsive organizations emphasize versatility over adaptability.<sup>45</sup> The Marine Corps already practices this method of versatility in most of its secondary occupations like foreign language, MAGTF planning, and Forward Air Controller operations. By transitioning this dual-track MOS method of skill management to the rest of the Marine Corps, they may be able to program how the force evolves to meet future operations. A useful first step for the Marine Corps

is to invest in cross training Marines from other primary occupations into communications (06XX) and intelligence (02XX) thereby infusing technical communications information and cyber operations information within other elements of the MAGTF.<sup>46</sup> By investing in initial communications and cyber operations as paired training with other primary occupations, the Marine Corps will have more flexibility to align mission tasking and synchronize lateral operations among adjacent operational commands.<sup>47</sup> Consequently, it aligns disaggregated elements of MAGTF operations into the larger joint operational paradigm.

## **Conclusion**

This future war concept began by asking the question, what does the MAGTF need in order to be rapidly scalable and sufficiently joint-capable in the future? Succinctly, a middleweight force requires a design that prioritizes versatility in order to respond to the demand of future war. Flexibility and agility are both inherent when versatility is achieved within an organization. The recommended method to achieving organizational versatility is to, first, seed individual versatility at the inception of training and foster a culture of cross-training during the development of the Marine's career. Second, implement a dual-track MOS concept to increase capability of individual Marines that will support increasingly dispersed MAGTF operations during rapid response to crisis at the time of critical vulnerability. If the Marine Corps implements a concept of versatility from initial training, they could incorporate new emerging domains like cyberspace and mirror many of the structural capabilities of current special operations forces while still retaining greater capacity to assume a larger role as an "Expeditionary Force in Readiness" and "America's Amphibious Force."

## End Notes

<sup>1</sup> Williamson Murray, "Military Adaptation in War," *Institute for Defense Analysis*, (June 2009): 1-2

<sup>2</sup> RAND, "Long-Term Economic and Military Trends, 1950-2010," (April 1989): 16.

<sup>3</sup> Kevin Williamson, "Military Spending in Perspective" *National Review*, (8 October 2015,)

<http://www.nationalreview.com/corner/425300/military-spending-perspective-kevin-d-williamson>, Accessed 20 December 2015

<sup>4</sup> Figure 1 is a compilation of Defense Budget Materials found at,

<http://comptroller.defense.gov/BudgetMaterials.aspx>, and actual dollars corrected for Consumer Price Inflation using the Bureau of Labor and Statistics found at, [http://www.bls.gov/data/inflation\\_calculator.htm](http://www.bls.gov/data/inflation_calculator.htm)

<sup>5</sup> Tyler, D.R., "Let's Mae Peacetime Pay!," *Marine Corps Gazette*, (Nov 1970): 53.

<sup>6</sup> Edwards Jr., Fred, "No Dual MOS for Marines," *Marine Corps Gazette*, (Jan 1971): 49.

<sup>7</sup> US Code, Title 10, Section 5063, states, "The Marine Corps shall be organized, trained, and equipped, to provide fleet Marine Forces of combined arms, together with supporting air components, or service with the fleet in the seizure or defense of advanced naval bases and for the conduct of such land operations as may be essential to the prosecution of a naval campaign. In addition the Marine Corps shall provide detachments for the protection of naval property at naval stations and bases, and shall perform such other duties as the President may direct. However, these additional duties may not detract from or interfere with the operations for which the Marine Corp is primarily organized."

<sup>8</sup> USMC, "MCDP-1, Warfighting" 1989: 45.

<sup>9</sup> Torreon, Barbara, "Instances of Use of United States Armed Forces Abroad, 1798-2015," CRS (15 October 2015),

<https://www.fas.org/spp/crs/natsec/R42738.pdf>, accessed on 1 Feb 2016. Also discussed report with Ms. Torreon via telephone. She further stated the information was researched as a baseline for further policy analysis and future force structure requirements.

<sup>10</sup> Lind, Schmitt, Sutton, Nightengale, Wilson, "The Changing Face of War: Into the Fourth Generation," *Marine Corps Gazette*, Vol 73:10, (Oct 1989), 22-27. They define each generation of warfare as followed: First-generation of warfare refers to battles fought with massed manpower, using line and column tactics with uniformed soldiers governed by the state. Second-generation warfare still maintained lines of battle by focused more on the use of technology to allow smaller units of men to maneuver separately. Third-generation warfare focuses on using speed and surprise to bypass the enemy's lines and collapse their forces from the rear.

<sup>11</sup> Spinney, Frank, "Fourth Generation Warfare is Here", article posted on <http://d-n-i.net>, (October 15, 2001) accessed 20 Feb 2016; Also Hammes, Thomas X., "Insurgency: Modern Warfare Evolves into a Fourth Generation", *Strategic Forum*, No.214, (January 2005)

<sup>12</sup> Defense Secretary Gates, "San Fransisco Speech," (12 Aug 2010), found at:

<http://archive.defense.gov/news/newsarticle.aspx?id=60423>, accessed 15 Dec 2015.

<sup>13</sup> George Flynn, "Versatility in an Age of Uncertainty," *Proceedings*, USNI, (November 2012): 12.

<sup>14</sup> USMC, HQMC, "Concepts & Programs 2013, America's Expeditionary Force in Readiness," (2013): 11.

<sup>15</sup> USMC, HQMC, "Report of the 2010 Marine Corps Force Structure Review Group," (14 March 2011.)

<sup>16</sup> *Ibid.*, 2.

<sup>17</sup> USMC, HQMC, "Concepts & Programs 2013, America's Expeditionary Force in Readiness," (2013): 11.

<sup>18</sup> USMC, HQMC, "Report of the 2010 Marine Corps Force Structure Review Group," (14 March 2011): 3.

<sup>19</sup> USMC, MCCLL, "Marine Expeditionary Unit Disaggregated Operations: 22d MEU," (20 August 2012): 4.

<sup>20</sup> *Ibid.*, 4.

<sup>21</sup> Matthew Schell, "Unit leaders tasked with getting Marines in 23 MOSs to re-enlist," *Marine Corps Times*, (25 November 15), <http://www.marinecorpstimes.com/story/military/2015/11/22/unit-leaders-tasked-getting-marines-23-moss-re-enlist/76072338/>, accessed on 24 Dec 15.

<sup>22</sup> MCCLL, "Marine Expeditionary Unit Disaggregated Operations: 22d MEU," (20 August 2012): 4.

<sup>23</sup> James Haskett, "Logistics – Essential to Strategy," *Harvard Business Review*, (November 1977)

<sup>24</sup> Galbraith, Lawler, "Organizing for the Future: The New Logic for Managing Complex Organizations." (San Fransisco, CA: Jossey-Bass Publishers:1995). Galbraith and Lawler argue that organizations organized from front to back are

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focused on efficiency and cost savings. As a result they are structured to horizontally task productive elements of the organization while centralizing support and logistics to minimize cost.

<sup>25</sup> Nathan Fick, "One Bullet Away," *Huffington Mifflin Harcourt*, (2006): 134.

<sup>26</sup> OSD, "Unit Cost and Readiness for Active and Reserve Component of the Armed Forces." April 2013, 15.

<sup>27</sup> USMC, "Total Force Management System," <https://tfsms.mccdc.usmc.mil/>, accessed 29 December 2015.

<sup>28</sup> USMC, "Marine Corps Aviation Plan 2015" (Feb 2015):6,

<https://marinecorpsconceptsandprograms.com/sites/default/files/files/2015%20Marine%20Aviation%20Plan.pdf>, accessed on 22 Feb 2016.

<sup>29</sup> Jose Lujano, "Marine Corps Bulletin is adjusted to get 'rocks out of rucksack' in training," Defense Media Activity, (3 April 2015), <http://www.tecom.marines.mil/News/NewsArticleDisplay/tabid/5055/Article/616626/marine-corps-bulletin-is-adjusted-to-get-rocks-out-of-rucksack-in-training.aspx>, accessed 25 December 15.

<sup>30</sup> *Ibid.*,

<sup>31</sup> Joshua Stewart, "3-star: 20 percent of all Marine aircraft are grounded," *Marine Corps Times*, (26 March 2015), <http://www.marinecorpstimes.com/story/military/tech/2015/03/26/one-fifth-of-marine-aircraft-grounded/70441978/>. Accessed 28 December 2015.

<sup>32</sup> NAVAIR, "Naval Aviation Maintenance Program," COMNAVAIRFORINST 4790.2B CH-1 (June 2013): Chapter 1.

<sup>33</sup> NUWC PAO, "USMC Adopts NUWC Keyport's Advanced Skills Management System,"

[http://www.navy.mil/submit/display.asp?story\\_id=39406](http://www.navy.mil/submit/display.asp?story_id=39406), Accessed on 1 April 2016.

<sup>34</sup> Naval Undersea Warfare Center Keyport Public Affairs, "USMC Adopts NUWC Keyport's Advanced Skills Management System," Naval Sea Systems Command, (28 August 2008),

[http://www.navy.mil/submit/display.asp?story\\_id=39406](http://www.navy.mil/submit/display.asp?story_id=39406). Accessed 28 December 2015.

<sup>35</sup> *Ibid.*, Chapter 3.

<sup>36</sup> USMC, "Roles in the Marine Corps," <https://www.marines.com/being-a-marine/roles-in-the-corps/logistics-combat-element/ground-supply-officer>. See also <https://www.marines.com/being-a-marine/roles-in-the-corps/aviation-combat-element/aviation-supply>. Accessed 20 December 2015

<sup>37</sup> Frank Hoffman, Black Swans and Pink Flamingos: Five Principles for Force Design," *Warontherocks.com*, (August 19, 2015), <http://warontherocks.com/2015/08/black-swans-and-pink-flamingos-five-principles-for-force-design/>.

<sup>38</sup> *Ibid.*,

<sup>39</sup> *Ibid.*,

<sup>40</sup> Kenneth Estes, "US Marine Corps Operations in Iraq, 2003 to 2006," USMC History Division (2009): 23, 134.

<sup>41</sup> Frank Hoffman, Black Swans and Pink Flamingos: Five Principles for Force Design," *Warontherocks.com*, (August 19, 2015), <http://warontherocks.com/2015/08/black-swans-and-pink-flamingos-five-principles-for-force-design/>.

<sup>42</sup> *Ibid.*,

<sup>43</sup> USMC, "Training and Readiness Manual," *NAVMC 3500 Series*, (November 2015): 3.

<sup>44</sup> *Ibid.*,

<sup>45</sup> Frank Hoffman, Black Swans and Pink Flamingos: Five Principles for Force Design," *Warontherocks.com*, (August 19, 2015), <http://warontherocks.com/2015/08/black-swans-and-pink-flamingos-five-principles-for-force-design/>.

<sup>46</sup> Brian Lieb, "Operationalizing Army Cyber," United States Army War College, (April 2013): 12

<sup>47</sup> Naomi Stanford, Guide to Organization Design (The Economist in association with Profile Books: London, 2007): 4.

## Bibliography

- Brown, Alan, Jennifer Ezring, and Laura Geis. 2004. *MEB Training Exercise Study: Identifying MEB Training Requirements*. Study, Alexandria: Center for Naval Analysis.
- Butler, Michael D. 2012. *Versatility in Artillery*. Thesis, Command and Staff College, Marine Corps University, Quantico: Marine Corps University, 16.
- Commandant of the Marine Corps. 2015. *36th Commandant of the Marine Corps Planning Guidance 2015*. Jul 15. Accessed Nov 5, 2015. [http://www.hqmc.marines.mil/Portals/142/Docs/2015CPG\\_Color.pdf](http://www.hqmc.marines.mil/Portals/142/Docs/2015CPG_Color.pdf).
- Department of Defense. 2011. "Joint Publication 3-0, Joint Operations (JP 3-0)." *Defense Technical Information Center*. Aug 11. Accessed Sept 08, 2015. [www.dtic.mil/doctrine/new\\_pubs/jp3\\_0.pdf](http://www.dtic.mil/doctrine/new_pubs/jp3_0.pdf).
- . 2009. "Joint Publication 3-02, Amphibious Operations (JP 3-02)." *Defense Technical Information Center*. Aug 09. Accessed Sept 1, 2015. [dtic.mil/doctrine/new\\_pubs/jp3\\_02.pdf](http://www.dtic.mil/doctrine/new_pubs/jp3_02.pdf).
- Department of Defense. 2003. *Operation Iraqi Freedom II: Press Briefing on Plans to Rotate Forces in Iraq*. Washington DC, July 23. <http://www.defenselink.mil/news/Jul2003/g030723-D-6570X.html>.
- Di Leonardo, Nic. 2014. "Corps Existentialism: Ensuring a Future for the Marines." *Center for International Maritime Security*. Newport, RI, Oct 17. Accessed Sept 6, 2015. <http://cimsec.org/corps-existentialism-ensuring-future-marines/13373>.
- Di Leonardo, Nic. 2013. "The Greenert Gambit: Playing Moneyball with the Pivot to the Pacific." *Center for International Maritime Security*. Newport, RI, May 6. <http://cimsec.org/the-greenert-gambit>.
- Edwards Jr., Fred. 1971. "No Dual MOS for Marines." *Marine Corps Gazette* (Marine Corps Association) 49-50.
- Estes, Kenneth. 2009. *US Marine Corps Operations in Iraq, 2003-2006*. Occasional Report, History Division, United States Marine Corps, Quantico: United States Marine Corps.
- Fitzsimonds, James, and Jan M. Van Tol. 1994. "Revolutions in Military Affairs." *Joint Force Quarterly* 90-97.
- Flynn, George. 2010. "Versatility in an age of uncertainty." *Proceeding* (US Naval Institute) 136 (11): 12-20. <http://www.usni.org/magazines/proceedings/2010-11/versatility-age-uncertainty>.
- Galbraith, Jay, and Edward Lawler. 1995. *Organizing for the Future: The New Logic for Managing Complex Organizations*. San Francisco, CA: Jossey-Bass Publishers.
- Haskett, James. 1977. "Logistics - Essential to Strategy." *Harvard Business Review* 25.
- Headquarters Marine Corps. 2001. *Marine Corps Operations (MCDP 1-0)*. Unclassified. Quantico, VA.

- I MEB. 2011. "Amphibious Exercises Dawn Blitz 2010." *Marine Corps Center for Lessons Learned*. Jun 01. Accessed Sept 01, 2015.
- II MEB. 2015. "Amphibious Exercise Bold Alligator 2014." *Marine Corps Center for Lessons Learned*. Jun 29. Accessed Sept 05, 2015.
- Kevin D. Stringer, Katie M. Sizemore. 2013. "The Future of Land Power: Special Operations Versatility, Marine Corps Utility." *Joint Forces Quarterly* (National Defense University) 2 (69): 84-91.
- Kirkpatrick, Charles. 1990. *An Unknown Future and Doubtful Present: Writing the Victory Plan for 1941*. Washington DC: US Government Printing Office.
- Lind, William, Kieth Nightengale, John Schmitt, Joseph Sutton, and Gary Wilson. 1989. "The Changing Face of War: Into the Fourth Generation." *Marine Corps Gazette* (Marine Corps Association) 73 (10): 22-27.
- Marine Corps Forces Pacific. 2014. *Operational Plans for Pacific Command Area of Operations*. Camp Smith, HI, July 01.
- MCD&I, USMC. 2014. *Expeditionary Force 21 Marine Expeditionary Brigade Concept of Operations*. Concept Development, Quantico: Marine Corps Combat Development and Integration.
- RAND. 1989. *Long-Term Economic and Military Trends, 1950-2010*. Note, RAND Corporation, Washington DC: National Defense Research Institute, 25.
- Rumbaugh, Russell. 2014. "The Myth Behind the Hollow Force." *Defense One*, Mar 24.
- Shawn Brimley, Ben Fitzgerald, Kelley Slayer. 2013. *Game Changes: Disruptive Technology and US Defense Strategy*. Report, Center for New American Security, Washington DC: Center for New American Security.
- Shulter, Phillip. 2002. "The Brigade is Back." *Marine Corps Gazette*, Sept.
- Strategic Initiatives Group. 2015. *SIG Scouting Report*. Information Paper, Washington DC: Headquarters Marine Corps.
- Tyler, D.R. 1970. "Let's Make Peacetime Pay!" *Marine Corps Gazette* (Marine Corps Association) 70: 53-54.
- United States Marine Corps. 2015. *1st Marine Expeditionary Brigade*. Sept 01. Accessed Sept 05, 2015. [www.imef.marines.mil/Units/1stMEB.aspx](http://www.imef.marines.mil/Units/1stMEB.aspx).
- . 2015. *2nd Marine Expeditionary Brigade*. Sept 01. Accessed Sept 05, 2015. [www.2ndmef.marines.mil](http://www.2ndmef.marines.mil).
- . 2015. *3rd Marine Expeditionary Brigade*. Sept 01. Accessed Sept 05, 2015. [www.3rdmef.marines.mil](http://www.3rdmef.marines.mil).

- . 2014. "Expeditionary Force 21." *Marine Corps Concepts and Programs*. Mar 4. Accessed Sept 01, 2015. [http://www.mccdc.marines.mil/Portals/172/Docs/MCCDC/EF21/EF21\\_USMC\\_Capstone\\_Concept.pdf](http://www.mccdc.marines.mil/Portals/172/Docs/MCCDC/EF21/EF21_USMC_Capstone_Concept.pdf).
- United States Marine Corps. 2011. *Reshaping America's Expeditionary Force in Readiness*. Report, Marine Corps Combat Development Command (MCCDC), Quantico: United States Marine Corps.
- . 2014. *Total Force Structure Management System*. Dec 1. Accessed Sept 8, 2015. <https://tfsms.mccdc.usmc.mil/>.
- USAPSOI. 2010. *Mass Atrocity Response Operations: A Military Planning Handbook*. Handbook, Carlisle: Army War College.
- USMC. 2015. *5th Marine Expeditionary Brigade*. Oct 15. Accessed Nov 4, 2015. <http://www.5thmeb.marines.mil/About/History.aspx>.
- . 1998. *MCDP-1*. Quantico: Marine Corps Combat and Integration Command.
- Vest, Jason. 2001. *Fourth-generation Warfare*. Atlantic Group Monthly. Dec 1. Accessed Feb 20, 2016. <http://www.theatlantic.com/magazine/archive/2001/12/fourth-generation-warfare/302368/>.
- Walker, Dinah. 2014. "Trends in U.S. Military Spending." *Council on Foreign Relations*. Council on Foreign Relations. July 15. Accessed Dec 14, 2015. <http://www.cfr.org/defense-budget/trends-us-military-spending/p28855>.
- Wallace, Tye. 2005. *Marine Expeditionary Brigade: Centerpiece of the Future*. Monograph, Fort Leavenworth: School of Advanced Military Studies. <http://www.dtic.mil/dtic/tr/fulltext/u2/a436242.pdf>.
- Wedemeyer, Albert. 1958. *Wedemeyer Reports!* New York: Holt.
- West, Michael. 1999. *Evolution of the Marine Expeditionary Brigade*. Student Paper, Quantico: School of Advanced Warfighting.
- Williamson, Kevin. 2015. "Military Spending in Perspective." *National Review* 3.