Reframing Marine Corps Distributed Operations and Enhanced Company Operations

A Monograph
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AY 2009

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

1. REPORT DATE *(DD-MM-YYYY)*	**2. REPORT TYPE**	**3. DATES COVERED** *(From - To)*
21-05-2009	Monograph	JUL 2008 – MAY 2009

4. TITLE AND SUBTITLE
Reframing Marine Corps Distributed Operations and Enhanced Company Operations

5a. CONTRACT NUMBER

5b. GRANT NUMBER

5c. PROGRAM ELEMENT NUMBER

6. AUTHOR(S)
Maj Blair J. Sokol, USMC

5d. PROJECT NUMBER

5e. TASK NUMBER

5f. WORK UNIT NUMBER

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)
School of Advanced Military Studies
250 Gibbon Avenue
Fort Leavenworth, KS 66027

8. PERFORMING ORG REPORT NUMBER

9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES)
U.S. Army Command and General Staff College
100 Stimson
Fort Leavenworth, KS 66027

10. SPONSOR/MONITOR'S ACRONYM(S)
CGSC, SAMS

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

12. DISTRIBUTION / AVAILABILITY STATEMENT
Approved for Public Release; Distribution is Unlimited

13. SUPPLEMENTARY NOTES

14. ABSTRACT
See Abstract.

15. SUBJECT TERMS
Terrorism, Counterterrorist Operations, Dynamic Network Analysis, Radicalization

16. SECURITY CLASSIFICATION OF:			**17. LIMITATION OF ABSTRACT**	**18. NUMBER OF PAGES**	**19a. NAME OF RESPONSIBLE PERSON**
a. REPORT	**b. ABSTRACT**	**c. THIS PAGE**			COL Stefan Banach
(U)	(U)	(U)	(U)	96	**19b. PHONE NUMBER** *(include area code)* 913-758-3300

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

SCHOOL OF ADVANCED MILITARY STUDIES

MONOGRAPH APPROVAL

Major Blair J. Sokol

Title of Monograph: Reframing Marine Corps Distributed Operations and Enhanced Company Operations

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Abstract

Reframing Marine Corps Distributed Operations and Enhanced Company Operations by Major Blair J. Sokol, USMC, 96 pages.

The Marine Corps should expect to fight within a strategic context of complex irregular warfare (CIW) for the near- to mid-term while retaining the ability to fight a major combat operation (MCO). As a result, the Distributed Operations (DO)-Enhanced Company Operations (ECO) concepts of fighting in the Contemporary Operating Environment (COE) should provide a doctrine that retains full-spectrum capability not only for MCOs—however unlikely—but more importantly to support the mid- to high-intensity combat (MIC-HIC)-like brutality of CIW. Currently, neither the ECO concept nor the Marine Corps' vision of DO is progressing towards a full-spectrum capability and is more focused on the current operating environment in Afghanistan. The initial framing of the DO-ECO program lacked a holistic approach because the initial development of the concept was constrained by a counterinsurgency and Security Cooperation Marine Air-Ground Task Force (SC MAGTF) approach. As a result of this limited vision, as well as an experimental methodology and cognitive approach that began at the squad level, the overarching architecture that provides intelligence, fire support, and logistics functions to ECO-units will likely be flawed.

DO-ECO needs to reach beyond the Marine Corps Warfighting Laboratory's description which currently focuses on improving the capabilities of the infantry squad leader and platoon commander to reduce the limiting factors on the rifle company commander. DO-ECO should be a visionary doctrine for the future operating environment and yet capable of supporting potential MCOs and CIW. The Marine Corps can retain its conservative and methodical evolutionary process for ECO--unlike the Army's Future Combat System's leap into future technology that in some cases does not exist--while simultaneously creating a full-spectrum vision of DO.

Prior to properly establishing a force structure to accomplish DO-ECO, then identifying the proper equipment to support the concept, and finally establishing the correct forums for training the force, the Marine Corps DO-ECO concept must first be visualized in theoretical and doctrinal form within the Single Battle concept and maneuver warfare doctrine. DO-ECO is currently prescribed for the tactical circumstances of OEF and a potential strategic purpose of the SC MAGTF. A significant cognitive constraint is placed on DO-ECO design parameters due to the tensions between a SC MAGTF trained and equipped force versus a MIC-HIC capable force. Unfortunately, "tactical doctrine is neither autonomous nor absolute," and DO-ECO formulated for the mountains of Afghanistan or SC MAGTF misses the entire premise that the Marine Corps needs to be a full-spectrum force; an acceptably balanced DO-ECO concept and TO&E must be found.

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Introduction

> *"Victory smiles upon those who anticipate the changes in the character of war, not upon those who wait to adapt themselves after the changes occur….Those who are ready first will not only win quickly, but will win with the fewest sacrifices and minimum expenditure in means."*[1]

In 2005, the Commandant of the Marine Corps published *A Concept for Distributed Operations* that outlines a new operating approach for the Marine Corps. The Distributed Operations (DO) concept envisions maximizing new enhanced combat capabilities that will allow units to disperse over an enlarged battlefield while retaining a common operation and/or tactical aim.[2] As with any complex endeavor, organizational adaptation is required, and after three years of experimentation by the Marine Corps Warfighting Laboratory (MCWL), the DO concept evolved into what is now called Enhanced Company Operations (ECO). This new concept addresses the operating environment's cognitive, physical, and technological limitations that restrained the original concept.

Currently, however, neither the ECO concept nor the Marine Corps' overarching vision of DO is progressing towards a full-spectrum capability. The initial framing of the DO-ECO program lacked a holistic approach because the initial development of the concept was constrained by a permissive counterinsurgency (COIN) and Security Cooperation Marine Air-Ground Task Force (SC MAGTF) approach. As a result of this constricted vision, as well as an experimental methodology and cognitive bottom-up approach that began at the squad level, the overarching infantry battalion, regiment, and division architecture that provides intelligence, fire

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[1] Giulio Douhet, *The Command of the Air*, trans. Dino Ferrari (Washington, D.C.: Office of the Air Force History, 1983), 30.

[2] General M.W. Hagee, "A Concept for Distributed Operations" (Washington, D.C.: HQ Marine Corps, 25 April 2005), I.

support, and logistics functions to ECO-units will potentially be flawed. In order to make the DO-ECO concept full-spectrum capable, a major overhaul is required in the infantry battalion table of organization and equipment (TO&E), to include increasing Javelin-type weapon systems at the company level and increasing long-range precision fires similar to the High Mobility Artillery Rocket System (HIMARS) system in the artillery regiment. Additionally, a need exists to revamp of all aspects of Doctrine, Organization, Training, Materiel, Leadership and education, and Personnel and Facilities (DOTMLPF) to support a long-range DO vision--particularly infantry unit TO&Es and training.

At the same time, the Army is experimenting with a concept similar to the Marine's DO-ECO concept: the Future Combat System (FCS). Although the FCS is a mechanized brigade-level concept, and the Marine's infantry battalion must maintain a TO&E to support light infantry, motorized, mechanized, and helicopterborne operations, both Services are encapsulating principles of Network-Centric Warfare (NCW) to support their respective concepts. In order to identify issues that will improve the likelihood of DO-ECO meeting its full-spectrum requirement within both the contemporary and future operating environments (COE, FOE), this monograph conducts a critical analysis of DO and ECO by warfighting function while synthesizing the ideas and lessons of the Army's Future Combat System (FCS) and NCW.

The initial section of the monograph will describe the COE and FOE. Even as the US military comes face to face with modern warfare in Iraq and Afghanistan, the ability to accurately describe the COE is extremely challenging, and to determine the nature of the FOE, let alone the location and time-period of future battlefields, is even more daunting. The important conclusion when projecting future combat conditions is not to speculate whether the future holds a major combat operation (MCO) or continued low intensity combat; in either case the fighting will be hybrid in nature and require the core skill sets of mid- to high-intensity combat (MIC-

HIC) operations. Low-intensity combat (LIC) is inevitable in the near-term and additional training will be required to support Stability Operations and other Phase 0, SC MAGTF-type tasking (i.e., security assistance /foreign internal defense [FID]).[3] The DO and ECO concepts, therefore, must maintain a suitable force structure and doctrine to meet the challenges and the uncertainty of the COE and FOE. This inevitable uncertainty requires DO-ECO to retain full-spectrum flexibility and cannot be developed with a narrow focus to a particular region or spectrum of conflict.

After an overview of NCW, the warfighting function of Intelligence, Fires, Maneuver, and Force Protection will be examined to determine the changes required to DOTMLPF to support DO-ECO. (The author's planning assumptions for establishing a framework for DO-ECO design can be found in Annex B). The exploration of the Intelligence function will demonstrate that DO-ECO failed to be designed holistically, and the current approach may limit an overarching battalion organization that can support the DO-ECO in each environment. A review of the Fires function will conclude that there is an overreliance on CAS to support the concept and that additional surface fire support is needed to bring an acceptable concept to fruition. The Maneuver function is hampered by DO-ECO as well. DO-ECO has the potential to turn the foundation of the Marine Corps' capstone doctrine of Maneuver Warfare towards a more attrition-based focus, both from an operational perspective (i.e., the Single Battle concept) and at

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[3] The security assistance/ FID planned for the SC MAGTF is described as building partner capacity (BPC). "Components of shaping the environment [by the SC MAGTF] include enhancing the security capacities of partner nation security forces and alleviating the underlying conditions that give rise to instability…Measures taken within this effort include bilateral training, professional military education, military equipment sales, and advising." US Marine Corps, "The Long War Send in the Marines." (Quantico, VA: US Marine Corps Plans Policies, and Operations, 2008), 10-12, 16. In the future, the overlap between security assistance and FID within security cooperation will be called Security Force Assistance. US Department of the Army, *FMI 3-07.1 Security Force Assistance (Final Draft)* (Washington, D.C.: Government Printing Office, 12 Feb 2009). 1-7.

lower tactical levels. Small unit leaders serving in a distributed capacity will struggle to integrate complex fire support tasks (usually accomplished by an 8-10 man Fire Support Team [FiST]) at the potential expense of maneuver and their primary doctrinal responsibilities. The Force Protection function, which naturally overlaps with the other functions, reveals the need for DO-ECO to focus beyond Operation Enduring Freedom (OEF) and a mountainous environment. The battlefield of choice for future enemies will not only be the mountains, but in urban centers. Each of the above warfighting functions encountered similar challenges: TO&E, training venues, and facilities shortfalls. During research for the Force Protection function, it became apparent that the SC MAGTF not only placed significant cognitive constraints on the DO-ECO design parameters, but will potentially hinder Marine Corps MIC-HIC capabilities due to tensions between a SC MAGTF trained and equipped force versus a MIC-HIC capable force. As a result, a cursory exploration of the SC MAGTF was included in the monograph.

The Logistics and Command and Control functions will not be covered individually, although aspects of both functions appear in the exploration of the Intelligence, Fires, Maneuver, and Force Protection functions. The Marine Corps Warfighting Lab (MCWL), responsible for the design, experimentation, and the equipping of ECO, acknowledged the significant hurdles surrounding the Logistics function. "Logistics has the potential to be the Achilles heel of the company's ability to conduct the types of expeditionary and irregular warfare our warfighting concepts envision."[4] ECO must discover ways to utilize technologies (particularly unmanned systems) to assist in movement of logistics or wounded Marines. MCWL also seeks to create

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[4] General James T. Conway, "A Concept for Enhanced Company Operations" (Washington DC: HQ Marine Corps, 20 June 2008), 4.

methods of producing or foraging potable water for extended operations.[5] Results of Limited Operational Experiment 1 (LOE-1) demonstrate shortfalls and future challenges with DO logistics: "[The exercise force] was able to sustain themselves for the duration of a force-on-force event that ran for approximately 64 hours."[6] Combat situations will likely extend much longer than this, however. Batteries and power generation continue to be areas of concern based on the increase of radios, optics, equipment, etc., associated with an increased decentralization affiliated with DO-ECO. MCWL believes units require training in foraging for water, power, food, and repair parts.[7] While this out-of-the-box thinking may seem outlandish or unlikely, the simple physics involved in developing a foot-mobile ECO design will require this type of critical problem-solving. While this monograph recommends an improved full-spectrum perspective for ECO design and experimentation in Military Operations in Urban Terrain (MOUT) and MIC-HIC-type operations, in the area of logistics, a significant focus on the dismounted logistics problems is appropriate.

The Command and Control challenges within the DO-ECO concept are also well documented and being explored by MCWL. A critical need exists for improvements in the following areas: leadership development, education, and training; information management for company level operations; increased bandwidth requirement; additional communications requirements and architecture, etc.

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[5] Ibid., 4, 5.

[6] Marine Corps Warfighting Laboratory, "Distributed Operations Experimentation After Action Report, Limited Objective Experiment (LOE)-1, 26 June- 20 October 2005," 2.

[7] Ibid., 3. Foraging is probably not the answer to the logistics dilemma for ECO; foraging was last a legitimate option for an operating force in the 19th century. Notwithstanding that batteries and spare parts for specific military equipment will likely not be found in the civilian sector, foraging from a population will have unintended cultural impacts to Stability Operation within full-spectrum operations.

> The company requires voice, data, and surveillance fused into a single common operating picture, in order to support centralized and distributed architectures. This includes support to highly mobile forces with on-the-move/over-the-horizon communications for disparate tactical nodes. Achieving this will require increased bandwidth and improved network services. Tactical units must gravitate from push-to-talk radio systems to mobile ad hoc mesh networking. To be viable, solutions to the company commanders C2 [command and control] gaps must be realistically useable by Marines with minimal specialized training and not create additional weight/footprint issues.[8]

MCWL produced an excellent historical analysis of the infantry company headquarters and the need to update it to support the COE (see Appendix D).

Research design will use a combination of doctrinal, historical, interviews, and comparative techniques. Marine Corps Doctrine will provide the framework for the Marine Corps' Maneuver Warfare philosophy and the traditional employment of the Marine infantry battalion prior to its employment under the DO concept. Marine Corps Gazette articles, MCWL experimental results, operating force after action reports (from units that employed the DO concept in Afghanistan), and interviews with the lead designer for DO-ECO at the MCWL, Experimental Division and other key staff will provide an understanding and vision of DO-ECO. Additionally, research by other Marines comparing DO units to standard units in the MOUT environment, in conjunction with interviews with both the author of the Marine Corps' Fires Support Team Handbook and other lead trainers at Tactical Training and Exercise Control Group (TTECG), Marine Air Ground Task Force Training Center, will provide feedback as to the ability of DO units to support MIC-HIC operations.

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[8] General James T. Conway, "A Concept for Enhanced Company Operations," (Washington DC: HQ Marine Corps, 20 June 2008), 5.

The Contemporary and Future Operating Environments and the Impact to the Marine Corps

As the eighth anniversary of 9-11 approaches, and years of fighting remaining in Afghanistan and Iraq, the Department of Defense (DoD) has begrudgingly embraced a new paradigm of warfighting. After clinging to a Cold War view for nearly two decades after the collapse of the Soviet Union, numerous theorists' have coined descriptions of the COE and recommended approaches for tackling the United States' numerous challenges. The 2006 Quadrennial Defense Review (QDR) and the US Army's new FM 3-0 *Operations* describe this new paradigm and outline the best way to fight in a highly complex and asymmetrical battlefield. With the realization that the military must respond to a broad and varied set of combat environments, information dominance has become a vital consideration. The preeminence of information on the battlefield has resulted in a newly proposed theory of war: Network-Centric Warfare (NCW). Both the principles of NCW and the Army's changing doctrine provide critical planning assumptions and considerations for the Marine Corps as it incorporates DO and ECO within the *Marine Corps Operating Concepts for a Changing Security Environment*.[9]

Evolving from a bipolar Cold War mentality to a more contemporary and future operating environment mindset requires a major shift in how the military interacts in the world. There are four general descriptions that theorize how the military should view the COE. The first theory focuses on the need to integrate failing and failed countries into the global economy and prevent them from becoming terrorist safe havens or providing an environment for the

[9] Marine Corps Combat Development Command, "Marine Corps Operating Concepts for a Changing Security Environment," (Quantico, VA: MCCDC, March 2006).

exportation of drugs or pandemics.[10] The second theory focuses more on the impact of environmental changes, particularly resource shortfalls of food and water as a result of overpopulation in developing countries and the affects of environmental change.[11] The third theory is principally a perspective that cultural and religious clashes will be the primary cause of conflict in the COE and FOE.[12] The final theory depicts globalization as a slow siege that will lead to the eventual demise of the nation-state and, consequently, present increased influence to the budding non-state actor.[13] In actuality, all of the aforementioned theories have credence and must be synthesized for the military's optimal understanding of the COE and FOE.

The QDR reflects an effective synthesis of the many theorists who describe and recommend approaches to the COE. One of the critical outputs of the QDR is the direction to balance DoD's warfighting capabilities to meet irregular, catastrophic, traditional, and disruptive challenges. As a result, the War of Terrorism (WOT) broadens military employment beyond a traditional focus in order to defeat terrorist networks, insurgencies, or to fight guerrilla warfare; to defend the Homeland in depth (including the acquisition and use of Weapons of Mass Destruction); and shaping failed or failing countries through theater security cooperation.[14] While the relative importance between the different threats is debatable, Phase 0, Shaping and Phase IV, Stability are now at the forefront of emerging doctrine.

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[10] Thomas P.M. Barnett, *The Pentagon's New Map*, (New York, New York: Penguin Group, 2004).

[11] Robert T. Kaplan, *The Coming Anarchy*, (New York: Random House, 2000).

[12] Samuel P. Huntington, *The Clash of Civilizations and the Remaking of World Order*, (New York, New York: Simon and Shuster Paperbacks, 1996).

[13] Thomas Friedman, "National Strategies and Capabilities for a Changing World: Globalization and National Security," reprinted in the US Army Command and General Staff College, C100 Reading Book and Advance Sheets. (Fort Leavenworth, KS: USACGSC, August 2007), 105-118.

FM 3-0 *Operations* (February 2008), a capstone-type document designed to prevent another Phase IV debacle the likes of Operation Iraqi Freedom (OIF) I,[15] has elevated stability operations to an equal footing with offensive and defensive operations. FM-3 *Operations*' graphic depiction of the phases of a campaign (Shape, Deter, Seize the Initiative, Dominate, Stabilize, and Enable Civil Authority) now each display a continuous balance between offense, defense, and stability.[16] Stability operations are also emphasized in FM-3 *Operations* by the updating of the Army's Battle Command concept. Battle Command is "the art and science of understanding, visualizing, describing, directing, leading and assessing forces in operations against an adaptive enemy. Battle Command is the application of leadership to translate decisions into actions--by synchronizing forces and warfighting functions in time, space, and purpose—to accomplish the mission."[17] The concept of *Understanding* was added to Battle Command in order to ensure the variables of PMESII-PT (political, military, economic, social, information, infrastructure, physical environment, and time) were considered during the framing of the problem prior to planning.[18] The addition of *Understanding* to Battle Command reinforced the requirement to incorporate and consider the political aspects of termination criteria and endstate in reverse planning.[19]

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[14] U.S. Department of Defense, *Quadrennial Defense Review Report*. (6 February 2006), 19.

[15] Notwithstanding political decisions to disband the Iraqi Army and conduct "de-Baathification", there was generally limited focus and importance placed on Phase IV and V planning by General Franks, the Commanding General of Central Command during OIF I.

[16] Department of the Army, FM 3-0, *Operations* (Washington, D.C.: Government Printing Office, February 2008), 3-20.

[17] Ibid., 5-2.

[18] Ibid., 5-3.

[19] The Marine Corps describes Battle Command as Operational Design and does not include *Understanding*. MCDP 1-0 *Marine Corps Operations*, (Washington, DC: HQ Marine Corps, 2001), 6-4.

The implications of recent National Security Documents and directives, as well as paradigm shifts like FM-3 *Operations*, resulted in a review of the Marine Corps' role in the COE and FOE. The review's most significant proposal was to create a SC MAGTF to support Geographic Combatant Commanders' security cooperation plans. The SC MAGTF, however, will commence only after a steady-state security posture is established following the Marines' departure of Iraq and Afghanistan in support of OIF and OEF.[20] The traditional missions and roles of the Marine Corps, unlike the Army, which is experiencing major transformation, have remained relatively unchanged. The Marines will be expected to continue to provide forward presence through sea basing, security cooperation support, and counterterrorism missions. The Marines will continue to support prolonged counterinsurgency operations in support of OIF and OEF, yet retain its traditional roles to conduct crisis response and forcible entry.[21]

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[20] Marine Corps Plans, Policies, and Operations. "Long War Concept, The Marine Corps Vision for Strategic Force Employment ISO [in support of] the Steady State Security Posture." Plans, Policies, and Operations Power Point Brief dated 21 February 2008. 1, 6.

[21] Marine Corps Combat Development Command, "Marine Corps Operating Concepts for a Changing Security Environment," (Quantico, VA: MCCDC, March 2006), iii-v. *Title 10, United States Code, Armed Forces Chapter 507, Section 5063* of Title 10 details the Marine Corps' composition and functions--

1. The Marine Corps shall be organized to include not less than three combat divisions and three aircraft wings, and other organic land combat forces, aviation, and services.
2. The Marine Corps shall be organized, trained, and equipped to provide Fleet Marine Forces of combined arms, together with supporting aviation forces, for service with the fleet in the seizure and defense of advanced naval bases and for the conduct of such land operations as may be essential to the prosecution of a naval campaign.
3. The Marine Corps shall provide detachments and organizations for service on armed vessels of the Navy, shall provide security detachments for the protection of naval property at naval stations and bases, and shall perform such other duties as the President may direct. These additional duties may not detract from or interfere with the operations for which the Marine Corps is primarily organized.
4. The Marine Corps shall develop, in coordination with the Army and Air Force, those phases of amphibious operations that pertain to the tactics, techniques, and equipment used by landing forces.
5. The Marine Corps is responsible, in accordance with integrated joint mobilization plans, for the expansion of the peacetime components of the Marine Corps to meet the needs of war.

While the roles and missions of the Marine Corps have essentially remained unchanged during the WOT, the understanding of the modern battlefield, however, has changed substantially. The *Marine Corps Long War Concept*, *Marine Corps Midrange Threat Estimate: 2005-2015*, and the *Marine Corps Operating Concepts for a Changing Security Environment* all "believe that our future will be characterized by irregular war."[22] There is a tendency, however, to comprehend irregular war as a something very different than a MIC-HIC environment. This is an incorrect perspective:

> The choice between an amphibious Marine Corps of the past and one devoted solely to the modern version of Kipling's "savage war of peace" is strategically flawed. We should not imagine that all future threats will be state-based and conventional. Nor should we assume that state-based conflict has passed into history's dustbin. Tomorrow's conflict will not be easily categorized into simple classifications of conventional or irregular. Future scenarios will more likely present unique combinations or hybrid threats. Conventional, Irregular, and Catastrophic terrorist challenges will not be distinct styles--they will all be present in some form. Opponents will be capable of what Marine Lieutenant General James Mattis has called "hybrid wars."[23]

In essence, the DoD has come to the realization that our future enemies will more than likely employ a combination of traditional, irregular, catastrophic, and disruptive challenges to produce this hybrid effect.[24] The 2006 Hezbollah-Israeli War, for example, accurately depicts the "hybrid" warfare that can be expected in the future. Even while COIN and Stability Operations dominate the school house and certain training venues, and irregular warfare is at the forefront of

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[22]Marine Corps Combat Development Command, "Marine Corps Operating Concepts for a Changing Security Environment," (Quantico, VA: MCCDC, March 2006), iii.

[23] Threat Open Source Intelligence Gateway. www.tosig.com. Warning Intelligence on the Internet Review (WIIR) No. 269, 5 March 2008. Executive summary of "How Marine Are Preparing for Hybrid Wars," by Lieutenant Colonel Frank Hoffman, USMC (ret), *Armed Forces Journal*, January 2008. http://www.armedforcesjournal.com/2006/03/ 1813952 (accessed 15 October 2008).

[24] "Long War Send in the Marines" describes hybrid warfare as complex irregular warfare. The Marine Corps' concept to meet an uncertain security environment, however, describes warfare within complex irregular warfare as something completely different than MCO. US Marine Corps, "The Long War Send in the Marines." (Quantico, VA: US Marine Corps Plans Policies, and Operations, 2008), 7, 13.

professional journals and military thought, future Marine Corps task organization and doctrine to support the DO and ECO must retain a MIC-HIC foundation in order to be successful in hybrid wars.

Conversely, the maxim "if you can fight in the MIC-HIC environment, you can easily do low-intensity combat (LIC)" proved faulty in OEF and OIF. In actuality, the operating forces require many additional skills to conduct stability and security cooperation missions effectively in a LIC environment. However, the idea that mastery of MIC-HIC skill sets are not required for LIC (i.e., hybrid war) is just as fallacious. Moreover, the belief that international theories of cooperative security and constructivism alone can calm the Arc of Instability[25] and prevent terrorist safe havens or that Globalization will prevent future nation-state versus nation-state warfare has been debunked by the brief Russian-Georgian war of August 2008. While the Russian-Georgian war should not be viewed as a commencement of a new Cold War era,[26] especially by those salivating to reinvigorate a simplistic bi-polar environment and a flashback to a pure focus on conventional warfighting, it should reaffirm the near impossibility of predicting when, where, or what the next war will look like. The *Marine Corps Midrange Threat Estimate: 2005-2015*, for example, failed to predict the risk or likelihood of a Russian invasion of Georgia--similar to the numerous intelligences shortcomings that failed to foresee 9-11, OIF I, Operation Desert Shield/Desert Storm and countless other historical examples. As a result, the potential of a

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[25] "Countries with youthful age structures and rapidly growing populations mark a crescent or 'arch of instability' stretching from the Andean region of Latin America across Sub-Saharan Africa, the Middle East and the Caucasus, and through the northern parts of South Asia." National Intelligence Council, "Global Trends 2025: A Transformed World," (Washington D.C.: US Government Printing Office, November 2008), iv.

[26] Even though Putin announced a 27% increase in military spending in July 2008, the Russian military spending is only a fraction of United States': under $50 Billion compared to over to nearly $550 Billion in 2007. *The Economist*, "Russia's armed forces: Advancing, blindly," September 20th-26th 2008, 67-68.

MIC-HIC conflict--that may seem incomprehensible now--and the COE's Hybrid nature within irregular warfare, should keep the Marine Corps grounded in the core competencies of MIC-HIC warfare.

Network-Centric Warfare

Another constant element in the ongoing revolution of military affairs on the modern battlefield is the importance of information. Information remains a central commodity within hybrid warfare and is at the forefront of transformation in DoD with NCW--particularly with the Future Combat System (FCS). The DoD Office of Force Transformation's response to the transition to the Information Age is the implementation of the emerging theory of Network Centric Warfare.[27] Notwithstanding that NCW is described as an enabler to Effects Based Operation (EBO) which was removed from joint doctrine by General Mattis, the Commanding General of Joint Forces Command,[28] NCW is applicable at every level of war.[29] The primary goal of NCW is to:

> Generate increased combat power by networking sensors, decision makers, and shooters to achieve shared awareness, increased speed of command, high tempo of operations, greater lethality, increased survivability, and a degree of self-synchronization. In essence it translates information advantage, into combat power by effectively linking friendly forces within the battlespace, providing a much improved shared awareness of the situation, enabling more rapid and effective decision making at all levels of military operations, and thereby allowing for increased speed of execution.[30]

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[27] Office of Force Transformation, Department of Defense, "The Implementation of Network-Centric Warfare," (Washington, D.C.: Office of the Secretary of Defense, 5 January 2005), 3.

[28] General James N. Mattis, "USJFCOM Commander's Guidance for Effects-based Operations," *Joint Force Quarterly* (4th Quarter, 2008), 106.

[29] Office of Force Transformation, Department of Defense, "The Implementation of Network-Centric Warfare," (Washington, DC: Office of the Secretary of Defense, 5 January 2005), 4.

[30] Ibid., 4,5. While the late Admiral Cebrowski, who was the leading NCW proponent, argued that NCW is an emerging theory, the academic discourse of alternate perceptions and alternate positions to that claim are beyond the scope of this paper. For the purposes of this monograph, it will be assumed that the

There are four basic tenets of NCW. The first is the need to maintain a robustly networked force that improves information sharing. The improved information sharing then supports the second tenet of enhancing the quality of the information and improved shared situational awareness. This, in turn, facilities collaboration and self-synchronization, and enhances sustainability and speed of command. These three tenant combined produce the fourth tenant of NCW: a dramatically increase mission effectiveness. Additionally, there are nine governing principles that fall under the tenets of NCW which "constitute the new rules by which a network-centric force organizes, trains, and operates."[31]

1. Fight first for **information superiority** in order to "generate information advantage through better timeliness, accuracy, and relevance of information."
2. Access to information; **shared awareness** to "Routinely translate information and knowledge into the requisite level of common understanding and situational awareness across the spectrum of participants in joint and combined operations."
3. **Speed of command** and decision making to "recognize an information advantage and convert it into a competitive advantage by creating processes and procedures otherwise impossible (within prudent risk)."
4. **Self-synchronization** in order to "increase the opportunity for low-level forces to operate nearly autonomously and to re-task themselves through exploitation of shared awareness and the commander's intent."
5. **Dispersed forces**: conduct non-contiguous operations "[moving] combat power from the linear battlespace to non-contiguous operations."
6. **Demassification**: Move from an approach based on geographically contiguous massing of forces to one based upon achieving effects.
7. **Deep sensor reach**: Expand the use of deployable, distributed, and networked sensors at operationally relevant ranges to achieve decisive effects.

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tenants and principles of NCW are valid and certain aspects can be inculcated into Marine Corps Maneuver Warfare doctrine, but NCW alone is not necessarily a theory unto itself.

[31] Ibid.,7.

8. **Alter initial Conditions** at higher rates of change: Exploit the principles of high-quality shared awareness, dynamic self-synchronization, dispersed and de-massed forces, deep sensor reach, compressed operation and levels of war, and rapid speed of command to enable the joint force to swiftly identify, adapt to, and change an opponent's operating context to our advantage.
9. **Compressed operations** and levels of war: Eliminate procedural boundaries between Services and within processes so that joint operations are conducted at the lowest organizational levels possible to achieve rapid and decisive effects.[32]

There is nothing counterfactual to the Marine Corps' Maneuver Warfare Doctrine within the tenets of NCW. NCW attempts to reduce the maneuver warfare tenants of Friction, Uncertainty, and Disorder, while improving Initiative and Response, Speed and Focus, and the decentralized and implicit communications within the Marine Corps' Philosophy of Command. NCW and Maneuver Warfare both attempt to increase the decision-making cycle and increase Tempo. The major paradigm shift for embracing NCW is the complete preeminence of information over other battlefield functions.

What is Distributed Operation and Enhanced Company Operations?

On 25 April 2005, General M.W. Hagee, then Commandant of the Marine Corps, published *A Concept for Distributed Operations* in order to generate momentum for a new operating approach that would revamp the education and training of small infantry units to take advantage of emerging technologies.

> Distributed Operations describes an operating approach that will create an advantage over an adversary through the deliberate use of separation and coordinated, interdependent, tactical actions enabled by increased access to functional support, as well as by enhanced combat capabilities at the small-unit level. The essence of this concept lies in the capacity

[32] Ibid., 8-10. Bold emphasis in the original text.

> for coordinated action by dispersed units, throughout the breadth and depth of the battlespace, ordered and connected within an operational design focused on a common aim. [33]

The DO concept is described as a "form of maneuver warfare" and that the dispersion created with the concept goes to the heart of the Marine Corps Warfighting philosophy: a decentralization and deliberate downward movement of authority.[34] The vision for DO's tactical application is

> that maneuver units will operate in disaggregated fashion, with companies, platoon, and even squads dispersed beyond the normal range of mutually supporting organic direct fires, but linked through a command and control network. All units will be organized, trained and equipped to facilitate distributed operations, with capabilities beyond those historically resident at the small unit level. They will employ the advantage of extensive dispersion to reduce their vulnerability to enemy observation and fire, but will possess significant combat power, enabling them to locate, close with, and destroy the enemy. [35]

While units employing the concept will have the ability to disperse down to the squad level, the decision to disperse will be with the commander. The DO concept ensures flexibility in that units retain their traditional aggregated composition as required within METT-T (the mission variables of Mission, Enemy, Terrain and weather, Troops and support available, and Time).[36]

The MCWL Experimental Division, responsible for testing the tactics, techniques, and procedures--as well as the equipment to support DO--was already hard at work on the DO concept when *A Concept for Distributed Operations* was released. After a sustained assault on the DO concept within the pages of the *Marine Corps Gazette*--arguably due to a misrepresentation

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[33] General M.W. Hagee, "A Concept for Distributed Operations" (Washington, D.C.: HQ Marine Corps, 25 April 2005), i.

[34] US Marine Corps, MCDP-1*Warfighting*, (Washington, DC: HQ Marine Corps, 20 June 1997), 8, 32-35, 56-58, 78-82.

[35] General M.W. Hagee, "A Concept for Distributed Operations" (Washington, D.C.: HQ Marine Corps, 25 April 2005), II.

[36] Ibid.

of a futuristic and unsupportable doctrinal concept[37]--and significant experimentation by MCWL, there was a realization that a slight modification was required. Colonel Vincent Goulding, USMC (Ret), director of MCWL's Experimental Division, conceded an important conclusion to the original DO concept: "A final consideration was the less obvious one that the company is probably the smallest tactical formation capable of conducting independent operations—and frequently does on today's battlefield."[38]

Coinciding with the publication of Colonel Goulding's *Gazette* article, the current Commandant of the Marine Corps, General James T. Conway released *A Concept for Enhanced Company Operations*. Before delving into the adaptation and advancements of DO to ECO, General Conway emphasized the increased importance and relevance of *Ship-to-Objective Maneuver* (STOM),[39] under the auspices of *Operational Maneuver from the Sea* (OMFTS),[40] while indicating the likely distributed environment for Marine units in the COE as described within the Marine Corps' *Long War* and *Marine Corps Vision and Strategy 2025*.[41]

The vision of ECO attempts to support the warfighting philosophy of the Marine Corps and builds on the earlier principles of DO:

> Enhanced Company Operations describes an approach to the operational art that maximizes the tactical flexibility offered by true decentralized mission accomplishment, consistent with commander's intent and facilitated by improved command and control,

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[37] Lieutenant Colonel Christopher Carolan, lead designer of DO-ECO, MCWL, interview by author, Lansing, Kansas, October 1, 2008.

[38] Vincent J. Goulding Jr. "Enhanced Company Operations." *Marine Corps Gazette*. (August 2008): 17-19.

[39] Marine Corps Combat Development Command, "Ship-to-Objective Maneuver," (Quantico, VA: MCCDC, 1997).

[40] General Charles Krulak, "Operational Maneuver from the Sea," (Washington, DC: HQ Marine Corps, 1996).

[41] General James T. Conway, "A Concept for Enhanced Company Operations" (Washington, D.C.: HQ Marine Corps, 20 June 2008),1.

> intelligence, logistics, and fire capabilities. Enhanced Company Operations will be reliant on increased access to, and organic control of, functional support, as well as excellence at the individual, squad and platoon levels. As such, it builds on the results of Distributed Operations experimentation and capability development to provide battalion commanders the critical link between operational planning and squad level tactical execution….The implications of ECO transcend the company, even the battalion. For the Marine Air-Ground Task Force (MAGTF) to reap the benefits of ECO, it will require modification to its training, organization, equipping—and perhaps, most of all, thinking—in order to fully exploit the capability.[42]

The ECO endstate is to create the capability of the rifle company to assume the stature of a MAGTF capable of supporting larger MAGTFs through each phase of a joint campaign from Shape the environment (Phase 0), in the case of the SC MAGTF, to Stability and Enable Civilian Authority (Phase IV and V) in operations like OIF and OEF.

The MCWL, in order to change its misperceived futuristic nature of DO, adjusted their strategic communications to the Marine Corps by renaming the concept ECO. Contrary to the dogma of the operating forces, however, the initial approach to DO was actually limited and practical. As MCWL envisioned the distributed and decentralized nature of the future battlefield and began formulating a way ahead, one key decision was made to frame the problem-set: there would be no overarching structural changes to the T/O of the Marine Corps infantry battalions or rifle companies. The concept of the historic three-tier hierarchical system[43] would not be altered. The approach to designing DO would be from the ground up (i.e., squad to platoon to company to battalion etc.).[44]

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[42] Ibid., 2.

[43] The three-tier hierarchical system refers to the standard infantry formations that consist of three squads for a platoon, three rifle platoons in a company, three rifle companies in an infantry battalion, etc.

[44] LtCol Carolan, interview.

As the MCWL contemplated the tasks required of a distributed squad and platoon, they reviewed the *Training and Readiness* (*T&R*) manual and determined that "95% of what they were doing was the same as what was expected" of a squad leader. The remaining 5% of their tasks focused on fire support related tasks--particularly Close Air Support (CAS).[45] The need to improve the training quality of the squad leader was at the foundation of DO. LtCol Carolan, the lead designer of DO-ECO, compared the Marine Corps assignment process of a squad leader to that of a rifle platoon commander: "Would the Marine Corps consider sending a second lieutenant to a platoon without going to IOC [Infantry Officers Course]? Yet we put squad leaders in the [squad leader] billet routinely without any training prerequisites."[46] The underlying conclusion of MCWL was that the DO concept was much simpler than originally envisioned. The MCWL was not necessarily developing something completely revolutionary; they were simply ensuring the squad leaders had the requisite skills. For example, if the *T&R* manual stated that a squad leader needed to be able to achieve certain tasks, the training opportunity needed to be made available for the incoming squad leader.

Traction for improved training was made by MCWL as the Schools of Infantry (SOI) increased the number of Infantry Squad Leader Course slots to actually support the number of squad leaders in the Marine Corps.[47] Additionally, basic resource shortfalls that had been accepted over time--from personnel shortfall in the rifle company headquarters to insufficient radios and pistols within the rifle company TO&E--gained attention after years of atrophy and

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[45] Ibid.

[46] Ibid.

[47] Division Schools also assists in the training of infantry squad leaders.

consent towards a status quo of mediocrity. The greatest concern, though, from the MCWL staff was the lack of CAS training at the squad and platoon level.[48]

The shortfall in CAS capacity led to the inception of the Squad Fires Program. Due to shortfalls in CAS sorties, attaining--and more importantly retaining-- Joint Tactical Air Controller (JTAC) qualifications for all Marine Corps squad leaders and platoon commanders was not feasible. The Squad Fires Program eased the burden on this shortfall by creating a CAS simulation that provided proficiency for Type 2 and Type 3 CAS[49] JTAC skill-sets for squad leaders. [50]

Notwithstanding the CAS dilemma, the MCWL staff acknowledges that other significant challenges exist in implementing the DO and ECO concepts, particularly C2, fire support, logistics, and human performance shortfalls. Radio parameters limit the range at which a squad can move away from the command post. Marine Corps fire support assets at the battalion level have an extremely restricted range fan. Furthermore, due to rapid promotion rates, squad leaders may have limited experience and maturity needed for the independent responsibility requisite in the DO concept, as well as limited time in service to learn the myriad skill-sets required to execute DO operations.

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[48] LtCol Carolan, interview.

[49] "Type 1 control is used when the JTAC must visually acquire the attacking aircraft and the target for each attack; Type 2 control will be used when the JTAC requires control of individual attacks but assesses that either visual acquisition of the attacking aircraft or target at weapons release is not possible or when attacking aircraft are not in a position to acquire the mark/target prior to weapons release/launch; Type 3 control is used when the JTAC requires the ability to provide clearance for multiple attacks within a single engagement subject to specific attack restrictions. Type 3 control does not require the JTAC to visually acquire the aircraft or the target; however, all targeting data must be coordinated through the supported commander's battle staff." JP 3-09.3 *Joint Tactics, Techniques, and Procedures for Close Air Support (CAS)* 3 September 2003 with change 2 September 2005, xiv.

[50] LtCol Carolan, interview.

The greatest Achilles heel of the ECO and DO concept, however, is logistics: the further a unit moves away from its higher headquarters, the more exponentially difficult it becomes to sustain the unit with food, ammunition, medical care, etc. The goal of MCWL, therefore, is to reduce and/or eliminate these limitations on the concept. LtCol Carolan summarized the development of DO and ECO as not a set of tactics, but a reduction of the limiting factors placed on the infantry community.[51] In short, by increasing squad and platoon level capabilities, battalion and company commanders are afforded increased flexibility and decentralized economy of force options within the planning variables of METT-T.

Distributed Operations and the Warfighting Functions: Intelligence

When the Marine Corps advanced DO to the ECO concept, the increased emphasis placed on the Intelligence function coincided with the tenants of NCW. ECO incorporates the Company Level Intelligence Center (CLIC) concept to improve the intelligence analysis and synthesis capability at the rifle company-level, as well as increases the manpower of the rifle company's headquarters platoon. UAVs and other assets are also being added to the infantry battalion TO&E to improve intelligence collection capability. The Army is also emphasizing NCW's predominance of the Intelligence function within the FCS construct. The FCS, however, provides some lessons learned for potential pitfalls in the development of the ECO concept. Specifically, MCWL needs to ensure a full-spectrum capability experimentation and development

[51] LtCol Carolan, interview.

of the ECO concept in the anticipated combat environment beyond the current OEF and OIF battlefields.

While many theorists advocate that the nature of warfare is timeless, the Information Age has changed the importance of certain aspects of warfare. Accounting for "[i]**ntelligence** is at the core of maneuver warfare and the first warfighting function that must be addressed in ECO capability development….The [rifle] company requires an organic capability to accomplish four broad intelligence-related requirements: increased situational awareness; collection and production of timely and accurate intelligence; collection management; and information management. Mission accomplishment in these areas will require a fresh look at how the company headquarters is manned, trained and equipped.(emphasis in original)" [52] The CLIC is one way that the rifle company improves the intelligence support for the company commander to manage the complex environment and increasing responsibility on the modern battlefield.

"The CLIC is an organic capability that provides the company commander with the ability to collect, process, and disseminate actionable intelligence. This effort will assist in providing standardization, across the Marine Corps, in terms of organization, processes, equipment, and training required to enable the CLIC concept."[53] MCWL, in conjunction with advocating the CLIC, has recommended TO&E changes to the rifle company's headquarters platoon to rollback the slow atrophy of the rifle platoon personnel that routinely fill the manpower of an ever-expanding company HQ requirement.[54] Beyond the CLIC, five UAV Raven

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[52] General James T. Conway, "A Concept for Enhanced Company Operations," (Washington D.C.: HQ Marine Corps, 20 June 2008), 3.

[53] Marine Corps Warfighting Lab, Company Level Intelligence Cell (CLIC) Project (Information Paper), 14 July 08, 1.

[54] See Annex D for the MCWL recommendation.

systems will also be added to the infantry battalion to replace the Dragon Eye, which is currently fielded in OIF and OEF. How these systems will be integrated with the rifle companies have yet to be determined by the bottom-up review of the rifle battalion at the Experimental Division of MCWL.[55] The Army, on the other hand, has taken a more aggressive approach to intelligence collection with the FCS.

The FCS Brigade Combat Team (BCT) takes the Army's contemporary Modular Brigade concept to the next longer-range evolutionary step:

> [The FCS(BCT)] will network existing systems, systems already under development, and systems to be developed to meet the requirements of the Army's Future Force. It is adaptable to traditional warfare as well as complex, irregular warfare in urban terrains, mixed terrains such as deserts and plains, and restrictive terrains such as mountains and jungles. It can also be adaptable to civil support, such as disaster relief. It is a joint (across all the military services) networked (connected via advanced communications) systems (one large system made up of 14 individual systems, the network, and most importantly, the Soldier) connected via an advanced network architecture that will enable levels of joint connectivity, and situational awareness and understanding, and synchronized operation heretofore unachievable.[56]

The principle intent of the FCS is to provide Soldiers at every level significantly enhanced situational awareness to support the FCS principle of "see first, understand first, act first, and finish decisively." "The FCS program is developing network-centric concepts for a multi-mission combat FoS [future operating system] that will be lethal, strategically deployable, self-sustaining and highly survivable in combat."[57]

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[55] LtCol Carolan, interview.

[56] Program Manager, FCS, "Future Combat System (Brigade Combat Team)(FCS(BCT)) Brigade Combat Team" 14 March 2007. 2.

[57] Office of Force Transformation, Department of Defense, "The Implementation of Network-Centric Warfare," (Washington, DC: Office of the Secretary of Defense, 5 January 2005),51, 52. See https://www.fcs.army.mil/systems/index.html for a detailed description of the FCS and affiliated systems.

The FCS increases the number of Unmanned Aerial Systems (UAS) to 200 within a BCT, as well as providing hundreds of additional Unattended Ground Systems (UGS) and Unmanned Ground Vehicles (UGV). The FCS is attempting to create a combat multiplier with technology and to provide a synergistic effect at the lowest level by providing unprecedented situational awareness and unfettered access to precision firepower. The FCS may face challenges in the Stability and COIN environments as the large numbers of infantry that are required to interact with the local population are reduced (although the new FSC implementation plan will retain a certain number of Infantry Battalion Combat Teams [IBCT] to help alleviate this problem).[58]

Decreasing the number of infantry available within the infantry battalion is contrary to the needs of low-intensity warfare. Prudently, MCWL retained the TO&E of the infantry battalion to meet the needs of the likely future combat environments. The requirement for a large T/O is exacerbated in the urban environment, where command and control and situational awareness are extremely challenging and the benefits of technology are reduced. Advocates of relying heavily on technology to meet the requirements of NCW for infantry small unit leaders must determine the maximum amount of information a small unit leader (through unmanned platforms) can actually process while still retaining effective command and control. A platoon commander or squad leader's five senses provide an incredible amount of information and should be the primary tool for maintaining situational awareness--particularly in the MOUT environment. At a certain point, the focus on unmanned platform information will actually detract from the basic senses in MOUT fighting; furthermore, unmanned platforms cannot interact with a

[58] The future status of the FCS is in flux due to the economic crises and future fiscal constrains within DoD; likely only a portion of the modular BCTs will be upgrades to become FCS (BCTs).

population in COIN.[59] More importantly, these intelligence gathering systems cannot always be counted on. For example, high winds in area of operations like Afghanistan can impact the performance or employment of UAVs at the company and battalion level,[60] and in a MIC-HIC environment a peer competitor may be able to negate the UAV advantage by jamming (i.e., Electronic Warfare [EW]) or destroying it with a sophisticated anti-air defense system.

The MCWL is extremely conscious of the issue of potentially overloading the squad leader with information and is cautiously moving towards adding intelligence gathering equipment (e.g., UAVs, ground sensors, etc.) that will produce a more "inward focus".[61] MCWL's goal is to retain an external focus and not be hindered by technology.[62] While the testing and focus of MCWL is currently on a mountainous environment like Afghanistan, the intelligence overloading issue is even more significant in the MOUT environment. MCWL should ensure that system testing is not solely conducted in a mountainous terrain, but also in a MOUT environment. At the same time, an improved vision is needed regarding what information is required by the squad leader, platoon commander, and the company commander in each environment to include not only COIN, but MIC-HIC operations.

While the current focus of MCWL at this time is on the rifle company, the real implications for reconnaissance capability and fire support (see below) are in the Weapons Company and H&S Company. In an effort to retain a light infantry capability at the rifle

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[59] Major General Dunlap, USAF, makes the argument that the Air Force can play a more significant role in the COIN environment, particularly with UAVs. Major General Charles J. Dunlap Jr. "Making Revolutionary Change: Airpower in COIN Today," (*Parameter*, Summer 2008), 52-66.

[60] United States Marine Corps Center for Lessons Learned, *Distributed Operations in Afghanistan, First Battalion, Third Marines.* (Quantico, VA: MCCDC, 14 November 2006), 5.

[61] "Inward focus" versus "outward focus" was the vernacular used by LtCol Carolan during his interview.

[62] LtCol Carolan, interview.

company-level at all times, the ECO concept retains a requirement to have augmentation from the weapons company for limited combined arms reconnaissance capability in a MIC-HIC environment.[63] The addition of UAVs and other sensors at the battalion- and company-level relate directly to the role of ground reconnaissance and motorized combined arms reconnaissance capability at the battalion- and regimental-level. As a result, the MCWL's ECO design needs to ensure the integration of the battalion-level intelligence assets into their course of action development; intelligence for the rifle company cannot be looked at independently in the case of each possible environment and level of war. Anecdotally, there appears to be a potential to experiment solely from an OEF and LIC perspective. In short, there needs to be an overall integration of the intelligence systems in the battalion from the H&S scout-sniper platoon to the combined arms reconnaissance capability in the weapons company, as well as a holistic approach through the Marine Expeditionary Force-level.

Distributed Operations and the Warfighting Functions: Fires

Within the DO-ECO construct, the Fires function follows closely behind the Intelligence function in precedence; the ability to execute fire support at the lowest level is critical to the successful employment of the concept. Essentially, ECO and DO requires squad leaders and platoon commanders to assume Fire Support Team (FiST) leader responsibilities on the dispersed battlefield. By placing the onus on the squad leader to direct Fixed Wing (FW) and Rotary Wing (RW), 81mm and 60mm mortars, artillery, High Mobility Artillery Rocket System (HIMARS),

[63] For a detailed study of balancing mission requirements and TO&E of reconnaissance units see John J McGrath's *Scouts OUT! The Development of Reconnaissance Units in Modern Armies.* Combat

and Naval Surface Fire Support (NSFS), several challenges arise: (1) training the squad leader and platoon commander to proficiently employ numerous fire support systems, (2) the ability of squad leaders and platoon commanders to perform their primary duties while supporting the additional requirements of serving as a FiST leader, (3) maintaining Fire Support Coordination Center (FSCC) clearance procedures at the company level, (4) relying heavily on CAS for fire support due to inadequate access to other limited ground fire support in the Marine Corps inventory, and (5) retaining the tenants of maneuver warfare doctrine at the lowest tactical levels as squad leaders and platoon commander increase their access and focus on fire support.

Currently, due to the complexity of the modern battlefield, the Marine rifle company commander employs an organic FiST to assist in the combined arms integration of fires support assets through the full-spectrum of conflict. "The FiST is responsible for the development and execution of fires in support of the Company Commander's ground SOM [Scheme of Maneuver]. The FiST and FSCC are the integral element in the coordination and deconfliction of the combined arms fight. It is through the FiST that aviation fires, indirect fires, and maneuver are integrated and deconflicted to achieve the maximum effects in support of the company's SOM."[64] The FiST exists for one reason: to support the company commander's ground SOM. The company commander is responsible for sharing his vision of fires and how they support maneuver in a methodology that can easily be translated by the FiST leader into executable fire support.

To execute the company commander's intent, the FiST team leader is provided a robust team. The FiST consists of the FiST team leader, Forward Air Controller (FAC) or Joint Terminal

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Studies Institute Press (US Army Combines Arms Center: Fort Leavenworth, Kansas, 2008).

[64] Tactical Training and Exercise Control Group, "Fire Support Team (FiST) Techniques and Procedures HANDBOOK.," (Twentynine Palms, California: MAGTF Training Command, January 2007). 3

Attack Controller (JTAC), Artillery Forward Observer, Mortar Forward Observer, and, in some cases, a Naval Gun Fire Spotter. Additionally, certain members are supported by two radio operators. The FiST leader integrates a fire support plan that uses all available acquisition and attack assets to create a combined arms effect.[65]

The ability to conduct FiST battle drills is a complex endeavor that requires each member of the FiST to track the basic elements of battle space geometry: enemy positions and their threat rings, friendly positions and maneuvering forces, rotary wing battle positions, fixed wing stay-above/below computations, fixed wing final attack headings and rotary wing routing, surface danger zones, minimum safe distances, and gun target lines.[66] A constant dialogue is required among the FiST members to not only maintain situational awareness, but to maintain a continuous discourse to determine the best employment of the assets available while reducing the risk of fratricide in Troops in Contact (TIC) situations where the probability of incapacitation of friendly troops is possible or likely. In close quarters MOUT fighting, or when fighting in less open terrain, the company commander is required to enter the discourse of weaponeering due to the magnitude of risk in particular situations.

The complexity of the task is evident by the significant training requirement of the FiST team at Exercise Mojave Viper. Training consists of nine hours of classroom instruction, nine hours of non-live-fire practical application in the combined arms command and control training upgrade system (CACCTUS), and nearly twelve hours of training on live-fire ranges. Classroom instruction covers the following: a FiST class reviewing the essentials of the TTECG FiST handbook; indirect fire coordination; night fires support coordination; CAS Tactics, Techniques,

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[65] Ibid,. 12.

[66] Ibid., 35.

and Procedures (TTPs); and urban fire support considerations, with heavy emphasis on CAS weaponeering in the MOUT environment. The live-fire training events employ a crawl-walk-run mentality beginning with basic integration with notional troops and advancing to live-fire on the Deliberate Assault Course, which exercises mechanized infantry closing on an objective with 60mm mortars, 81mm mortars, FW and RW CAS, and artillery supporting the friendly's maneuver. Notwithstanding the 48 FW/RW sorties, 1316 artillery rounds, 951 mortar rounds required to train a FiST in Mojave Viper,[67] due to the short dwell time of the operating forces prior to deployments supporting OIF or OEF, the FiSTs are limited in their own training preparation before arrival at Exercise Mojave Viper. Additionally, the staffing of TTECG does not allow Mobile Training Teams (MTTs) to train FiSTs to prepare for Mojave Viper effectively. As a result, even with a Herculean effort during Exercise Mojave Viper, most FiST teams only meet the minimum training standards by the time they deploy to OIF or OEF.

Exercise Mojave Viper is currently only able to support training three FiSTs per battalion and a limited number of scout-sniper teams;[68] it is hard to visualize providing the support for FiST-type training for each Platoon Commander--let alone squad leaders--in a battalion to support DO-ECO at Exercise Mojave Viper or any training venue within the pre-deployment

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[67] E-mail correspondence with Captain Allen McBroom, lead FiST instructor for Exercise Mojave Viper, Oct 14, 2008. The following is the ammunition breakdown by event; these numbers do not include Range 400 FiST training or training in the Urban/COIN portion of Exercise Mojave Viper: FSCEX 1: 10 FW sorties, 3 RW sorties, FW ordnance: 100 Mk series bombs, 20 PGMs total; RW Ordnance: 3 PGMs, rockets and gun; FSCEX 1B: 5 FW sorties, 3 RW sorties FW ordnance: 50 Mk series bombs, 10 PGMs total, RW Ordnance: 3 PGMS, rockets and gun; DAC: 15 FW sorties, 6 RW sorties FW ordnance: 150 Mk series bombs, 30 PGMs total, RW ordnance: 6 PGMS, rockets and guns; FSCEX 1U: 4 FW sorties, 2 RW sorties FW ordnance: 16 PGMs/JDAMs, RW ordnance: 2 PGMs, rockets and gun, 81s ammunition by event: FSCEX 1: 352 High Explosive (HE), Illumination (Illum) 32, FSCEX 1B: 66 HE, Illum 6, FSCEX 1U: 40 HE, Illum 8, DAC: 399 HE, Illum 48, Arty Ammunition by event: FSCEX 1: 384 HE, Illum 64, FSCEX 1B: 78 HE, Illum 6, FSCEX 1U: 40 HE, Illum 0, DAC: 720 HE, Illum 24.

[68] The addition of a fourth FiST from the Mobile Assault Company (MAC) is supportable with limited degradation of the primary three rifle company FiSTs.

training program. On the other hand, MCWL acknowledges the inability to resource the number of sorties to maintain a JTAC qualification for every squad leader in the Marine Corps and subsequently created the Squad Fires Program to provide additional CAS simulation training. The conclusion of MCWL is that the squad leader will be able to attain the capability to support Type 2 and 3 CAS needs on the battlefield. This qualification is stipulated by the requirement for a qualified JTAC or FAC to provide the actual "cleared hot"[69]--possibly in the FSCC. Notwithstanding the communications and command and control challenges associated with this "work-around" (addressed below), the ability of a squad leader to assume all of the other skill-sets of the FIST must also be considered.

The rifle company commander is currently supported by a FiST leader to execute fire support in order to retain the ability to command and control the maneuver platoons and not be overwhelmed with fire support coordination. Additionally, the role of the FiST leader demands the support of up to ten Marines to prevent being inundated with fires support tasks and to integrate of all the fire support assets in the Marine Corps and Joint Inventory. The squad leader or platoon commander, therefore, must have the skills and requisite knowledge of an Artillery Forward Observer (FO, 2nd Lt), a FAC (trained pilot), a mortars FO, and possibly a Naval Fire Spotter (e.g., he must master not only all the employment considerations and capabilities and limitation of each airframe and different ordinance for weaponeering considerations, but also ground fire support assets and naval surface fires).[70] Notwithstanding LtCol Wartman's arguments in the *Marine Corps Gazette* that personnel at the squad level lack the requisite ability

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[69] LtCol Carolan, interview.

[70] For example, the leader needs to be able to determine if a Maverick missile versus a GBU-12 versus a Hellfire missile is appropriate in different environments, as well as understand weaponeering considerations for 155mm artillery, HIMARS, mortars, and naval systems.

to execute DO-ECO, [71] the belief that a single squad leader--or any Marine at any rank--can attain mastery of all the systems involved for a FiST and manage their simultaneous integration is a lofty one.

Unfortunately, with current technological limitations, the ability to control and integrate several fire support systems to produce a combined arms effect in support of maneuver is currently beyond the capability of a single Marine. Even the ability of a single individual to conduct CAS, for example, is problematic. Due to the difficulty of visually acquiring the aircraft at times during CAS execution, the expectation is that a majority of the FiST team will be attempting to find the aircraft to confirm its orientation prior to giving the "cleared hot".[72] The MCWL vision that the squad leader will only execute Type 2 or 3 CAS with a JTAC or FAC to "oversee" the execution off-site is indicative of the nature of the environment, intentionally or unintentionally, envisioned by the MCWL. This type of risk is only acceptable--or consistently feasible by a single Marine--in a COIN/LIC or defensive MIC-HIC environment where a substantial air defense threat does not exist. These challenges do not consider additional coordination burdens of closing on an enemy position with multiple fire support agencies. A platoon commander or squad leader consumed with FiST duties will neither be capable of executing a closure series nor be able to personally maneuver with his unit closing on the enemy; either option is contrary to Maneuver Warfare doctrine and the leadership required and expected from small unit leaders.

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[71] Wortman, Christian F. "Operationalize Distributed Operations." *Marine Corps Gazette*, (November 2007): 80-85.

[72] Even with the "cleared hot" provided by a qualified FAC "offsite", certain Type 2 engagements would still require observation of the aircraft if the friendly force is not able to observe the enemy from their position during that actual CAS attack.

Although it is clear that current technological constraints prevent a squad leader or platoon commander from performing the duties of a FiST individually, deconfliction and the approval process for fire support within the DO-ECO construct is a serious challenge (i.e. no technology currently exists that allows a squad leader to point a laser at a target that results in each fire support agency automatically receiving a Call for Fire (CFF), a 9-Line, and an accurate 10-digit friendly and enemy grid, while simultaneously determining the best weaponeering options with the available fire support and automatically deconflicts fires with adjacent and organic friendly units).[73] The role of the FSC and the approval process for fires is extremely important. No matter how decentralized the future battlefield becomes or how much technology simplifies the work of the FiST, a requirement remains for a second set of eyes to provide a safety backstop. The squad leader or platoon commander, task saturated while in contact, will require an FSC-type oversight and approval process, no matter how dispersed, even if FSC responsibilities are transferred to the company level. Yet even with a "Company FSCC", the principles and roles of the acting FSC will remain the same.[74]

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[73] Strike-Link is the first step in digital communications between observer and fire support agency; however, Strike-Link fails to integrate the deconfliction process through the FSCCs.

[74] "While the FSC plays a critical role in fire support planning, coordination, and deconfliction in MIC-HIC operations, the FSC does not exercise command. The FSC serves within the purview of the operations officer and exercises fire support coordination authority within the constraints and restraints placed upon the FSC by the Battalion Commander. U.S. Marine Corps, MCWP 3-11.5 (Draft) *Marine Infantry Battalion* (Quantico, VA: U.S. Marine Corps, 27 November 2002), 3-17. "Within a properly constructed FSCC, the FSC should be co-located with the operations officer. In doing so, the operations officer can ensure that the development of the fire support plan and its execution are in consonance with the ground force's scheme of maneuver. The FSC's planning responsibility to develop the Fire Support Plan for the battalion's operations order is a complex and time-intensive job. In a fluid combat environment where the ground scheme of maneuver is constantly changing, the fire support plan is often hastily constructed, incomplete, or not rehearsed to the level of granularity that occurs during the live-fire training portion of Exercise Mojave Viper. The real importance of the FSC during combat operations is (1) to resource and integrate the battalion's main or supporting efforts (i.e., providing close air support (CAS), artillery fire, mortar fires, electronic warfare etc. to the Company Commander) and-or to execute targets in the commander's High Payoff Target List (as appropriate within the construct of the Attack Guidance Matrix) and (2) the safe deconfliction and risk mitigation to maneuvering ground forces and aircraft. While

By putting the FiST responsibility on the squad leader and platoon commander, due to a dispersed battlefield, there may be a requirement or desire to move some or all of the FSC responsibilities from the weapons company commander to the rifle company commander in certain situations.[75] This would be most appropriate if the communications architecture could not support connectivity to the FSCC due to an excessively dispersed battlefield. The challenge associated with this proposition is the same challenge as the squad and platoon commanders assuming the additional responsibility of the FiST: task overloading the company commander with the roles of both a commander and an FSC. While there may be times where this is not the case (e.g., COIN), the movement to contact (MTC) situations experienced in OIF I would be untenable.

The option of shifting FSCC responsibility from the weapons company commander to the rifle company commander as the situation dictates still creates additional training challenges. Beyond the training of the company commanders, the training of additional company FSCCs and its subsequent additions to the company TO&E snowballs exponentially. Similarly to the squad leader or platoon commander attempting to single handedly assume the role of a ten-man FiST,

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both tasks require mental agility and problem solving, a majority of the thought-process for constructing the fire support plan and resourcing is completed in close collaboration with the operations officer and the Battalion Commander prior to execution. While the FSC executes the administrative duties of the Fire Support Plan, the guidance, parameters, and onus of the document lie on the commander and the operations officer (although there may be heavy reliance on the FSC, depending on his capabilities and limitations)." Blair Sokol, *The Case for Employing the Mobile Assault Company through the Spectrum of Warfare* (Command and General Staff College, Leavenworth, KS: 2008), 46.

[75] The weapons company commander is responsible for the training and administration of all sections and platoons within the company; he also serves as the battalion's FSC. "The FSC is responsible for supervising the operation of the fire support coordination center [FSCC], developing fire support plans essential to the battalion's scheme of maneuver, and making recommendations for priority of fire support to subordinate units. He supervises the activities of the Mortar Platoon Commander, artillery liaison officer, naval gunfire liaison officer, and air officer within the FSCC." U.S. Marine Corps, MCWP 3-11.5 (Draft) *Marine Infantry Battalion* (Quantico, VA: U.S. Marine Corps, 27 November 2002), 2-6.

the company commander assuming the role of FSCC single-handedly is a show-stopper.[76] Beyond Marine Corps manpower issues (e.g., the artillery regiment being required to send artillery liaison officers [ALOs] for up to five FSCCs in a Battalion, the requirement for the Aviation Combat Element [ACE] to send five Air Officers to an infantry battalion, etc.), the Exercise Mojave Viper program, and the individual company commander, for example, would be unable to meet all of the rifle company commander training objectives in addition to the FSC and FSCC training objectives. The current Exercise Mojave Viper construct is only able to train one pair of Marines: the FSC and the AFSC. The additions to P2T2 (Patients, Prisoners, Trainees, Transients) man-hours and DOTMLPF to add requisite training are exponential.

These major obstacles hindering DO-ECO's ability to provide a full-spectrum capability return to two key issues: the first is MCWL's design parameters--DO and ECO will be developed within the construct of the current TO&E and improved or implemented with a bottom-up approach, and second, the ECO concept's focus towards a COIN or SC MAGTF environment. In addition to the challenges of shifting responsibilities of FiST, FSC, and FSCC discussed above, fire support availability on a dispersed battlefield is even more problematic. With organic fire support for the infantry battalion limited to 5,700 meters with 81mm mortars and 30 km for a supporting artillery battery, ECO envisions CAS as the bridge for fire support to the rifle company and its smaller units. Unfortunately, reliance on CAS as the principle agent for fire

[76] A likely short-term solution to this challenge is having the FiST serve as an ad hoc FSCC. This option would only be feasible in certain COIN and LIC environment where the company is supporting smaller level operations and the company FiST is not required. If there is a specific situation where a FiST would be appropriate to attach to a rifle platoon, however, the FiST is now constrained in an FSCC capacity. Moreover, within the current pre-deployment training program, FiSTs are not afforded the opportunity to be trained to standard as an FSCC and consequently their employment in this capacity would incur some level of risk. Although there are many similarities between FiST and FSCC duties, they are not identical.

support is precarious at best. Too many variables could impact aviation's availability for CAS to be the primary means to support the DO-ECO concept (e.g., time on station, weather, Air Tasking Order shortfalls, etc.). On the other hand, HIMARS has the potential to bridge the gap between highly dispersed elements on the battlefield and compliment CAS.

The Marine Corps recently acquired HIMARS as part of the Marine Corps Artillery community, yet there will only be two battalions (one active and one reserve).[77] A substantial increase in HIMARS within the Marine Corps would make it feasible to meet the requirement to attain precision fire access down to the squad level. Utilizing HIMARS, in conjunction with Excalibur artillery rounds and emerging PGM rounds for mortar systems, the Marines could match the Army's vision of long-range precision fires of the FCS. Only with major increases of HIMARS--or a similar system that provides precision munitions fires beyond 60km ranges--can DO-ECO truly be full-spectrum capable and become more than a SC MAGTF-COIN concept that is limited by an unrealistic reliance on CAS.

Notwithstanding sniper rifles and Tube Launched Optically Tracked Wire-Guided (TOW) missile, the Javelin anti-tank missile system is the only man-portable precision weapon available to the rifle company and below within the infantry battalion TO&E. The Javelin, though traditionally considered exclusively an anti-tank system, offers many alternate methods of employment. During OIF I and other named operations during OIF II and III, Javelins were used to kill enemy forces in bunkers and minarets--similarly to how the British used anti-tank weapons

[77] "HIMARS entered Full Rate Production in October 2005. A battery-sized interim capability was achieved in 1st [quarter] fiscal year 2006 (battery F, 2/14). Initial operational capability will be achieved in fiscal year 2008 and full operational capability will be achieved in fiscal year 2010." US Marine Corps "USMC Concepts and Programs 2008." (Quantico, VA: US Marine Corps Plans, Policies, and Operations, 2008), 127.

to destroy machine gun position at long-range during the Falkland war.[78] In the COIN and LIC environment, the Javelin could provide the reach to engage enemy snipers, trigger men, or improvised rocket positions out to 2,500 meters with a direct fire weapon.

Unfortunately, the current rifle company T/E is limited to Shoulder-Launched Multipurpose Assault Weapons (SMAW), Mk-153, which averages a 31% hit rate at 150-250 meters during Exercise Mojave Viper.[79] Unlike the Army's infantry battalion, which has 28 Javelin systems, the Marine battalion is limited to only eight. An augmentation or replacement to the SMAW with the Javelin or a Javelin-like system would improve the versatility of the DO-ECO concept by increasing the range and firepower of disaggregated ECO elements.

Distributed Operations and the Warfighting Functions: Maneuver

Even if the squad leader and platoon commander theoretically take on the onus of a FiST leader for DO-ECO, there is an even greater impact to the Marine Corps and its philosophy of maneuver warfare: the warfighting function of Maneuver. Both *A Concept for Distributed Operations* and *A Concept for Enhanced Company Operations* heavily emphasize that the emerging concepts of DO-ECO will enhance the Marine Corps' capstone doctrine of maneuver warfare prescribed in MCDP 1 *Warfighting*; the decentralized nature of DO and ECO facilitates

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[78] Major R.H. Belknap II, "After Action Report for Fallujah" for Weapons Company, 3rd Battalion, 1st Marines submitted to the commanding officer of 3rd Battalion, 1st Marines, 15 December 2004; Lieutenant Colonel D.J. Furness, "TF 1/1 After Action Review of Combat Operations ISO [in support of] OIF 05-07.1" submitted to the Commanding Officer of Task Force 2/8, 1 August 2006.

[79] The Mk-153 SMAW averaged a 31% hit rate (74 out of 241 shots) on R400 by 16 Infantry Battalion participating in Exercise Mojave Viper. The average range of the shots was 150-250m against an approximate 2m by 2m tire-stack target. Statistics provided by e-mail from Major Dan Wittnam, OIC of the live-fire portion of Exercise Mojave Viper on 26 April 2008.

the independent actions required on the battlefield. DO and ECO closely resemble post-modern organizational theory--to include being in consonance with NCW--and other rising thought on the benefit of emergent self-organizing behavior by pushing responsibility to the lowest levels possible. On the other hand, the additional responsibility and firepower afforded the squad leader and platoon commander can serve as a "double edged sword" as the addition of numerous fire support responsibilities actually hindering their ability to maneuver within the framework of Maneuver Warfare doctrine.

The DO concept is described as a "form of maneuver warfare"[80] and ECO emphasizes decentralized tactical operations. Contemporary organizational theorists Ori Brafman and Rod A. Beckstrom in *The Starfish and the Spider, The Unstoppable Power of Leaderless Organizations*[81] and Steven Johnson's *Emergence*[82] emphasize the need to flatten and decentralize organizational structure to succeed in the future. Margaret J. Wheatley in *Leadership and the New Science: Discovering Order in a Chaotic World* similarly proposes a requirement to rethink the dogma of current organizational structure that retains restrictions reminiscent of the industrial age. Chaos theory, quantum theory, and biology describe a chaotic world that produces natural order that should be harnessed rather than resisted; only by embracing the naturally occurring order that emerges from the "chaos" in the world can true efficiency and leadership occur.[83] True leadership emerges when initiative and creativity are fostered to solve complex adaptive problems in this

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[80] General M.W. Hagee, "A Concept for Distributed Operations" (Washington, D.C.: HQ Marine Corps, 25 April 2005), I.

[81] Ori Brafman and Rod A. Beckstrom, *The Starfish and the Spider The Unstoppable Power of Leaderless Organizations*, (USA: Portfolio, 2006).

[82] Steven Johnson, *Emergence*, (New York, New York: Touchstone, 2001).

[83] Margaret J. Wheatley, *Leadership and the New Science*, (San Francisco, CA: Berrett-Koehler Publisher, 2006).

acknowledged complex environment.[84] The rapid decision cycle of a decentralized network like al-Qaeda provides a real world example of the certain advantages of decentralized organizations over traditional organized militaries in certain situations. However, while both DO-ECO concepts and contemporary organizational theorists validate the need for a decentralized organization in the COE, there are many other facets of Maneuver Warfare that are required for a successful implementation.

MCDP 1 *Warfighting* defines maneuver warfare as a "warfighting philosophy that seeks to shatter the enemy's cohesion through a variety of rapid, focused, and unexpected actions which create a turbulent and rapidly deteriorating situation with which the enemy cannot cope."[85] Maneuver warfare is enemy focused and views the enemy from an operating system similar to cybernetics.[86] Friendly forces are required to focus their strengths against the enemy weakness in order to create the greatest effect on the ability of the enemy to fight--with particular focus on morale factors.[87] Maneuver warfare is the opposite of attrition warfare, although there are always some elements of both in either form of warfare.[88]

> Rather than wearing down an enemy's defenses, maneuver warfare attempts to bypass these defenses in order to *penetrate* the enemy system and tear it apart. The aim is to render the enemy incapable of resisting effectively by shattering his moral, mental, and physical cohesion—his ability to fight as an effective, coordinated whole—rather than to

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[84] Ronald A. Heifitz, lecture at School of Advanced Military Studies, 30-31 October 2008. Also see *Leadership without Easy Answers* and *Leadership on the Line* by Heifitz.

[85] US Marine Corps, MCDP-1*Warfighting,* (Washington, DC: HQ Marine Corps, 20 June 1997), 73.

[86] Ibid., 76. Cybernetics is the science of communication and control theory that is concerned especially with the comparative study of automatic control systems (as the nervous system and brain and mechanical-electrical communication systems). Marrian Webster Dictionary.

[87] Ibid., 75.

[88] Ibid., 36-39.

> destroy him physically through the incremental attrition of each of his components, which is generally more costly and time consuming. [89] (italics in the original)

A cursory review of MCDP-1 reveals a multifaceted warfighting approach that extends beyond distributed and decentralized operations. Numerous additional capabilities are required of a unit executing maneuver warfare in order to "penetrate [an enemy] system and tear it apart". The unit executing maneuver warfare needs to be able to conduct combined arms integration effectively and control friendly fires while closing under its effects, not merely attrite the enemy from a distance. While MDMP-1 describes the need to attack the enemy forces as a system, execution of this task is accomplished by the Single Battle concept.[90] While the description of the Single Battle Concept in MCDP 1-0 *Marine Corps Operations* focuses on battle space management and appears to be geographically and friendly force focused vice enemy focused, its synthesis with Maneuver Warfare principles closely parallels the former Soviet Union's Operational Shock doctrine developed prior to World War II.[91] Even though the Single Battle Concept was developed before DO-ECO, deep operations are principally to be conducted primarily by the Aviation Combat Element (ACE), although the Ground Combat Element (GCE) and Combat Service Support Element were expected to play significant roles--particularly

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[89] Ibid., 73.

[90] Single Battle concept: "A commander must always view his AO [Area of Operations] as an indivisible entity. Operations or events in one part of the AO may have profound and often unintended effects on other areas and events. While the AO may be conceptually divided to assist centralized planning and decentralized execution, the commander's intent ensures unity of effort by fighting a single battle…Single battle allows the commander to effectively focus the efforts of all MAGTF elements of the force to accomplish his mission…Under the single battle, the AO consist of three major areas—deep, close, and rear—where distinctly different operations are performed…they are functional actions that must be accomplished for other functions to be effective." US Marine Corps, MCDP 1-0 *Marine Corps Operations*, (Washington, DC: HQ Marine Corps, 27 September 2001), 6-20.

[91] See BG Shimon Naveh's *In Pursuit of Excellence The Evolution of Operational Theory* (New York: Cummings Center, 1997) for a description of Soviet Operational level theory; 164-236.

intelligence assets from the GCE.[92] A disaggregated DO-force should change the nature of the Single Battle Concept as dispersion pushes the GCE further into the security area and deep operations. In order to integrate the DO-ECO concept through the depth of the modern battlefield required for the Single Battle Concept, mobility of all forms (helicopter, mechanized, motorized, and dismounted) needs to be considered. In short, the design parameters for DO-ECO need to include MIC-HIC considerations with respect to mobility and depth required to adhere to maneuver warfare doctrine.

While ECO acknowledges that a rifle company is the smallest unit that can conduct sustained independent operations, this statement is principally focused on the constraint of logistics on the concept; the employment of a rifle squad or platoon for independent operations for short durations is still a supposition for ECO.[93] Consequently, the independent actions of a platoon and squad require the ability to orchestrate combined arms and facilitate maneuver in consonance with fire support and have the ability to cease and/or shift surface and CAS fires. But if the small unit leader is engrossed in fire support, maneuver will suffer. Paradoxically, without maneuver, fire support is less effective as enemy units will not be under the psychological stress of envelopment or physically forced to displace or reorient making the enemy more likely to remain covered and concealed and less susceptible to supporting fires. In short, if a rifle company commander requires a FiST leader, then a squad or platoon serving in an independent capacity executing combined arms should also require a FiST or FiST-like capability in order to support maneuver warfare doctrine. The complexity of combined arms integration on the modern

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[92] US Marine Corps, MCDP 1-0 *Marine Corps Operations*, (Washington, DC: HQ Marine Corps, 27 September 2001), 6-21.

[93] James T. Conway, General, "A Concept for Enhanced Company Operations" (Washington DC: HQ Marine Corps, 20 June 2008), 2.

battlefield requires a designated Marine at the point of combined arms integration until technology alleviates the need for a fully manned FiST.

Impact of the Contemporary Operation Environment on Maneuver

While the infantry battalion can be employed as light, helicopterborne, motorized, or mechanized infantry, ECO is focused on dismounted operations in order to test the combat load limits of the Marine in order to improve mobility on the battlefield. [94] The MCWL testing with DO-ECO is focused on a mountainous environment under the premise that if ECO can be supported in a mountainous environment, it will be effective in any other environment.[95] The likely future combat environment, though, notwithstanding certain regions of Afghanistan, is likely to entail MOUT.[96] A review of the challenges being experienced with the FCS in the MOUT environment need to be considered by the Marine Corps for the myriad enemy threats in the COE.

While the modern battlefield has changed, the enemy within the COE has conceded to US technological dominance and moved to the cities or to remote mountainous regions to ensure a more comparable relative combat ratio advantage. The open battlefields of Operation Desert Storm will continue to be replaced by an increase in urban encounters, and the Army's FCS provides certain advantages in the low-intensity MOUT environment. For example, the Improved

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[94] James T. Conway, General, "A Concept for Enhanced Company Operations" (Washington DC: HQ Marine Corps, 20 June 2008), 3

[95] LtCol Carolan, interview.

[96] "By 2020, eighty-five percent of the world's inhabitants will be crowded into coastal cities -- cities generally lacking the infrastructure required to support their burgeoning populations." General Charles Krulack, "The Strategic Corporal: Leadership in the Three Block War," *Marine Magazine* (January 1999). http://www.au.af.mil/au/awc/awcgate/usmc/strategic_corporal.htm (Accessed 18 February 2009).

Explosive Devices (IEDs)--the weapon of choice for a technologically inferior enemy--can be problematic to counter. The current solution is to increase armor capability through Mine Resistant Ambush Protected System (MRAPS) vehicles or use other heavily armored vehicles. This is a reaction to the symptom, though, and not a solution to the problem. The FCS, however, with 200 Unmanned Aerial Systems (UAS) within a BCT, as well as hundreds of additional Unattended Ground Systems (UGS), will substantially increase the ability of the small unit to identify and observe Named Areas of Interest (NAIs) and Target Areas of Interest (TAIs) to capture or kill the trigger-man--an important component to defeating the IED. Furthermore, the new FCS Battle Command system, which replaces the Army Battle Command System, will improve shared situational awareness and coordinated action both horizontally and vertically in the chain of command. This improved awareness will provide enhanced friendly and enemy pattern analysis--therefore improving survivability and mission success. Furthermore, the Unmanned Ground Vehicles (UGV) will provide force protection to Soldiers as they provide stand-off to suspected or likely IEDs during investigation or reconnaissance actions.

On the other hand, the FCS may suffer setbacks in the COIN environment. Technology is not a panacea in a COIN or LIC environment. Technology cannot replace the key human interaction required to provide actionable intelligence. The UAV and sensors may be able to identify or deter a trigger-man, but only Soldiers and Marines have the cognitive capability to engage with the population and conduct network analysis of the enemy system in an iterative way--a critical component to winning the COIN fight.

The FCS faces challenges in the mid- to high-intensity MOUT fight as well. The entire premise of the FCS is to allow freedom of maneuver by limiting the need for direct contact with the enemy, to improve survivability since the BCT can strike at a time and place of its choosing,

and to eliminate the need to mass troops in order to mass fires due to access to precisions fires.[97] This may be plausible on the open battlefield, but not necessarily in MOUT or close terrain. Once the enemy has learned how to defeat the UGVs, units will be required to fight a conventional, infantry-intensive close quarter battle. Within the urban environment, reducing basic infantry combat power for reconnaissance systems could be costly. Furthermore, the 200 UASs at the BCT will not be as effective in urban terrain versus a more open environment. The urban terrain is a great equalizer on the battlefield; even the best US satellite technology and UASs cannot penetrate inside buildings or subterranean features within a city.

The Pentagon's Director of Operational Testing & Evaluation (DOT&E) has already identified numerous challenges associated with employing UGVs: the inability to keep up with ground troops and deal with unexpected circumstances, the inability to maintain situation awareness, and high risk of fratricide.[98] These problems will only be exacerbated in the urban environment, where command and control and situational awareness are already an extreme challenge. FCS designers must determine the maximum amount of information a small unit leader (through UGV, UAS, and UGSs) can actually process and still be effective. As mentioned earlier, a platoon commander's five senses provide an incredible amount of information and should be his primary tool to maintain situational awareness in the MOUT environment because at a certain

[97] Command and General Staff College, "F100 Case Study: FCS." Power Point Class Slides: number 24, Academic year 2008-9.

[98] Congressional Research Service of the Library of Congress, "*The Army's Future Combat System (FCS): Background and Issues for Congress*." Washington D.C. (April 28, 2005), 20.

point, the focus on UGV, UAV, and UGS information will actually detract from his ability to engage his basic senses.[99]

In summary, within a MOUT environment, FCS demonstrates deficiencies in each spectrum of warfare by an over-reliance on technology at the expense of dismounted infantry. Of course, a need exists to move forward with technological advances against anticipated enemy threats, but not at the expense of mid-to high-intensity relative combat power ratios required in urban warfare. Built-up areas will be the battlefield of choice for our future enemies, and the United States will likely not be able to control this precondition. From a cursory analysis in the urban environment, it is clear that the FCS has limitations. Since the FCS cannot leverage technology in every situation within the spectrum of warfare (MOUT in this case), lessons can be taken away that can be employed to the ECO concept.

The Marine Corps DO-ECO concept, however, retains its ability to maintain an adequate relative combat power ratio in the urban environment because there are no changes to the rifle platoon TO&E and anticipates the requirement to aggregate the rifle company in the restricted urban terrain. The MCWL's recommendation to increase the TO&E of the weapons platoon to historical manning facilitates independent operations. By increasing the T/O of the machinegun section, in particular, there is no need to utilize rifle platoon elements to provide additional security. Furthermore, the company commander then retains the option to keep the weapons platoon as an independent maneuver element in a COIN environment (see Appendix C for the MCWL recommendation). The implications of retaining TO&E and increasing the TO&E of the

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[99] See Malcom Gladwell's *Blink*, (New York: Back Bay Books, 2005) and Gary Klein's *Sources of Power*, (USA: MIT Press, 1998) for an expanded discussion of recognition decision making and the strength of the human subconscious on decision making.

weapons platoon in relation to the urban environment are also applicable to another key warfighting function: Force Protection.

Distributed Operations and the Warfighting Functions: Force Protection

In an effort to solicit assistance from the operating forces, MCWL has provided ECO topics for consideration to the Marine Corps University. A cursory review of the Force Protection warfighting function demonstrates the underlying concern and emphasis of DO-ECO: its relationship to the SC MAGTF.[100] While the SC MAGTF appears theoretically sound, it has

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[100]MCWL's Topics for Consideration, Force Protection: "*In future conflicts, force protection will require detailed planning and significant resources to mitigate the threats. Most likely, the areas of operation will present significant environment, medical, and mental challenges. These challenges, in addition to the friction created by our potential adversaries, can create an unnecessary drain on resources and combat power.*
-What is the current level of CBRND [chemical, biological, radiological, and nuclear detection] that the Company should be prepared to execute?
-Does the Company require an organic air defense capability?
-How would you balance fixed site and foot/mobile security, and QRF [quick reaction force] requirements with the need for 24/7, robust COC [combat operation center] requirements?
-How can the Company Level Intelligence Cell (CLIC) improve Force Protection?
-What is the medical support needed for the ECO and units working with the SC MAGTF?
What are the considerations for:
-Pre-deployment medical prevention (Inoculations and Vaccination)
-Trauma support
-Infectious disease prevention / treatment?
-Is the use of host nation medical support / facilities a viable solution?
-What is the requirement for mental health professionals in the ECO / SC MAGTF construct?
-more Chaplains / Psychologists / Psychiatrists
-Is there a requirement for an increase in self-sufficiency / Survival Training for marines in the ECO or SCMAGTF construct?
-What are the education requirements for the Marines for the ECO and SCMAGTF?
-Is there a requirement for additional lawyers as part of the ECO or units with SCMAGTF?
-Will a culture of risk aversion within our military limit the potential for ECO or the employment of a SC MAGTF?" MCWL research topics for the Marine Corps University were provided to the author by the MCWL.

potentially detrimental long-term unintended consequences to the Marine Corps' full-spectrum capability. While the employment of the DO-ECO within the SC MAGTF concept has implications for Force Protection, two Naval Postgraduate School theses bring additional lessons applicable to the ECO Force Protection debate in the urban environment: the principle of mass is still critical on the modern battlefield and technology, similar to the numerous unmanned systems found in the FCS, can be a "double-edged sword" for the small unit leader.

Revisiting the Impacts of the Security Cooperation MAGTF on Future Marine Corps Operations

Major Edward Novak's article in the *Marine Corps Gazette*, "The Security Cooperation MAGTF",[101] provides an excellent case for adapting the SC MAGTF concept for the Marine Corps. While the SC MAGTF concept is theoretically sound, a substantial concern requires revisiting. In order to support the SC MAGTF concept a long-term 2:1 dwell ratio will be required of the infantry battalion once a steady-state environment is achieved.[102] As a result of a reduced historical 3:1 dwell period, there are implications to the Marine Corps' MIC-HIC capabilities. Due to the tension created between a SC MAGTF trained and equipped force and MIC-HIC capable force, a significant cognitive constraint was placed on the DO-ECO design parameters resulting in a specific security assistance and foreign internal defense focus.

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[101] Edward Novak, "The Security Cooperation MAGTF." *Marine Corps Gazette* (August 2008): *Marine Corps Gazette* Archive. http://www.mca-marines.org/gazette/archives.asp (accessed on 23 January 2009).

[102] "The Long War Send in the Marines" describes the long-term goal to eventually return to 3:1 dwell after maintaining an unspecified amount of time in a 2:1 dwell with the SC MAGTF. US Marine Corps, "The Long War Send in the Marines." (Quantico, VA: US Marine Corps Plans Policies, and Operations, 2008), 15. The author's assumption is that after commencing SC MAGTF operations with 2:1

Currently, the Marine Corps is striking the right balance in all aspects of DOTMLPF to ensure core MIC-HIC skills are retained while simultaneously preparing units for combat deployments to Iraq and Afghanistan. Exercise Mojave Viper's retention of historic Combined Arms Exercise live-fire training events while balancing mission rehearsal training is an excellent example. In short, all elements of DOTMLPF are supporting the WOT to retain a "two-fisted" capable force. In practice, though, the theoretically sound SC MAGTF may tip the scales away from a balanced training approach the Marine Corps currently employs which requires additional introspection by its developers: Is the SC MAGTF a suitable course of action if the Marine Corps is tasked to engage in security cooperation in the Arc of Instability? Is it acceptable to reduce the MIC-HIC ability of three infantry regiments to conduct security cooperation (i.e., security assistance/ FID) operations? What is the quantifiable gain for the United States and impact to Marine Corps by adding three battalions (and consequently three regiments in continuous support) into a SC MAGTF rotation?

The SC MAGTF concept will be resourced by three regiments that will retain habitual relationships with different geographic regions. Second Marine Regiment, for example, will support Africa Command (AFRICOM) with one infantry battalion on a continuous basis. It is difficult to imagine how a1000-Marines infantry battalion, conducting security cooperation, substantively impacts the African continent, a landmass several times larger than the United States. Unless the United States is willing to change its approach to problems like genocide in Darfur and Rwanda, the SC MAGTF mission is more in line for Special Forces or the United

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dwell, it will be "locked-in" to this paradigm indefinitely unless three infantry battalions are added to Marine Corps forces structure.

States Marine Corps Forces Special Operations Command (MARSOC).[103] Africa has generally reacted adversely to US's newly-formed AFRICOM. Furthermore, the Secretary of Defense currently advocates a less militaristic approach for National Security Strategy solutions and further submits that the State Department must take a more significant lead.[104] The Marine Corps has already paid a high price for the creation of MARSOC to support FID with sister service's Special Operations Forces. Special Forces and MARSOC seem more in line to support security cooperation tasks for the newly formed AFRICOM, with the Marine Expeditionary Unit (MEU) remaining as the "crown jewel" of the Marine Corps' force contribution to the geographic combat commanders (GCC).

Even if the SC MAGTF becomes a perfect fit for the GCC, the impacts to conventional warfighting capability are a serious concern. Novak believes this will not be the case; that a battalion of training cadres equates the SC MAGTF battalion to a full-spectrum capable force. There is a substantial difference, unfortunately, between preparing to train a foreign military and executing combat operations. The Marine Corps begins with a disadvantage following five years of high operations tempo which has already weakened the conventional warfighting capability. COIN has atrophied MIC-HIC warfighting skills--not only for the infantry battalion, but especially the infantry regiment. Years have passed since infantry regiments have participated in a traditional Combined Arms Exercise (CAX).[105] Infantry regiments would likely struggle in a

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[103] While the numbers of Marine and Soldiers supporting MARSOC and Special Forces are small in comparison to the Marine infantry battalion, there is a different level of maturity. A majority of a rifle squad will have very junior Marines that do not have the experience or maturity to lead training of foreign militaries or other certain tasks associated with Security Force Assistance.

[104] Ann Scott Tyson, "Gates Warns Of Militarized Policy" Washington Post, July 16, 2008.

[105] The Combined Arms Exercise was the precursor to Exercise Mojave Viper; it was a regimental level live-fire training event at 29 Palms, California that focused on the core skill-sets of MIC-HIC operations.

mobile environment after years of static Forward Operating Bases (FOBs) in Iraq. During the CAX-era, the regiments that were exclusively "force providers" for the MEU deployment cycles, anecdotally did not perform as well during CAXs. Adding three regiments to a force provider roll will have this same impact on MIC-HIC capabilities at the regimental level as did the regiments supporting the MEUs. The SC MAGTF infantry battalions will fair no better as they potentially lose Exercise Mojave Viper rotations due to being labeled a "SC MAGTF battalion". The SC MAGTF regiment and infantry battalions will naturally focus on the mission confronting them: security cooperation, not warfighting.

Many factors led to the trend towards a SC MAGTF. An important aspect is the appearance of a highly successful and capable "Phase III-force" after OIF I. As a result of the poor performance by the military and civilian leadership in Phase IV--accentuated by every facet of the media and the rancor of political actors within the government--there has been little focus on Phase III. A critical analysis of the US military performance in OIF I will reveal that Operation Cobra II may not have fared so well against an enemy that fought with the kind of determination and competence seen by Hezbollah against Israel in 2006, particularly in the Battle of Baghdad.[106] A detailed review of the operating forces' performance during Operation Cobra II reveals that the US military has not reached the zenith of MIC-HIC operational competence.[107] The *Marine Corps Mid-range Threat Assessment 2005-2015* may indicate a low probability for MIC-HIC warfare, but early Marine Corps Mid-range threat assessment also failed to foresee

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[106] Techniques like the "Thunder Run" executed by the Army and Marine Corps would have been decimated with an enemy like Hezbollah capable of establishing defenses with obstacles integrated with capable anti-tank weapons vice ineffective RPGs.

[107] See Michael R. Gordon and General Bernard E. Trainor's *Cobra II The Inside Story of the Invasion and Occupation of Iraq*, (New York: Pantheon Book, 2006) for an accurate understanding of the numerous challenges associated with Phase III during OIF I, particularly by US land forces.

Operations Desert Shield/Desert Storm and OIF I. All the additional training requirements placed on the infantry battalions to be successful in COIN in both Afghanistan and Iraq are necessary for the irregular warfare requirement for the foreseeable future; but an addition SC MAGTF keeps a 2:1 dwell ratio for the infantry battalion long-term. A 3:1 ratio is required for all infantry battalions to maintain pre-OIF standards with the additional tasks of the COE, let alone the additional mission essential tasks of the SC MAGTF.

Beyond the theoretical applicability of the SC MAGTF for the GCC's theater security cooperation plan, Novak concludes that the Marine Corps needs to stay relevant within Pentagon politics to remain competitive in the quest for money within the Join Strategic Planning System.

> Some critics have even gone so far as to state that if we tailor Marine forces for operations along the lower end of the spectrum we risk losing resources programmatically over the program objective memorandum cycle. I believe these critics have this argument reversed. If we do not begin to take measures to optimize Marine general-purpose forces as the most relevant and applicable to the current threat, we most certainly risk seeing our Service marginalized as an anachronism waiting for a threat that may never emerge. The competition for money within the Department of Defense is intense and will get worse. The dollars generally go to the Service that provides the most relevant solution to the most proximate threat.[108]

A similar message was given by Colonel Rob Abbot from Headquarters Marine Corps, Plans, Policies and Operations, during his presentation on the SC MAGTF at Command and General Staff College: the SC MAGTF concept was created to justify the Marine Corps expansion to 202,000 Marines when OEF and OIF begin to wind down.[109]

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[108] Edward Novak, "The Security Cooperation MAGTF." *Marine Corps Gazette* (August 2008): *Marine Corps Gazette* Archive. http://www.mca-marines.org/gazette/archives.asp (accessed on 23 January 2009).

[109] Colonel Rob Abbot, Headquarters Marine Corps, Plans, Policies and Operations, "Information brief on SC MAGTF" to students and faculty at Command and General Staff College, April 14, 2008.

Novak continues his justification for the SC MAGTF by claiming that "The Marine Corps must position itself to face the most likely threat. We cannot become a 'break glass in time of war' force that waits for the next island-hopping campaign or another DESERT STORM. We are at war now, and the threat is real. The irregular opponent is here today, and we need to organize, train, and equip at least part of our Corps to face what will invariably be a very long war."[110] Unfortunately, Novak misses the entire context of the SC MAGTF within the "very long war". The SC MAGTF's function is security cooperation (Phase 0) and not warfighting; the reference to waiting for another MIC-HIC engagement misses the essence of the MIC-HIC and hybrid nature of the irregular wars the US military is currently fighting and will continue to fight for the foreseeable future.

Distributed Operations-Enhanced Company Operations in the Urban Environment

Two Naval Postgraduate theses shed light on the debate of force protection in the MOUT environment as it relates to DO-ECO. The first, *Comparison of a Distributed Operations Force to a Traditional Force in Urban Combat*, by Captain Michael Babilot, USMC, explores the suitability of DO units for urban combat using the Map Aware Non-uniform Automata, the latest combat simulation available. The second, *Exploring the Effectiveness of The Marine Expeditionary Rifle Squad*, by Captain Todd Sanders, USMC, examines the effectiveness of the

[110] Edward Novak, "The Security Cooperation MAGTF." *Marine Corps Gazette* (August 2008): *Marine Corps Gazette* Archive. http://www.mca-marines.org/gazette/archives.asp (accessed on 23 January 2009).

Marine Expeditionary Rifle Squad[111] in support of DO in urban terrain and also uses the Map Aware Non-uniform Automata.

Bibilot's conclusion is that the density of terrain directly corresponds to the performance of the DO unit. The more restricted the terrain, the less advantage that the DO unit has over the traditional infantry unit. While both conventional and DO units performed better in more congested Fallujah-like terrain compared to the more dispersed standard urban training centers found in the Marine Corps, Bibilot states "above all other factors examined, the ability of the force to be able to classify their enemy had the greatest influence on the outcome of the battle."[112]

While Bibilot found the need to identify the enemy as critical, Sanders found the attainment of situational awareness to be a double-edged sword. Attempting to attain superior situational awareness resulted in information overload and impeded performance. On the other hand, Sanders' experiments found that mass was critical to mission accomplishment and contributed to the key measures of effectiveness that also attributed to mission accomplishment within the experiment: survivability and lethality of the force.[113]

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[111] The Marine Expeditionary Rifle Squad is "that distributed close combat fighting capability embodied in the Marine Corps Infantry, to include everything worn, consumed, or carried for use in a tactical environment and that contributes to training" Marine Corps Studies and Analysis Division, December 2004. "The Marine Expeditionary Rifle Squad concept is to be used to help identify capabilities that are important for the conduct of Distributed Operations. The goal of the MERS concept is to 'man, train, organize, provide current doctrine, lead and equip the Marine Infantry Rifle Squad in an integrated, holistic and systematic fashion that increases the overall fighting ability of the entire unit across the spectrum of its mission'….The MERS will retain all of the current functionality of a traditional Marine infantry squad. The new integraed concept will facilitate the additive capabilities of Distributed Operations." Todd M Sanders, *Exploring the Effectiveness of the Marine Expeditionary Rifle Squad,* (Naval Postgraduate School, Monterey, California, September 2005), 5.

[112] Michael Babilot, *Comparison of a Distributed Operations Force to a Traditional Force in Urban Combat*, (Naval Postgraduate School, Monterey, California, September 2005), xix.

[113] Todd Sanders, *Exploring the Effectiveness of the Marine Expeditionary Rifle Squad*, (Naval Postgraduate School, Monterey, California, September 2005) xxii,xxiii. Although the conclusions of the thesis are coherent, it is important to note that the simulations were against two light infantry forces; no armor was provided to the friendly forces. 18.

The important conclusion of the two theses is that NCW's *demassification*[114] principle may need to be reconsidered. The likelihood of MOUT in future combat is only increasing and the principle of mass has been validated during the Battle of Fallujah. During the first aborted Battle of Fallujah in April of 2004, four infantry battalions actually entered the city. During the November clash, six battalions came on line to sweep the four square kilometer city. While DCO-ECO promotes the ability to aggregate or disaggregate the force depending on the situation and the environment, the T/O addition to ECO (i.e., the equipment support the CLIC, CLOC, etc., may add substantial logistics trains for the battalion as it consolidates to produce a relative combat power advantage). The increased logistical requirements of DO-ECO in a SC MAGTF or COIN environment may hinder the re-aggregated DO-ECO units in a more mobile environment. Additionally, the considerations mentioned earlier, concerning task-overload of a squad leader and platoon commander with additional FiST tasks and force protection issues, are only exacerbated in a three-dimensional MOUT environment. Immediate direct fire planning at the lowest level is likely the most critical responsibility; finding the balance of information and situational awareness and the ability to retain the ability to make decisions in the absence of complete situation understanding should be a focus of MCWL experimentation. Finally, the experimentation finding should not be limited to the MOUT environment. The recent Army rifle platoon nearly overrun in Afghanistan by a company-size enemy force highlights two key considerations. First, mass and force protection issues identified by Bibilot and Sander extend beyond the MOUT environment, and second, the limits of Intelligence, Surveillance, and Reconnaissance (ISR) assets both tactically and operationally will require a disaggregated DO

[114] Demassification: Movement away from an approach based on geographically contiguous massing of forces to one based upon achieving effects.

force that can meet a relative combat power ratio capable of defeating the largest likely enemy formation during operations.

Conclusions and Recommendations

> *"We've converted from a conventional force to focus on counterinsurgency. That said, I think we've got to broaden our training and readiness with respect to full spectrum conflicts, put in balance the counterinsurgency requirement, which is very much in evidence in Iraq and Afghanistan, and preserve the capability to prosecute a conventional war."*[115]
>
> -Admiral Michael G. Mullen
> September 23, 2008

The United States is currently at war with al Qaeda and the Taliban, as well as involved in a proxy war with Iran via the Jaysh al Mahdi. Though the probability is low, the military also faces potential major combat operations against Iran and North Korea. Additional possibilities of conflict exist--however slight--with an emerging China and a resurgent Russia in the near- to long-term. However, in every case, the nature of combat for the Marine Corps will likely be similar: infantry intensive, hybrid warfare.[116] And as irregular warfare looms inevitably over the US military into the foreseeable future, any implication that the training for LIC today or MIC-HIC in the future requires different core skill-sets postulates a false dilemma. COIN and Stability Operations require substantial additional training to pre-OIF-type training plans, but not less of the combined arms "blocking and tackling" required pre-9-11. There should be an expectation that at any time in the Long War, the enemy may choose to stand and fight in some aggregated

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[115] *Joint Force Quarterly* (4th Quarter, 2008), 13.

[116] Thomas Donnelly and Frederick W. Kagan, *Ground Truth, The Future of U.S. Land Power,* (Washington, D.C.: American Enterprise Institute, 2008), 2-4, 17-37.

fashion similar to the first and second Battles of Fallujah--whether in Afghanistan, Pakistan, or the next failed state to which they retreat.[117]

The Marine Corps should expect to fight within this strategic context for the near- and mid-term. As a result, the DO-ECO concept of fighting in the COE should provide a doctrine that retains full-spectrum capability and one that does not neglect LIC's hybrid nature and its MIC-HIC-like brutality. Furthermore, DO-ECO should expect to be conducted in the most challenging terrains: mountainous *and* urban. Although it is a difficult endeavor while engaged in a persistent global insurgency, the TO&E, experimentation, training, and doctrine established for the DO-ECO vision must nest not only with the current fight in OEF, but also systemically with higher echelon units through the Marine Expeditionary Force (MEF) to support future MCO.

Currently, neither the ECO concept nor the Marine Corps' vision of DO is progressing towards a full-spectrum capability. The initial framing of the DO-ECO program lacked a holistic approach because the initial development of the concept was constrained by a SC MAGTF and COIN approach (and moreover, a much more permissive environment than experienced in OIF and OEF). As a result of this limited vision, as well as an experimental methodology and cognitive approach that began at the squad level, the overarching infantry battalion architecture that provides intelligence, fire support, and logistics functions to ECO-units will likely be flawed. This bottom up approach begins with the premise that the disaggregated employment of the

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[117] The false dilemma faced by the Marine Corps today can be compared to General Abrams and General Westmoreland's approaches to the Vietnam War. Westmoreland's more conventional focus versus Abrams "hearts and minds" focus was a result of context. The Tet Offensive changed the environment for Abrams allowing a less kinetic approach. Low intensity COIN environment can range from OIF II and the Battle of Fallujah to today, where a seven month tour in Anbar Provence can end without a friendly casualty or even a round fired--but nonetheless, both are LIC/COIN. "The Long War Send in the Marines" also establishes a false dichotomy about the combined arms requirement in complex irregular war and MCO. US Marine Corps, "The Long War Send in the Marines." (Quantico, VA: US Marine Corps Plans Policies, and Operations, 2008), 9-13.

infantry battalion in a LIC environment is the norm. A reductionist approach that does not account for how the smaller combat elements interact within the entire "battalion system" will likely produce an unsound organizational logic. On one hand, retaining the infantry battalion and the historical triad structured TO&E simplifies the problem of a short-term DO vision for the COE. On the other hand, the organizational rigidity placed on the designers clearly constrains creativity and limits the ability to modify the roles, missions, and TO&E of the entire infantry battalion for a more far reaching vision of future warfare.

DO-ECO needs to reach beyond MCWL's description which currently focuses on improving the capabilities of the infantry squad leader and platoon commander to reduce the limiting factors on the rifle company commander. DO-ECO should be a visionary doctrine for the future operating environment and yet capable of supporting today's potential MIC-HIC environment and the hybrid warfare experience in LIC. The Marine Corps can retain its conservative and methodical evolutionary process for ECO--unlike the Future Combat System's leap into future technology that in some cases does not exist—while simultaneously creating a vision of DO operations in the MIC-HIC environment. (This conclusion should not detract from the fact that all of the improvements provided by MCWL have greatly increased the performance of the Marine Corps for the current OEF-OIF fight.)

The fact that ECO is potentially changing the entire dynamic of the infantry battalion and is being partially driven by the SC MAGTF concept, a pragmatic review of the SC MAGTF's validity is in order. While the SC MAGTF is theoretically sound in its vision to assist the GCC's theater security cooperation plan and meets certain criteria for rolling back terrorist sanctuaries, pandemics, and drug exportations in the Arc of Instability, the concept's actual quantifiable global impact will potentially be negligible at a significant cost to the Marine Corps' ability to fight full-spectrum operations. Even as the current strain imposed on the operating forces should provide sufficient justification to warrant a 3:1 dwell ratio, the more important requirement for

additional dwell time once a steady-state security posture is achieved, is to provide additional training time for the myriad additional skills required beyond MIC-HIC core competencies to attain success in the COE. A SC MAGTF battalion's ability to retain its conventional warfighting skills and prepare to support a SC MAGTF with a 2:1 dwell ratio is overly ambitious. Historically, infantry battalions needed a 3:1 dwell for a conventional CAX work-up in a bi-polar world-paradigm with little or no emphasis on stability operations and COIN.[118] This fact alone adequately justifies retaining no less than a 3:1 dwell period.[119]

Although proponents of the SC MAGTF claim MIC-HIC capabilities will not be impacted with the concept**,** a natural tendency to focus on the core mission of security cooperation vice conventional operations exists. In the same vein, the addition of a SC MAGTF that extends beyond Marine Corps traditional roles and delves into Special Forces-type missions will reduce the warfighting capability of the three infantry regiments that become SC MAGTF force providers. If DoD requires additional Special Forces-type capability, additional MARSOC and Special Forces units should be generated. Utilizing the SC MAGTF concept to justify the manpower increase in the Marine Corps post OEF implied by Colonel Abbot, or to place it in a favorable political position within the Joints Strategic Planning Process as advocated by Major Novak,[120] is not only a questionable justification, but also unnecessary as Secretary Gates attempts to reduce the "creeping militarization" of US Foreign Policy.

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[118] "The Long War Send in the Marines" states that SC MAGTF should continue to participate in CAX training events, but this is unlikely with a 2:1 dwell ratio. "The Long War Send in the Marines." (Quantico, VA: US Marine Corps Plans Policies, and Operations, 2008), 19.

[119] Not all infantry battalions were afforded a 3:1 dwell ratio pre-OIF. Third Marines, stationed in Hawaii, maintained a 2:1 dwell.

[120] Edward Novak, "The Security Cooperation MAGTF." *Marine Corps Gazette* (August 2008): *Marine Corps Gazette* Archive. http://www.mca-marines.org/gazette/archives.asp (accessed on 23 January 2009).

In short, prior to properly establishing a force structure to accomplish DO-ECO, then identifying the proper equipment to support the concept, and finally establishing the correct forums for training the force, the Marine Corps DO-ECO concept must first be visualized in theoretical and doctrinal form within the Single Battle concept and maneuver warfare doctrine. DO-ECO is currently prescribed for the tactical circumstances of OEF and a potential strategic purpose of the SC MAGTF. The SC MAGTF is placing significant cognitive constraints on DO-ECO design parameters and hindering MIC-HIC capabilities due to the tensions between a SC MAGTF trained and equipped force versus a MIC-HIC capable force. Unfortunately, "tactical doctrine is neither autonomous nor absolute,"[121] and DO-ECO formulated for the mountains of Afghanistan or the SC MAGTF misses the entire premise that the Marine Corps needs to be a full-spectrum force; an acceptably balanced DO-ECO concept and TO&E must be found.

Recommendations by Warfighting Function

If the Intelligence function is the principle feature of NCW and ECO design, the H&S Company and Weapons Company, which retains the organic dismounted reconnaissance and mobile combined arms reconnaissance capability, should have been reviewed prior to the infantry squad. Only by framing the relationship of the infantry battalion--particularly the command and control, intelligence, and reconnaissance assets--to the regiment, division, and MEF assets can the DO-ECO concept nest holistically for full-spectrum operations. ISR integration should be provided down to the company level with the capability of attaching or supporting squad- and platoon-level independent operations, with special attention placed on preventing information

[121] Dr. Richard M. Swain, "Filling the Void: The Operational Art and the U.S. Army," in B.J.C. McKercher and Michael Hennessy, ed. *Operational Art: Developments in the Theories of War*, 155.

overload on squad and platoon commanders. Experimentation should be focused on determining the correct number of UAVs (and other unmanned systems as appropriate) required at the small-unit level without detracting from the leader's primary duties. As described in Marine Corps doctrine, Marine leaders still need to embrace uncertainty and act within the fog of war that technology can never eliminate.[122]

The infantry company T/O augmentation recommended by LtCol Carolan's white paper should be embraced to support the Intelligence warfighting function. Even though the CLIC is COIN focused, the additional personnel and weapons will still be helpful throughout the spectrum of warfare. The additional larger end-items associated with the CLIC and CLOC which support the SC MAGTF concept (i.e., a company-level MAGTF) need to be thoroughly war-gamed to determine the mobility and logistical impacts as the company aggregates for MOUT fighting and other company-level MIC-HIC operations.[123]

A critical evaluation of the Fires warfighting function on the future battle field demonstrates that other paradigm shifts are required for the DO-ECO design construct. The squad leader or platoon commander assuming the responsibility of a FiST leader is unsupportable beyond a simplified COIN fire support environment; a single person is simply incapable of controlling multiple fire support agencies. In the same way squad leaders and platoon commanders face task saturation with additional FiST duties, the rifle company faces the

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[122] US Marine Corps, MCDP-1 *Warfighting.* (Washington, DC: HQ Marine Corps, 1997), 7.

[123] This logistical issue should be reviewed not only in cases when the SC MAGTF is deployed in a scenario like Africa, where the company would need to aggregate to accomplish a larger mission, but transitioning from a SC MAGTF to supporting a major conventional operation within the geographic combatant commander's theater. Further areas of study should include potential lift shortfalls due to additional T/O for weapons platoon and rifle company headquarters recommended by LtCol Carolan to include: second order effects to MPF shipping and MEU weight and cube considerations—to include billeting on the amphibious ready group, and lift considerations for conventional operations in Amphibious Assault Vehicles and Expeditionary Fighting Vehicles.

additional problem of assuming FSC responsibilities (i.e., Fire Support Planning, Coordination, and Control).[124]

In many ways the central challenge to ECO, and a more long-term vision of DO, revolves around how fire support will be integrated at lower levels beyond the traditional company FiST paradigm. If squad leaders or platoon commanders anticipate taking on the FiST responsibilities traditionally retained at the company level, either a revolutionary technology is required to prevent a hindrance to their primary duties or a TO&E addition is necessary to provide the small unit leader a FiST-like capability.[125] Furthermore, if a dispersed conventional battlefield is envisioned where the company commander and his FiST team/s will be beyond communication range of the Battalion FSCC or using communication means where deconfliction cannot be conducted quickly, overhauls in the company TO&E will be required to support a "company-level FSCC".[126] The second- and third-order effects, as well as the unintended consequences of moving the FSC responsibilities between battalion and company are potentially astronomical. Moving the FSC responsibilities to the company requires not only major TO&E overhauls to the battalion but also to DOTMLPF with significant second-order effects to P2T2. The current

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[124] The company FiST can assume an ad hoc FSCC with reduced capabilities but will potentially limit the ability of the FiST to serve in a GS capacity for the company commander. Within the current pre-deployment training program, FiSTs are not afforded the opportunity to be trained to standard as an FSCC and consequently their employment in this capacity would incur some level of risk; although there are many similarities between FiST and FSCC duties, they are not identical.

[125] Until there is a system that allows a squad leader or platoon commander to simply aim at a designated target and a 10-digit grid of the enemy position is digitally sent to every fire support agency, as well as a simple hand-held or digital heads-up display devise exists that automatically integration all of the basic elements of battle space geometry allowing the leader to focus on direct fire planning and maneuver, there will be requirements to make major overalls to the TO&E of the squad and platoon to support DO fires for MIC-HIC operations--and not just COIN-type combined arms employment.

[126] This assumes that any future organizational construct of a "DO-ECO battalion" will require an FSC and FSCC to serve as a safety backstop for the employment of fires support at some level and that even a revolutionary technology breakthrough will still require human cognition to oversee the complex interaction of fires support.

construct of Exercise Mojave Viper training, for example, will have the same challenges in training all company commanders to be FSC as in theoretically training all squad leaders in the Marine Corps to become FiSTs.

In the short-term, the FSCC responsibilities should be retained at the battalion level in MIC-HIC operations and under certain LIC circumstances the company commander may be delegated FSCC responsibilities; an FSC at company-level should be carefully considered by a battalion commander due to a lack of a fully staffed FSCC capable of 24-hour operations, as well as the inevitable lack of experience and training at the company level. In the long-term, an increase of training facilities and programs like Twentynine Palms and Exercise Mojave Viper, respectively, is required to support the inevitable increase of FiST-like requirements for small unit leaders in future warfare. Exercise Mojave Viper is currently the only training venue that facilitates Type 2 and Type 3 live-fire CAS that is essential for DO-ECO.[127] In order to retain SC MAGTF's MIC-HIC core competencies in a steady-state environment post-OEF, additional throughput at Exercise Mojave Viper, or the addition of a TTECG-like programs that are easily accessible for non-California based Marine units, are necessary. If the Marine Corps undertakes the SC MAGTF with a 2:1 dwell in the steady-state environment, a rotation at Exercise Mojave Viper for each SC MAGTF battalion *and* regimental headquarter is imperative during pre-deployment training.

Above and beyond the TO&E and technology requirements to ensure the squad leader and platoon commander can execute the DO concept in future combat environments, the Marine Corps needs to invest in weapons systems to bring the NCW's idea of "see first, understand first,

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[127] The Squad Fires Program should be seen as a bridge to additional live fire training opportunities.

act first, and finish decisively" to fruition. The focus on Squad Fires Program for squad leaders and an over-reliance on CAS in general is symptomatic of a lack of surface fires needed to support a concept that requires unfettered access to precision fire support at the lowest level. HIMARS, or a HIMARS-like system, needs to be added in exponential quantities in the Marine artillery regiment or in the appropriate unit within the division.[128] The ability to transform the Marine Corps's operational level concept of the Single Battle to support DO in the FOE will require a greater extended range than conventional artillery. Even the precision provided by the Excalibur round does not meet the needs of a future dispersed battlefield due to limited range. At the tactical level, augmenting or replacing the SMAW at the rifle company level with a Javelin or Javelin-type weapons will greatly increase the range and precision fires for fighting in OEF and the FOE. The ability of a squad to employ a precision missile 2,500 meters onto an enemy machine gun position or improvised rocket launcher in a pick-up truck will greatly improve the validity of DO through the full-spectrum of conflict.[129]

DO-ECO's impact to the Maneuver and Force Protection function are closely related to the Fires challenges. In essence, the overreliance and inward focus on fire support (particularly CAS) creates an overloaded squad leader or platoon commander who is no longer focused on maneuver or closing with his unit on the enemy. The need for fires to defeat an enemy systemically at the tactical level requires not only the range to attack the system in depth but also the ability to maneuver simultaneously to assist in the psychological defeat mechanism that is a

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[128] In an extremely long-range view of DO, the HIMARS-like system could possibly be placed in the infantry battalion or regiment depending on logistical signature.

[129] Adding a Javelin-like system to the rifle company has the added benefit of reducing DO-ECO reliance on CAS—no matter how slight. Coincidentally, the recommendation to augment or replacement the SMAW with a Javelin or Javelin-like system for the rifle company was coincidentally similar to the author's conclusion in *The Case for Employing the Mobile Assault Company through the Spectrum of Warfare* (Command and General Staff College, Leavenworth, KS: 2008).

key dimension of maneuver warfare doctrine.[130] As mentioned above, if there is an anticipated need for a FiST-like capability for DO in the FOE below the company level, there is a need to overhaul the entire TO&E and technological requirements at the lowest level. Simply because additional fire support assets like CAS at the small unit level may improve performance for DO-ECO in a unique mountainous OEF environment, this does not mean that it will automatically be full-spectrum capable in an urban environment, for example. The impact of MOUT needs to be incorporated in all aspects of MCWL experimentation due to its increasing likelihood in the FOE.

There may be a tipping point in the distant future when fire support and communications technology exists that allows nearly unfettered access and simplified deconfliction. At that point, a complete change of rank structure may be appropriate to deal with the substantial increase in responsibility and independent actions at each level of tactical command. Company commander billets may be filled by majors, platoon commanders by captains, and squad leader billets filled by 2nd lieutenants, etc. Technology, however, may never quite attain the capability to allow all FiST duties to be executed by an individual, and there will likely be a FiST team, but with substantially less than ten Marines. MCWL should closely scrutinize when the technological capabilities are maximized and the subsequent TO&E requisite for a future DO battlefield should be implemented. This type of overhaul to achieve an ideal DO-capable force in the distant future will ripple through every aspect of DOTMLPF and take years of preparation to effectively implement.

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[130] Maneuver greatly attributes the effectiveness of fires. Correctly applied maneuver can force the enemy to reorient and expose themselves to friendly fire support. US Marine Corps, MDMP-1*Warfighting*, (Washington, DC: HQ Marine Corps, 20 June 1997), 36-39.

APPENDIX A: ACRONYMS

AAV	Amphibious Assault Vehicle
ACE	Aviation Combat Element
AFRICOM	Africa Command
ALO	Artillery Liaison Officer
AO	Area of Operation
APC	Armored Personnel Carrier
ARG	Amphibious Ready Group
AT	Anti-Tank
ATGMs	Anti-Tank Guided Missiles
BCT	Brigade Combat Teams
BLT	Battalion Landing Teams
C2	Command and Control
CACCTUS	Combined Arms Command and Control Training Upgrade System
CAS	Close Air Support
CAX	Combined Arms Training Exercise
CLIC	Company Level Intelligence Cell
CLOC	Company Level Operations Center
COA	Courses of Action
COE	Contemporary Operational Environment
COIN	Counterinsurgency
CP	Command Post
DO	Distributed Operations
DoD	Department of Defense

DOTMLPF	Doctrine, Organization, Training, Materiel, Leadership and education, and Personnel and Facilities
DS	Direct Support
ECO	Enhanced Company Operations
EFSS	Expeditionary Fire Support System
EFV	Expeditionary Fighting Vehicle
EXFOR	Exercise Force
FAC	Forward Air Controller
FO	Forward Observer
FOE	Future Operating Environment
FOB	Forward Operating Base
FoS	Future Operating System
FiST	Fire Support Team
FSC	Fire Support Coordinator
FSCC	Fire Support Coordination Center
FSO	Fire Support Officer
F/W	Fixed Wing
GCC	Geographic Combatant Commander
GCE	Ground Combat Element
GS	General Support
WOT	War On Terror
H&S	Headquarters and Service
HBCT	Heavy Brigade Combat Team
HIC	High-Intensity Combat
HIMARS	High Mobility Artillery Rocket System
IBCT	Infantry Brigade Combat Team

IED	Improvised Explosive Devise
ISR	Intelligence, Surveillance, Reconnaissance
JSTARS	Joint Surveillance and Target Attack Radar System
JTAC	Joint Tactical Air Controller
LIC	Low-Intensity Combat
MAC	Mobile Assault Company
MAGTF	Marine Air-Ground Task Force
MAP	Mobile Assault Platoon
MARSOC	United States Marine Corps Forces Special Operations Command
MCO	Major Combat Operations
MCWL	Marine Corps Warfighting Lab
MCPP	Marine Corps Planning Process
MEF	Marine Expeditionary Force
METT-T	Mission, Enemy, Terrain and weather, Troops and support available, and Time
MEU	Marine Expeditionary Unit
MIC	Mid-Intensity Combat
MTC	Movement to Contact
MOUT	Military Operation in Urban Terrain
MRAP	Mine Resistant Ambush Protected (vehicle)
NAIs	Named Area of Interest
NCW	Network-centric Warfare
OIF	Operation Iraqi Freedom
P2T2	Patients, Prisoners, Trainees, Transients
PMESII-PT	Political, Military, Economic, Social, Information, Infrastructure, Physical Environment, and Time

QDR	Quadrennial Defense Review
RMA	Revolution in Military Affairs
RSO&I	Reception, Staging, Onward Movement, and Integration
R/W	Rotary Wing
SBCT	Stryker Brigade Combat Team
SC MAGTF	Security Cooperation Marine Air Ground Task Force
SMAW	Shoulder-Launched Multipurpose Assault Weapons, Mk-153
SOI	School of Infantry
STOM	Ship to Objective Maneuver
TIC	Troops-In-Contact
T/E	Table of Equipment
T/O	Table of Organization
TO&E	Table of Organization and Equipment
TOW	Tube Launched Optically Tracked Wire-Guided
TRAP	Tactical Recovery of Aircraft and Personnel
UAV	Unmanned Aerial Vehicle
UAS	Unmanned Aerial System
UGS	Unmanned Ground System
UGV	Unmanned Ground Vehicle

APPENDIX B: Planning Assumptions for Distributed Operations-Enhanced Company Operations

The following are the author's assumptions for analyzing the Marine Corps DO and ECO concept's viability for full-spectrum operations:

1. The Marine Corps should be prepared to fight another mid- to high-intensity war in the future.
2. When the Marine Corps participates in the next mid- to high-intensity war, a large percentage of infantry battalions may be mechanized (either in the Amphibious Assault Vehicle [AAV] or the Expeditionary Fighting Vehicle [EFV]) similar to OIF I.
3. Marines will participate in low-intensity and irregular warfare beyond OIF and OEF for the foreseeable future.
4. Future warfare can expect to be "hybrid" in nature with adversaries combining irregular, catastrophic, traditional, and disruptive methods.[131] To declare that the Marine Corps should focus on irregular warfare does not necessarily accurately depict the kinetic and lethal nature of the current or future irregular warfare environment.
5. Infantry battalions will continue to serve the core of the Battalion Landing Team (BLT) on Marine Expeditionary Units and be constrained by weight and space limitation while embarked within the Amphibious Ready Group.
6. LIC-irregular warfare will continue to require MIC-HIC skill-sets for infantry battalions and below. In LIC, squad leaders, platoon commanders, and company commanders will need to have the ability to direct suppressive fires (both direct and indirect), assess their effects, and maneuver their forces to kill the enemy. In LIC, the Fire Support Coordinator (FSC) and commanders at all levels will need to be capable of deconflicting and safely employing direct fire and fire support in

[131] U.S. Marine Corps, "The Long War Send in the Marines." (Quantico, VA: Plans Policies, and Operations, 2008), 6. "The Long War Send in the Marines" describes the combination of tradition forms of warfare with irregular, catastrophic, and disruptive methods as "complex irregular warfare."

consonance with maneuver (i.e., a Fire Support Coordination Center will need HIC skill-sets even if theoretically delegated to Company-level for ECO).

7. The infantry battalion's employment to support the WOT and SC MAGTF employment will require additional training above MIC-HIC core skill-sets (e.g., language, cultural awareness, Stability Operations etc.).
8. Fighting in a MIC-HIC environment with a near competitor will disrupt our technological superiority; command and control will be disrupted. Certain reconnaissance assets may disrupted (e.g., systems like Joint Surveillance and Target Attack Radar System [JSTARS] and unmanned aerial vehicles [UAVs]).[132]
9. DO-ECO nest within the framework of Operational Maneuver from the Sea (OMFTS) and Ship to Objective Maneuver (STOM).
10. DO-ECO needs to support both offensive, defensive, and stability operations in LIC through HIC in all terrain types from mountain operations in Afghanistan to MOUT operations in major cities like Baghdad during OIF I.
11. The impact of cyberspace and information on the operational environment make certain elements of NCW critical to adapt into the Marine's DO-ECO, but NCW is not necessarily a new Theory of War, and the Theory of War as described in MCDP-1 *Warfighting* is still valid.

[132] Blair Sokol. *The Case for Employing the Mobile Assault Company through the Spectrum of Warfare* (Command and General Staff College, Leavenworth, KS: 2008). 14, 15.

APPENDIX C: MCW Laboratory Recommended T/O Change to the Rifle Company Weapons Platoon to Facilitate a Fourth Maneuver Element (By LtCol Carolan)

Creating the 4th Maneuver element in the rifle company

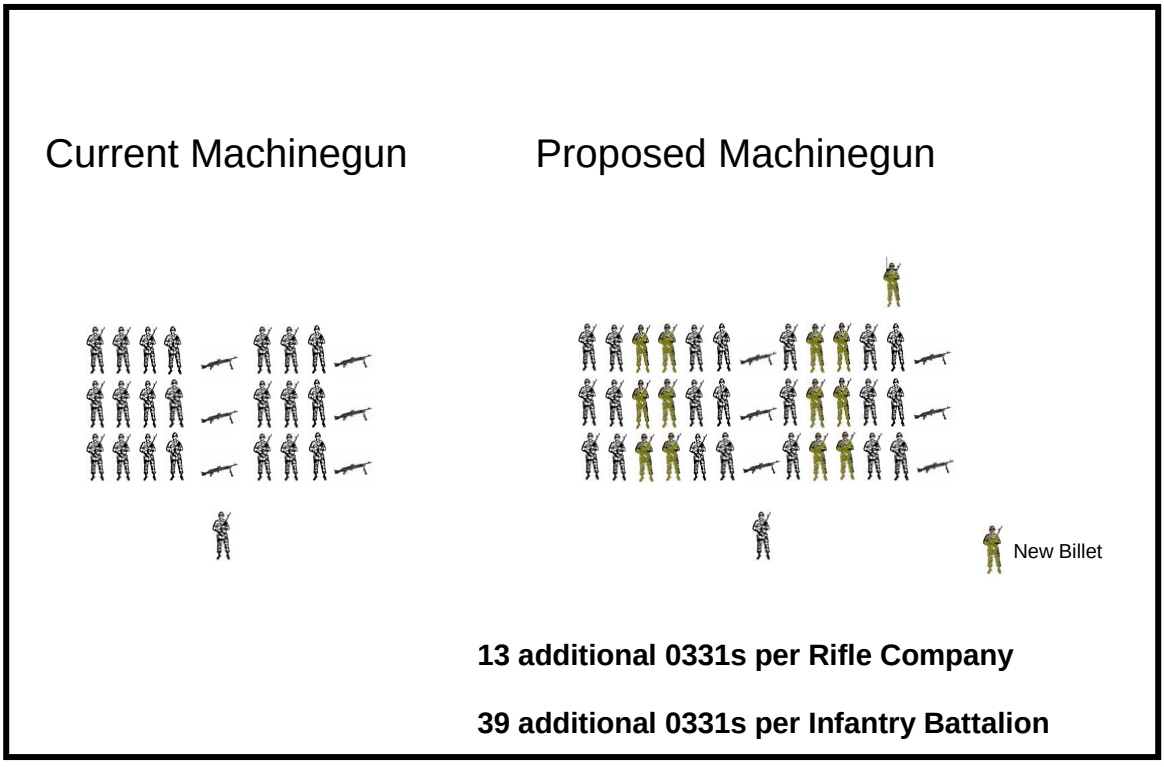
1. A forth maneuver element is attainable by means of changing the structure of the Medium Machine Gun Section of the Infantry Rifle Company. The first element to look at is the basic machine gun team. At present this is made up of 3 Marines designed to employ a single gun. A M240G, ground mounted, is designed to be fired by two men. Of course it can be managed by a single gunner, but the effectiveness of the system is degraded. Therefore it takes two to make one. Taking this a step further this results in the team actually being made up of only 2 moving parts – the gun and the ammunition man. It is proposed that the MG team be composed of 5 – 0331 Marines. This allows for the gun to move as an element with 3 other Marines securing and supporting the weapons system. This would allow for the team to move, when grouped with other teams or squads, without outside augmentation. Again assuming the assistant gunner shadows every move of the gunner, this allows for the MG team to utilize standard fire team formations and more easily be incorporated into larger formations as there is no need to assign other teams to provide close in security. The team of 5 also allows the unit to easily assume a motorized role. Should the need for a Mobile Assault Platoon (Team) arise, the 5 man MG team can move into vehicles without requiring outside augments. It will remain a cohesive unit whether moving on foot or in vehicles.

2. Building on the MG team, 2 teams would still make up a MG squad and with the squad leader, now total 11 Marines. For the section to be used as a maneuver element it would require a RTO be added to unit – either the section itself or the Weapons Platoon. Including the RTO, a corpsman, and the Section Leader the total size of the unit would now equal 35. A firepower comparison of current section against the proposed section shows the old unit being able to put 6

Medium Machineguns and 10 service rifles into action, while the proposed structure maintains 6 guns, but a total of 20 service rifles.

3. Employing the MG section as an independent maneuver element may only apply in a small percentage of tactical situations. In Iraq and Afghanistan, having a 4th rifle platoon has been of more utility for certain units than an enhanced weapons platoon or MAP. The machine gun section would continue to be attached out and/or rifle platoon augments would round out a weapons platoon serving in a rifle platoon role. Even in this situation there are a number of benefits to a larger machinegun section. Squads that are attached out to serve in a support role will not need to have riflemen, or as many riflemen assigned to provide security and carry extra ammunition. The teams will be more self sufficient and this will allow for greater flexibility even during platoon level operations.

4. The proposed change in outlined below:



APPENDIX D: Recommended Change to the Rifle Company Headquarters By the Marine Corps Warfighting Laboratory (By LtCol Carolan)

1. The primary deficiency in the current organization of the Rifle Company is the size of the Headquarters Section (6 total). When filling a role in a larger scheme of maneuver – a scheme that is relatively simple (although not easy by any stretch), the current construct can work, but even in this mode the HQ section is deficient. A historical look at the size of Companies and the HQ section indicates a steady downsizing and the loss of specialized personnel. The current company was designed to be part of a battalion, working closely with the battalion and the H&S Company providing special capabilities as they arose from each company depending on the situation – this includes administration, logistics, fires, intelligence, planning, coordination, and command and control. The Company was not expected to produce intelligence products, maintain vehicles, plan for logistics, etc. When a company was expected to do independent operations – it was task organized and provided with those capabilities it would need to do the specific mission. This has changed very quickly in the last few years. Companies now need to have the organic capability to conduct operations – not independent of the battalion, but without a complete reliance on battalion resources or temporary task organizations to fulfill requirements.

2. Even prior to OIF and OEF the Company Headquarters Section was severely deficient. All companies "pulled up" Marines to fill billets without compensation. At a minimum these included armory custodians – generally mandated by local order, and administration clerks – the consolidation of clerks in ConAds in the 1980s created a gap in the company office that had to be filled. The number of clerks varied(s) from 1 in the very rare circumstances to 2 more commonly and it was(is) not uncommon for there to be 3 clerks depending on the capabilities of the infantrymen filling the roles. In addition, a training NCO and an extra police sergeant were (are)

commonly included in the section. These are minimum requirements that have been filled by "pull ups" for so long that Marines have stopped questioning the validity of the practice. With OIF/OEF and the tactical need for company commanders to maintain situational awareness over areas formally covered by battalions, there has been an expediential growth in the size of the company headquarters (in practice).

3. The Company Level Intelligence Cell (CLIC) initiative has formalized the requirement for a more capable headquarters section. This addresses the growing need for a company to not only feed the battalion (and higher) intelligence cycle with more developed products, but establishes the ability to produce action-able intelligence at a lower level then previously required. The outgrowth of CLIC has been the Company Level Operations Center (CLOC). The CLOC is still being developed, but the basic idea is to first determine those battalion level functions that now need to be done at the company level. It is in this area that the weakness of the company headquarters becomes most apparent. One of the initial approaches to developing the CLOC focused on examining a standard battalion level COC and then scaling it down for company operations. This approach results in a CLOC that attempts to do everything from intelligence to logistics and a very large CLOC team. The primary difference between the CLOC and Battalion COC is that the battalion has an H&S Company to do the basic – daily functions – of the unit, while the rifle company doesn't have this advantage. It is not the C2 during the action/execution phase of operations that limits the company, but rather the logistics, support, and planning capabilities that are the biggest difference. The company headquarters needs to have a greater capability to plan and manage standing – daily functions in order to allow the CLOC to actually take advantage of an increase in capabilities. If it does not have this ability, the CLOC does them because they must be done by someone.

4. One specific area that needs to be addressed is the company's ability to manage logistics. If there is a single area where the company's capability needs are variable it is here. A rifle

company can function for only a few hours without some logistics need being filled. This has not been a problem area in OIF and is often overlooked. The Marines and soldiers in Iraq are the best supported in regards to logistics – in the history of warfare. There is more of everything than can possibly be consumed. Company Forward Operating Bases (FOB), with rare exception; maintain stocks of water, chow, batteries, and ammunition that make low-level logistics planning almost unnecessary. At the same time, there isn't a place in the country (weather dependent) where a helicopter cannot be on station in a matter of minutes to take out a casualty. When looking at expeditionary operations, coming from a sea-base into an immature theater, the challenge of supporting a company actively involved in operations is enormous. A rifle company will always be dependent on the battalion for logistics. It may be able to do some things without support, but this is really limited to a few days at most. A company cannot, nor should it be designed to, maintain stocks of supplies. It may have things on hand, but these should be considered pre-expended at the higher levels. At present, the Company Gunnery Sergeant, 0369, is the central logistics manager at the lowest level and he receives direction from his commanding officer and/or executive officer. He is assisted by a 0311 filling the billet of property NCO, a corporal by T/O but more often a Lance Corporal. Previous to the 1960s each company headquarters rated a Sergeant 3011(old MOS), supply man. This was common in both the army and the Marine Corps and the army still maintains a qualified supply sergeant. Supply planning at the company level is not particularly difficult, but it does require constant attention, adjustment, and foresight. At present it is one of many duties the Company Gunnery Sergeant is expected to manage and at present this works fine. The problem arises when one considers the other duties associated, or potentially associated, with this billet. In a future expeditionary environment planning for and maintaining supply stocks will require a great deal of coordination and capabilities not currently available in the rifle company. The model of future operations, whether the action phase involves direct combat, civil military facilitation, or a combination of both, will have Marines coming

either from a sea-base or a distant land base. Either way the requirement to maintain a full time link back to the source of supply will be a challenge. With the potential for the different platoons of the company be involved in different types of operations simultaneously and therefore having different logistics requirements coming back to the company, the unit will not be able to simply have a single support plan. Requirements will change as the situation develops. There will be a need to get supplies out to units while others come back for distribution. The managing of this system will require a dedicated billet that is familiar with how the supply chain works, and can freely interact with battalion personnel while working to support the company commander's plans.

5. A company cannot retain stocks of supplies and still maintain the mobility it needs to operate on the battlefield. Today, with fixed sites, a company can build up supplies and distribute them without the burden of having to carry them around, but this is an anomaly and cannot be counted on in future operations in immature theaters. A company on the move needs what it needs and nothing more. Having more is a burden. It hampers speed and takes away manpower to guard supplies. The rifle company consumes supplies at highly variable rates, but it is always consuming in one form or another. In an expeditionary setting this consumption will be heightened while at the same time the ability to move quickly is paramount to success. Companies will need to have the organic capability to receive supplies from a variety of sources. The organic ability to receive air delivered supplies is one example of the skill sets the rifle company will need to have to function is this environment. Can a 0369 Gunnery Sergeant be trained to do these things? Yes, but if his sole concern is supplies he is unable to do other functions that may also be critical. The main point is there is a need for a NCO supply man to be part of the company headquarters. He should be a sergeant and able to manage the unit's logistics needs. He needs to be trained in taking delivery of supplies and specifically air dropped packages.

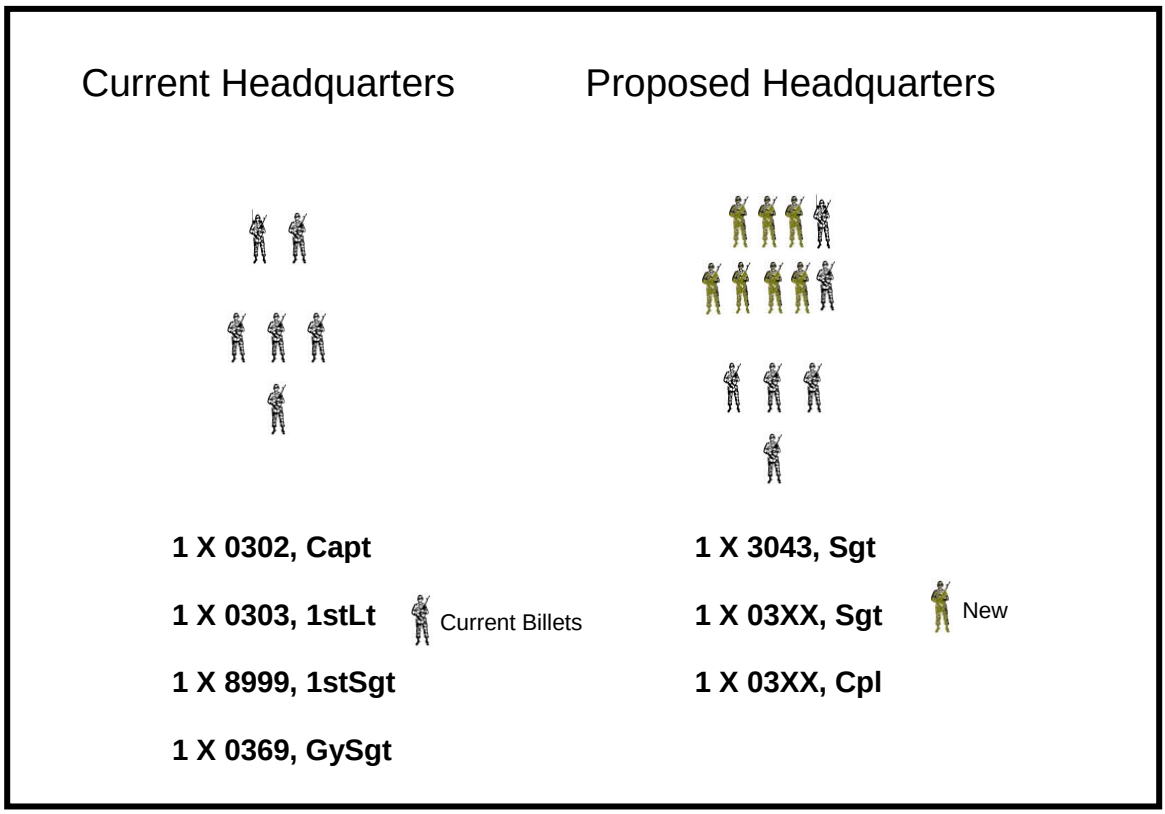
6. One area that seems to have been completely forgotten when considering the company headquarters is the need to maintain accountability and readiness of the unit's weapons. Every company in the Marine Corps must pull up Marines to serve as Armory Custodians. This position of trust is always given to two of the top Marines in the unit. T/O K-1013 of 1953 allotted each company a sergeant 2111 to not only manage the armory issues, but make repairs. This practice was eliminated by the late 1960s, but the requirement remains. Although the ability of a company to have organic personnel to repair weapons is highly unlikely, the need for custodians to manage the growing number of sensitive items remains and is growing. The property NCO billet and the messenger driver billet in the headquarters section are gapped on a regular basis. The armory custodian "billet" is never gapped. There needs to be two custodians, Cpl and LCpl 03XX, added to the T/O. When the unit deploys and the weapons are maintained, for the most part, by the platoons and individual Marines, the custodians do not have a great deal of specific duties. While deployed, these Marines work in the CLOC. They are trained to operate the systems, prepare reports, etc. The fact that they already know every Marine in the company is one of those intangible benefits that are difficult to quantify.

7. On paper and in Theory there is no need for a rifle company to have administrative clerks. But they do – all 78 active component rifle companies in the Marine Corps have at least one Marine filling the role of administrative clerk. As mentioned earlier, there are often two or three Marines assigned to this non-compensated billet. Despite the automation of a large portion of the administrative tasks required of a company, the need to have Marines dedicated to the tracking and management of personnel information remains constant. The consolidation of administrators first at the battalion and later at higher levels has taken away from the company specialist focused on these critical tasks. In short, the rifle company needs to have at least one, school trained, administrator permanently assigned. This Marine will require an assistant who can be an infantryman.

8. The CLIC initiative has identified the need for trained personnel to serve in the role of intelligence clerk at the company level. The CLOC project has broadened this role to that of operations/intelligence clerk. Due to the nature of operations at this level, it is more effective and efficient to have personnel trained in both areas. At present, these billets are filled using Marines pulled up from the platoons – once again depleting the direct engagement elements of the unit. An Ops/Intel clerk is familiar with those systems used to manage data and produce planning-situational awareness products. This is a skill that must be practiced on a regular basis to build and maintain proficiency. The clerk is not only a manager of data, but also a producer of products for higher, adjacent, and subordinate units. His role is vital not only to the company, but to the overall operations and intelligence network of the MAGTF. OIF and OEF have shown that in counterinsurgency operations the information gathered at the lowest levels is vital to the overall ability of U.S. forces to successfully operate in a given area. This is also true in traditional battle, but this point has never really been highlighted in the past. Poor quality input results in poor quality output. A great deal of effort and resources are dedicated to processing input at the higher echelons of command, but relatively little is done to ensure the information coming into the system is regular and accurate. By focusing a greater effort at the lower level, the MAGTF – whatever the size will benefit.

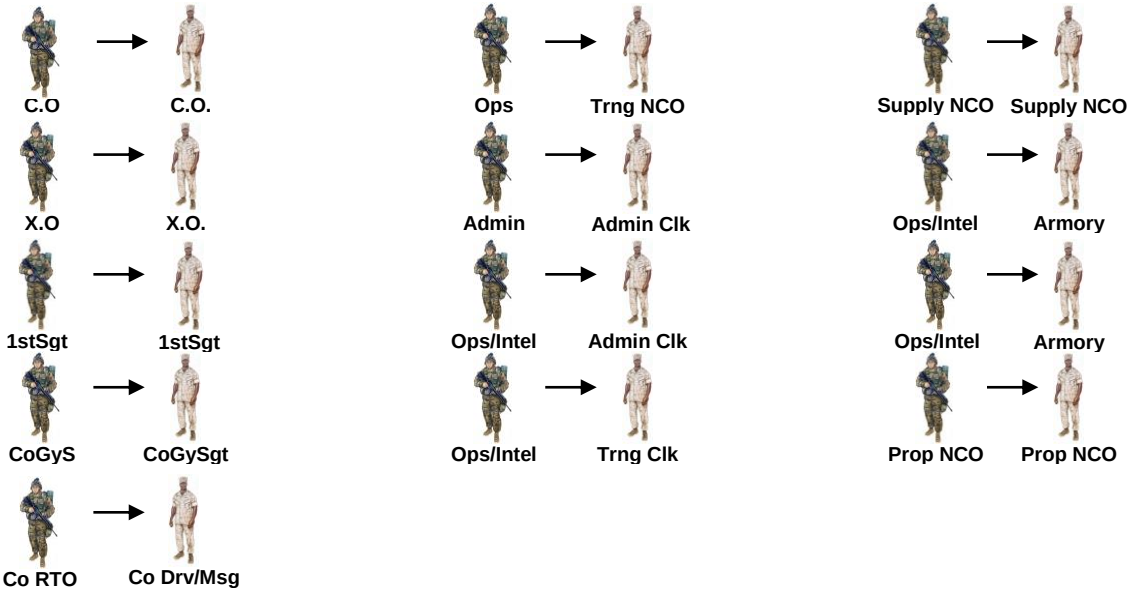
9. Increasing the size of the Rifle Company Headquarters Section is not a very attractive proposal to those already faced with the incredible challenge of actually manning the force. Even without a T/O increase the ability of the supporting establishment to provide personnel is heavily stressed. In addition, certain above proposals appear attractive for the company, but do not address the larger issues of career progression and occupational field management. Of specific concern would be the Operations and Intelligence Clerk billet. A new Military Occupational Specialty (MOS) would be the best way to ensure these Marines are not only properly trained, but the service is able capitalize on the skills gained in the long term. Ops/Intel Specialists are

needed throughout the various echelons of the Marine Corps. A Marine would start at the company level. This would be followed by operating forces assignments, intermingled with standard supporting establishment tours, at progressively higher levels of command. The Ops/Intel Specialist working at the battalion, MEU, Division, MEF level would be intimately familiar with the workings at the lower echelons. The same is true for logisticians, communicators, and administrators who serve, for a time, at the company level. Having Marines in these critical support roles that have first hand knowledge of the needs and capabilities of the rifle company will make the entire MAGTF more effective and efficient.



10. Caution must be exercised when considering an expansion of the Rifle Company Headquarters Section. It must be done in a manner that not only addresses the short term operational needs of the unit, but also keeping in mind the long term sustainability of the structure. A Company Commander who benefits from the support provided by additional personnel is also taking on the responsibility to train these Marines and keep them current and competitive in their respective MOS. They must also provide benefit to the unit in a garrison environment. The combat roles of an Operations NCO or Ops/Intel Clerk are obvious, but there is little need to maintain an operational battle rhythm or provide daily intelligence updates while at home station. These personnel with need to continue to train, but this will not fully occupy these Marines. They will need to be aligned with garrison duties to help justify their remaining as a permanent member of the company. This is an opportunity to further formalize many of the duties already done by pull ups in the company. The Operations NCO fills the role to the Training NCO in garrison. The Ops/Intel clerks of the CLOC serve as the armory custodians, training clerk, and assistant administration clerk in garrison. The important thing to remember is that these are roles already being filled – by non-compensated pull ups from the platoons.

Rifle Company Headquarters, Experiment Model 1
Combat - Garrison Roles



H&S Company Support to the Rifle Company

1. There are roles within the rifle company that are best filled by specialist whose parent unit remains the Headquarters and Service Company and are tasked as needed to attach to or provide direct support. Most of these are well established. Corpsman are, of course, a vital part of any infantry company, but the training they require and the overall management of unit medical readiness is best served by consolidation. Battalion commanders decide when Corpsmen are attached and this should remain standard. The merits of retaining specialist personnel in H&S Company prior to the time they are needed at the company level primarily center on training and the efficient utilization of individual skill sets. Companies do not retain the ability to train these Marines to the level required. What needs to be established is the requirement for battalions to

provide these personnel and the subsequent need for the unit to gain structure to allow it to fulfill its functions – which despite greater decentralization, remain constant if not are expanded. As the practice of pulling up Marines is detrimental to the capabilities of the rifle company, "push downs" can inhibit the ability of the battalion to function. As mentioned earlier, task organization is a long standing practice in the Marine Corps. The ability to attach a few specialists when a subordinate unit is assigned a special task has worked and will continue to work well. But, the billets represented below are now required for the length of an entire deployment and not simply to support a single phase of an operation.

2. Certain billets are long standing requirements and do not need a great deal of explanation. The need for corpsmen is a given. A radio operator from the communications platoon continues to provide a critical capability. Other billets require some explanation. The three billets, recommended for inclusion in the standing deployment troop list for the rifle company are Intelligence Analyst (0231), Tactical Network Specialist (0656), and if operating as a motorized unit, an Organizational Automotive Mechanic (3521).

3. CLIC experimentation and trials identified a need for an intelligence analyst at the company level. The necessity of augmenting the rifle company with a 0231 is to:

- Enhance analytic capabilities and conduct of pre- and post-mission actions, including briefings and debriefings.

- Facilitate communications with battalion S-2 sections adjacent, supporting, and subordinate elements, and other agencies, such as non-governmental organizations.

- Promote detailed understanding and execution of intelligence procedures.

- Provide training for other CLOC Marines.

- Provide Marines with access to TS/SCI-level information from other sources, including signals intelligence units.

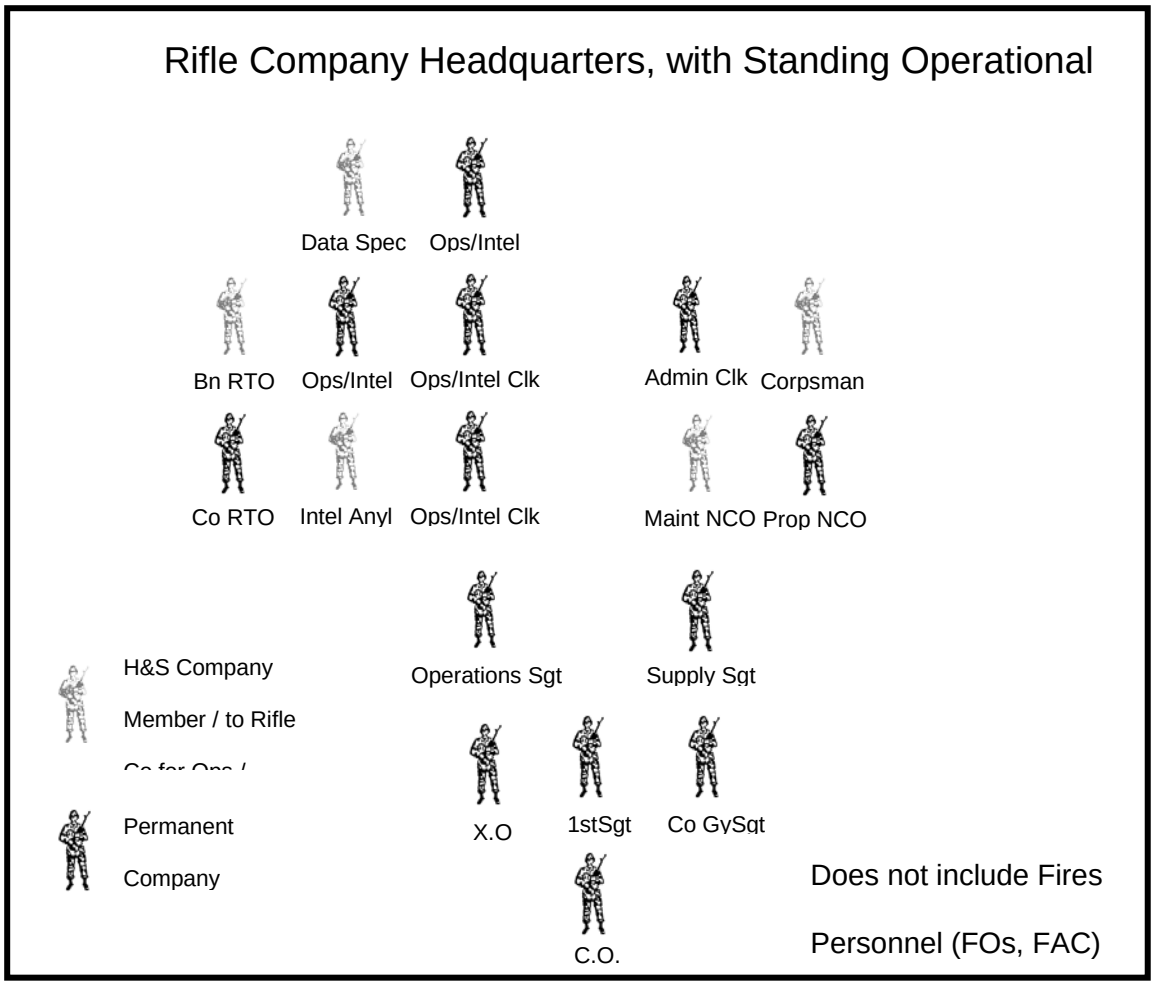
- Help establish better integration of operations and intelligence functions.

At the same time the battalion intelligence shop will have an even greater need for personnel to analyze the increased level of input coming from the company level. This has been addressed by a change in the H&S Company T/O, but is included here for completeness.

4. In addition, both CLIC and Company Level Operations Center experimentation has identified a need for a Tactical Network Specialist, MOS 0656. The extensive utilization of data systems at the company level as well as the geographic separation mandate a level of expertise is resident in the forward operating units. A contact team approach can be used to fix problems, but this doesn't help the unit to better maintain capabilities, so that it doesn't need a group of specialist to come out.

5. When operating as a motorized unit, there needs to be an organic capability within that unit to make minor repairs and conduct/oversee maintenance of vehicles. Having a 3521 at the unit may at times be less efficient for the battalion, but it is far more effective.

6. The rifle company headquarters augmented for combat will rarely be exactly the same. As the Marine Corps has always done, personnel will be shifted, attached, and detached as needed to best address the given situation. But, there are constants that need to be planned for in the basic structure. A company headquarters with its basic battalion augments is represented below: (Note: this does not include fire support augmentation)



Notes on other elements of the Rifle Company

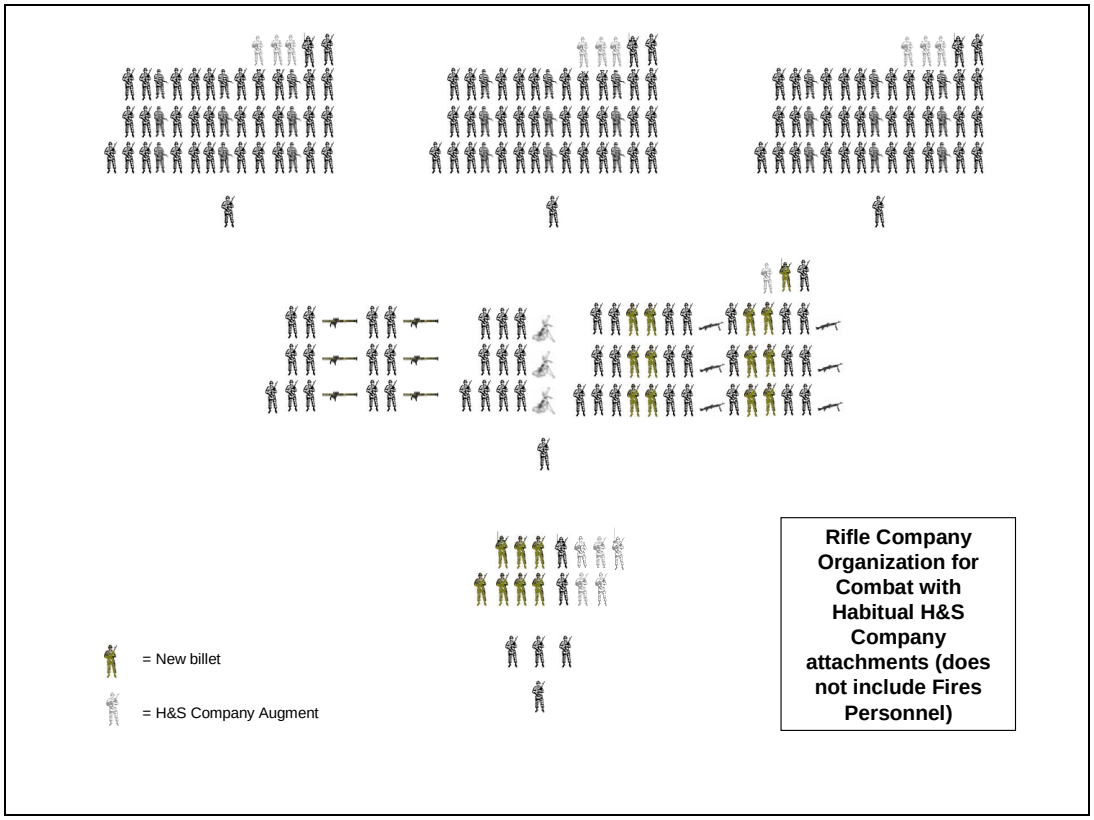
1. The Light Weight Company Mortar System (LWCMS) Mortar Section is currently allotted 10 Marines consisting of 3 teams of 3 with a section leader. The mortar section of 1953 also had 3 tubes, but 20 total personnel assigned. Unlike the machinegun section, increasing the number of Marines assigned to this role does not appear to be of significant benefit. The primary limiting factor of the 60mm mortar is accuracy. The base-plate must be seating and adjustments made prior to accurate fires being available. Even then, these fires are not precise which more and more is becoming the standard in close fights. New technologies have the potential of making the 60mm mortar a far more valuable asset than is currently the case. It will be a few years before

precision mortars are available and even longer until they are practical. Regardless, a role for the mortar section remains. Despite an inability to employ them in certain situations, they are a valuable asset in many potential situations. When technology is able to produce precision mortars, they may prove to be a great force multiplier in many different situations. In short, it is recommended they be retained.

2. The Assault Section is a unique Marine Corps Capability that provides the rifle company with the ability to reduce hardened positions using organic capabilities. It currently consists of 13 total Marines divided into 3 teams and having the ability to employ 6 Shoulder Launched Multipurpose Assault Weapons (SMAW). There is no substitute for this vital capability and it is recommended it be retained as currently structured.

Overall Structure of the Rifle Company

1. Recommended changes to the structure of the Rifle Company are depicted below:



2. Adaptation of the above recommendation would require the Marine Corps to build in both the operating forces and supporting establishment. The numbers below represent enhancements to only the Rifle Company and Headquarters and Service Company standard augments to the Rifle Company. Personnel requirements are represented below:

MOS	Per Infantry Battalion	26 Infantry Battalions
0311	18	468
0331	39	1014
0151	3	78
3043	3	78
0656	3	78
0231	3	78
3521	3	78

3. The above 1,872 Marines needed to enhance the Rifle Company per the recommended model would also require personnel increases in the supporting establishment, primarily TECOM. The price tag may appear to be high, but when one considers the Rifle Company has remained the same for 35 years it puts the issue in perspective.

4. Changing the organizational structure of the Rifle Company is vital to realizing the potential of Enhanced Company Operations. We can no longer simply add capabilities and requirements to the units without providing additional personnel. The above recommendations are designed to enhance the maneuver, intelligence, C2, and logistics capabilities of the company. Marines in Iraq and Afghanistan have enhanced the ability of the currently structured company to the maximum extent possible. Without real change, further enhancement will be far more difficult to achieve.

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