



# MARINE CORPS Gazette

*Professional Journal of U.S. Marines*

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A publication of the Marine Corps Association



## 8071

Intelligence SOCS are specially trained to conduct interdisciplinary intelligence operations in politically sensitive, hostile, or denied areas, using special (low or reduced signature) means of collection, analysis, and reporting. Intelligence SOCS are often required to perform the intelligence cycle in abbreviated time, with increased requirements for information accuracy and reliability, with less manpower than other intelligence forces, using SOF unique equipment sets and in the support and execution of SOF core activities and/or operations.

Intelligence SOCS are proficient in SOF-specific processes, the use of SOF specific authorities, and inter-agency coordination procedures to de-conflict and augment intelligence operations.

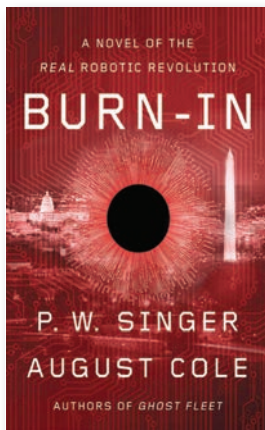




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*Radio Battalion Marines conduct parachute training. (Photo by LCpl Isaac Velasco.)*

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# AN ANNOUNCEMENT FROM THE MARINE CORPS ASSOCIATION

September 1, 2021, marks a milestone for the Corps' Professional Association as Marine Corps Association (MCA) President and Chief Executive Officer (CEO), LtGen W. Mark Faulkner, USMC (Ret), will turn over leadership of the Association to LtGen Charles G. "Chuck" Chiarotti, USMC (Ret).

Since assuming his duties in February 2017, LtGen Faulkner has led the MCA and our Foundation through unprecedented times of growth, change, and challenge—ensuring that the Association continues to serve as the preeminent association for all Marines and friends of the Corps.

Most noteworthy, his steady hand at the helm throughout the recent pandemic along with his energetic engagement with leaders in the Corps, the Department of the Navy, Defense Industry, and our sister-Service professional associations has sustained and even increased the Association's support for Marines while preserving resources and safeguarding the organization's human capital.

His four years of exemplary service to Today's Marines, veterans and friends of the Corps has been dedicated to the development and recognition of professional excellence and the expanding of awareness of the rich traditions, history, and esprit of the Corps, and his personal initiative and vision have set the Association on a future course that will only continue to improve the value of the MCA's contributions to the Corps. We wish LtGen Faulkner and his wife, Janet, fair winds and following seas.

The MCA is pleased to welcome LtGen Chiarotti as our new President and CEO. LtGen Chiarotti has served for more than 35 years in the Marine Corps logistics community in both command and staff billets throughout the Corps including as the Deputy Commander of the United States Forces Japan and most recently as the Deputy Commandant for Installations and Logistics. Welcome aboard, Sir!





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SEPTEMBER 2021

**Editorial: MCISRE, OIE, and More**

This month's edition is noteworthy for three main reasons. First, as in past years, our major focus areas are Operations in the Information Environment and the Marine Corps Intelligence, Surveillance, and Reconnaissance Enterprise. A total of twelve articles cover a broad range of OIE and MCISRE-related topics. Special thanks to LtGen Matthew G. Glavy, the Deputy Commandant of Information, for his introductory letter on page 8 and to Col Brian Russell, the Commander of II MEF Information Group, and his battalion commanders for their "all-in" approach to supporting this month's edition.

Next, in a first this month, we present a new section of Ideas & Issues discussing Space Operations. This is in collaboration with the Brute Krulak Center for Innovation and Future War whose General Robert H. Barrow Fellowship seeks to explore and understand different aspects of security and strategy as it relates to great power competition. This year, fellows were asked to write on the following topic: "In an era of renewed Great Power Competition, what is the role of the space domain? How does the United States Marine Corps contribute to and utilize space operations in the future operating environment?" The five essays produced through this effort begin on page 67.

Third and perhaps most impactful, this month recognizes September as National Suicide Prevention and Awareness Month. There can be no dispute that suicide in the active military and veteran populations exceeds the national averages and represents a problem requiring a holistic response like a "combined-arms defense in depth." Just as this tactical technique employs the synergistic effects of all available weapons to defeat an enemy at the decisive time and place, so too effective response to this threat to the force requires the deliberate use of all assets available to Marines and their leaders. Starting on page 104, we present four articles written by staff NCOs, medical officers, and a chaplain that describe some of the assets available and techniques to address suicide prevention and resilience in our Corps. Additional content in this important subject area can be found online on the *Gazette* webpage.

We also continue the ongoing discussions of our maneuver warfare doctrine in Maneuverist Paper #12, "On Decentralization," by Marinus on page 124 and "Why Attack Weakness?" by LtCol Nate Lauterbach & Dr. Heather Venable on page 98. A final highlight this month is found on page 62, titled "The Next Fight" by the Deputy Commandant for Aviation, LtGen Mark R. Wise. This article begins a two-part series discussing the role and capabilities of Marine Aviation in the future operating environment.

Lastly, members of the Association should note that our transition to improved mobile applications is complete, and these "Apps" are now available to both Android and Apple smartphone devices. Download the App, log in and create a new password, and access both *Gazette* and *Leatherneck* digital editions and additional resources from the MCA website.

Christopher Woodbridge



ANDROID



APPLE

*MCA President and CEO*, LtGen Charles G. Chiarotti, USMC(RET); *VP Foundation Operations*, Col Tim Mundy, USMC(RET); *VP Strategic Communications, Retail Operations & Editor, Leatherneck magazine*, Col Mary H. Reinwald, USMC(RET); *VP Professional Development, Publisher & Editor Marine Corps Gazette*, Col Christopher Woodbridge, USMC(RET); *VP Corporate Sponsorships, Events & Advertising*, Ms. LeeAnn Mitchell; *VP Business & Chief Financial Officer*, Ms. Johnna Ebel.

### Annihilation vs. Attrition

■ Marinius' explanation of the differences between annihilation and attrition is a critically important discussion. While fascinating, it is not so important for Marines to know the history behind the use of the two words or the insight from the point of view of deconstructive criticism on how usage has evolved over time. What is important is the dual truisms of first, words have meaning and second, when we go to war, we better know our goals, what it is we are trying to do, with certainty.

Maneuver warfare doctrine was developed not long after and by those who had first-hand experience in the Vietnam War. It was to be applied by Marines expected to fight outnumbered battles against Cold War adversaries. The entire scope of U.S. involvement in Vietnam rested on military goals that were at best unclear, with the only constant being change. This was clearly understood by those developing maneuver warfare doctrine.

Seventeen years after the end of the Vietnam War, the United States became involved in Afghanistan, a year later, Iraq. In both cases, the goals of these campaigns were or have been ill defined and unclear. From the onset of both

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***The United States goes to war at the direction of civil leaders, most of whom know little about war or warfighting.***

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these wars, the U.S. failed to pay heed to strategic lessons from Vietnam; the flawed assumption was the world and war had changed. We are experiencing the results of our failed strategy in Afghanistan today, in a withdrawal resembling the U.S. experience in the waning days of the Vietnam War.

The United States goes to war at the direction of civil leaders, most of whom know little about war or warfighting.

The reason the difference between annihilation and attrition, expressing our goals clearly, and using the right words is important is that it is the responsibility of military leadership, who must understand these things, to advise and inform civil leaders. Of course, the correct use of terminology and identification of objectives is also important at the tactical and operational levels of war, but as all is nested, getting the strategy right is of paramount importance. If the strategy is wrong, and as we have seen, nothing else matters.

**Alex Vohr**

### “Learning Through New Technologies”

■ Regarding MSgt Jeremiah Johnson's article “Learning Through New Technologies” in the June 2021 issue of the *Gazette*, please let me share a few thoughts. I agree with MSgt Johnson's contention that much can be learned through military-related podcasts. I would add the following podcast to the list of appropriate podcasts that might be considered by unit leaders at all levels of command. The *Spear* podcast, produced by the Modern War Institute at West Point, features interviews with Army, Marine, and Allied service personnel discussing their combat experience. Guests have included NCOs, company and field-grade officers, and several general officers. I believe the *Spear* podcast can aid young Marines and junior unit leaders better prepare for their own combat action by learning from others as they share their own thoughts and actions during a time of immense stress, pressure, and danger. I further believe the Marine Corps would benefit greatly by developing and producing our own version of the *Spear*. The Corps has fought in “every clime and place,” and the combat action is unique from the other services in a variety of ways. Learning from other Marines who have been through combat and survived can and should be part of our PME.

**Richard K. Bordelon**

### MOOSEMUSS: Principles or Concepts?

■ I was in full agreement with LtGen Van Riper's letter on “MOOSEMUSS” principles in the June 2021 *Gazette* until the last sentence: “Send the principles of war to the trash bin where they properly belong.”

The problem is not with teaching these concepts but with their classification as “principles.” That term signifies an idea which *must* be followed, and that mentality stifles creativity—the point of the general's letter. Checklists dictate a “rote” conformance, which might be appropriate in some arenas, but certainly not this one.

That said, the 9 ‘MOOSEMUSS’ concepts (mass, objective, offensive, security, economy of force, maneuver, unity of command, surprise, simplicity) are all valid military considerations and need to be reclassified and taught as such. A second lieutenant who is unaware of these concepts is no better off—perhaps worse off—than one who follows them like a religion. We need neither conformance nor ignorance in our decision making. (Humorously, I am reminded of the movie *Pirates of the Caribbean* where the pirates were expected to religiously follow “THE CODE,” but in a situation where it did not apply, the response was “they're more like guidelines actually.”)

So please keep teaching these valuable concepts but teach them in proper context: ideas that should be understood, considered, and assigned the appropriate weight, given the situation.

**Capt Jack Spang**

### What Lieutenants Do

■ In response to Lt Wu's article (*MCG*, Jul21), I would emphasize that an important contribution to the Corps by lieutenants comes, paradoxically, from their own lack of military experience and their prior civilian life. Hence, different perspectives and different ideas.

Who on earth would spend \$250 of his own money to buy a small horse for combat duty in the thick of the Korean war? Lt Pederson did; he transported it

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Letters of professional interest on any topic are welcomed by the *Gazette*. They should not exceed 300 words and should be DOUBLE SPACED.

Letters may be e-mailed to [gazette@mca-marines.org](mailto:gazette@mca-marines.org). Written letters are generally published three months after the article appeared.

**The entire *Gazette* is now online at [www.mca-marines.org/gazette](http://www.mca-marines.org/gazette).**



# YOUR ACTIVE SERVICE MAY BE ENDING BUT YOUR OPPORTUNITIES HAVE NOT

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\*For DAP details reference MARADMIN 279/20



**MARINES**

to the front lines and oversaw its training. Enter “Sgt Reckless,” the Corps’ fabled equine hero and NCO, who proved to be invaluable as an ammo carrier to the Marines defending the “Nevada Cities” in Korea in 1953.

At a far lesser scale, Third Tank Battalion in the early 1960s had no firing range available anywhere on Okinawa for the M67 90mm Recoilless Rifle. Some “90 gunners” had never once fired these weapons. A lieutenant has an idea: wrap empty 50-gallon drums with communication wire, attach a tank track as an anchor, and drop them into the sea. The results were lots of good shooting, training, and sunk barrels.

I would guess that such examples are manifold throughout the Corp’s illustrious history.

Lt S. Keith Bearns, USMCR

## Reunions

**Name:** Marine Air Base Squadrons-49 Reunion  
**Dates:** 18 September 2021  
**Place:** Earlville, MD  
**POC:** Col Chuck McGarigle (Ret)  
 609-291-9617 or 609-284-2935  
 col\_of\_mar\_ret@comcast.net

**Name:** USS *Houston* CL81 Navy Reunion  
**Date:** 15-19 September 2021  
**Place:** Baltimore, MD  
**POC:** Donna Dandy  
 717-521-2593  
 ddandy53@gmail.com.

**Name:** “Rally At The Alamo”  
**Org:** Marine Corps Basic School  
 Classes 4, 5, 6-67 combined  
**Dates:** 11-14 October 2021

**Place:** Holiday Inn Riverwalk  
 217 N. St. Mary St.  
 San Antonio, TX 78205

**Guest of Honor:** Gen Robert Neller,  
 37th Commandant, USMC  
**POC:** Ken Pouch  
 860-881-6819  
 kpouch5@gmail.com

**Name:** 2021 National Reunion of the  
 USS *Canberra*  
**Dates:** 13-17 October 2021  
**Place:** Pittsburg, PA  
 USS *Canberra* Reunion Association  
 c/o Ken Minick  
 740-423-8976  
 usscanberra@gmail.com

# The eLearning Ecosystem\* Virtual Workshop

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Join the debate. Post your opinions on our discussion board at [www.mca-marines.org/gazette](http://www.mca-marines.org/gazette).



# GEN ROBERT E. HOGABOOM LEADERSHIP WRITING CONTEST



Gen Robert E. Hogaboom.

The *Marine Corps Gazette* is proud to announce the commencement of its annual Gen Robert E. Hogaboom Leadership Writing Contest. The contest honors the essay that is the most original in its approach to the various aspects of leadership. Authors should not simply reiterate the Eleven Principles of Leadership or the Fourteen Leadership Traits of an NCO addressed in the *Guidebook for Marines*. Authors must be willing to take an honest, realistic look at what leadership, either positive or negative, means to them and then articulate ways and methods of being an effective leader of Marines.

E-mail entries to: [gazette@mca-marines.org](mailto:gazette@mca-marines.org)

Mail entries to: Marine Corps Gazette  
Hogaboom Writing Contest  
Box 1775  
Quantico, VA 22134

**DEADLINE:  
31 January**

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## Background

The contest is named for Gen Robert E. Hogaboom, USMC(Ret), who served the Corps for 34 years. Upon graduating from the Naval Academy in 1925, Gen Hogaboom saw service in Cuba, Nicaragua, and China. Following action in a number of key Pacific battles in World War II, he later served first as assistant division commander, then division commander, 1st Marine Division, in Korea in 1954–55. Gen Hogaboom retired in 1959 as a lieutenant general while serving as the Chief of Staff, Headquarters Marine Corps, and was subsequently advanced to the rank of general.

Prizes include \$3,000 and an engraved plaque for first place; \$1,500 and an engraved plaque for second place; and \$500 for honorable mention. All entries are eligible for publication.

## Instructions

The contest is open to all Marines on active duty and to members of the Marine Corps Reserve. Electronically submitted entries are preferred. Attach the entry as a file and send to [gazette@mca-marines.org](mailto:gazette@mca-marines.org). A cover page should be included identifying the manuscript as a Gen Robert E. Hogaboom Leadership Writing Contest entry and include the title of the essay and the author's name. Repeat title on the first page, but author's name should not appear anywhere but on the cover page. Manuscripts are acceptable, but please include a disk in Microsoft Word format with the manuscript. The *Gazette* Editorial Advisory Panel will judge the contest during February and notify all entrants as to the outcome shortly thereafter. Multiple entries are allowed; however, only one entry per author will receive an award.



28 July 2021

Marines and Sailors,

I want to take this opportunity to recognize the great work of LtGen Lori Reynolds. I had the honor to succeed her at U.S. Marine Corps Forces Cyberspace Command where she left a fully-armed, fully-fueled warfighting machine. The same is true here on the Commandant's staff executing his guidance and intent for *Force Design*. The Nation owes her a great debt of gratitude for the ground breaking, foundational work in the information environment.

As I start this journey I do so with an appreciation of the capability and opportunities presented to the joint force. My recent experience working within U.S. Cyber Command provided insight into what is possible when the joint force combines with all elements of national power. The Commandant has often referred to the Marine Corps as a Service which will "enable" the joint force. In his words, "a major role for Marine Corps forces in critical future scenarios may revolve around enabling naval and joint force commanders as a dedicated reconnaissance and counter reconnaissance force." This very statement portrays a significant opportunity for the MAGTF to act as the sensing force, if we organize appropriately.

As an extension of the fleet and the Nation's stand-in force, the Marine Corps is the physical manifestation of the United States' commitment to international order. The Marine Corps facilitates strategic deterrence and provides situational awareness. The MAGTF operates as an integrated maritime force providing the joint force and our inter-agency partner's geographic and philosophical placement and access. In the right location and with our ability to sense and make-sense, the Marine Corps can become the preferred service to act on behalf of the joint force. The Marine Corps provides the ultimate opportunity of convergence where authorities, approvals, and capabilities are aligned with placement, access, and opportunity to generate the appropriate outcomes to support the Combatant Commanders' objectives. Maneuver matters when we can generate opportunities to deliver effects of any kind to include those in the information environment. Just like our forward observers and forward air controllers have unique perspective and opportunities based on their placement and access in the kinetic fight, the same opportunity presents itself today in the information environment.

As the stand-in force, it is the role of Marines to effectively compete and conduct preemptive counter-actions to expand the maneuver of the naval service and joint force. Forward-postured Marines must stand ready to execute information-focused missions on a short fuse to attain joint objectives. As we continue towards the realization of *Force Design*, it is an imperative to achieve synergy with our joint and interagency partners to deliver the asymmetric advantage required in today's operating environment. Our ability to deliver outcomes is as much about our organic lethality as it is about our geographic and philosophical placement and access to bring to bear the strength of the joint force within the information environment.

Marines owe it to the nation to engage in persistent learning. This Operations in the Information Environment (OIE) edition of the *Gazette* articulates the importance of Intelligence-driven OIE, epitomizing the demand to learn, and I commend the authors. As I work to help the Commandant achieve his vision, I look forward to sharing my ideas and hearing yours in our conversations and within the pages of the *Gazette*.

Semper Fidelis,

M.G. Glavy  
Deputy Commandant for Information

# Leveraging Cyberspace

Reconnaissance and counter-reconnaissance  
in the information environment

by Capt Michael Holdridge

**T**he Watch Officer for the MEB Operations Center attempts to log in to his NIPR computer but receives an error stating his account is locked because of excessive failed login attempts. He angrily calls over to the Communication Help Desk, stating that he had just come on shift and had not attempted to log in yet. The Help Desk Marines re-enable his account, and he successfully logs on. When he checks his inbox, he finds a few unread emails that he did not recognize from the day prior. At the same moment, he hears the G-4 Operations section calling down to the CLR to ask why the infantry regiment never received its ammo and fuel resupply. He overhears the MEB Surgeon talking about CASEVAC flights being cancelled without reason. When he looks at the common operating picture, he realizes that the delayed resupply caused the eastern flank for the infantry regiment to become exposed. Simultaneously, he overhears a report of troops in contact from within the rear area.

Unbeknownst to the MEB watch officer, the adversary had gained access to the MEB communications network and had stolen his log in credentials. Using his credentials, the adversary leveraged the unclassified logistics programs to cancel the resupply for the infantry regiment. Additionally, the adversary sent false weather reports sent to the Marine Air Wing, grounding CASEVAC flights that caused a lengthy delay to life support for the troops in contact. The adversary also leveraged access to these logistics programs to identify staging areas for combat service support and gaps in the front line. With this knowledge, the adversary sent special operations forces to penetrate friendly lines

**>Maj Holdridge is the 2d MARDIV G-6 Operations Officer. He was previously the Commanding Officer for Company C, 8th Communication Battalion.**

*and attack the ground lines of communication in these now-exposed areas.*

This vignette demonstrates the possible results of the invisible reconnaissance that occurs on the front lines of the information domain on a daily basis. It reveals the very real way that opera-

For the Marine Corps to succeed in the era of great power competition, the Service must continue to increase the synergy between communicators and defensive cyberspace operators to better enable both reconnaissance and counter-reconnaissance.

Two recent incidents demonstrate the importance of the synergy between communication elements and cyberspace: the NotPetya attack in Ukraine in 2017 and the 2021 Colonial Pipeline Ransomware attack.<sup>1</sup> The NotPetya attack was a cyberattack targeting civilian and government users in Ukraine that leveraged the Eternal Blue exploit:

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***For the Marine Corps to succeed in the era of great power competition, the Service must continue to increase the synergy between communicators and defensive cyberspace operators ...***

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tions in the information environment can impact the kinetic battle and operations across the land, air, space, and sea domains. In the scenario, the failure to investigate the account access issues and suspect emails caused the MEB to overlook a gap that the adversary was actively exploiting. The end result of this critical gap leads directly to mission failure. Within the Marine Corps, the MEF Information Group is leading the charge to address these gaps head on by strengthening the relationship between the 17XX Cyberspace Operations, 02XX Intelligence, and 06XX Communication occupational fields.

a National Security Agency tool that the hacking group Shadow Brokers stole in 2017.<sup>2</sup> The Eternal Blue exploit is a vulnerability in Microsoft's Server Message Block Protocol that tricks a breached system into allowing illegitimate traffic into the network. Once the Eternal Blue tool was stolen, the National Security Agency alerted Microsoft, who then released a patch in March 2017 that addressed the vulnerabilities.<sup>3</sup> The impact of NotPetya in Ukraine was immediate, as the attack wiped data from banks, energy firms, government officials, and an airport.<sup>4</sup> The attack crippled and froze domestic functions

at all affected entities within Ukraine and caused major difficulties for the Ukrainian government in managing the ongoing conflict with pro-Russian Separatists in the Donbass region.<sup>5</sup> This attack demonstrated that the cyberspace domain is not limited to geographic borders, a theater of operations, or an area of responsibility. Our adversaries do not have the same reluctance to target civilian infrastructure, non-military targets, or even their own citizens. All targets are fair game.

The 2021 Colonial Pipeline hack, which impacted oil distribution across the Southeastern United States, was the result of a compromised password leaked onto a hacker forum.<sup>6</sup> Compromised passwords are often leaked across the dark web, a series of difficult to find web sites designed to promulgate hacking tools and is a common source of intelligence for cybersecurity firms. Additionally, during the course of the Colonial Pipeline investigation, it was found that Colonial Pipeline did not use multi-factor authentication, an account access method that requires more than just username and password, such as a text message to a phone in the case of many banks or the use of a log on token for government computers.<sup>7</sup> Multifactor authentication is a basic cybersecurity tool that has been used for decades and is a common security practice by network administrators worldwide.

Neither of these incidents involved direct kinetic attacks between the perpetrators and the victims, but both possess the same devastating ability to shape the battlefield below the level of armed conflict. These attacks serve as a warning to what we will shortly face on the modern battlefield: cyberattacks designed to damage our ability to communicate and conduct basic operational and support functions, to gain intelligence on our operations, to shift our focus, and to disorient our military. As the Commandant has already pointed out, “the answer to the question of how we may best support the broader effort, it seems increasingly likely, is not lethal fires as an end themselves but rather *reconnaissance and counter-reconnaissance* applied in all domains and across the competition continuum.”<sup>8</sup>

Most importantly, however, these attacks could have been completely mitigated through a concerted approach to preventing cyberattacks. Both intrusions relied upon vulnerable systems that already had fixes in place. Without the network and system administrators to apply the patches, and without a defensive cyberspace capability to assess the threat environment and the intelligence teams to gather the relevant information, the victims of NotPetya and Colonial Pipeline were left unaware of the risks they faced. If Colonial Pipeline and Ukraine had those teams in place, like the DOD currently does, they could have prevented these attacks from occurring in the first place.

### Before We Go Any Further, Some Definitions

To fully understand the impact of these cyberattacks, it is important to understand what ransomware attacks are. Ransomware, as seen in the Colonial Pipeline incident, is an attack where in which an adversary infiltrates a system, encrypts all of the data, and then ransoms the data to the owners. The encrypted data can be anything from an individual user’s emails to the operating system files required to run the device. By encrypting this data, an attacker can then deny a user access to the system or device until a fee is paid. All ransomware attacks start with an adversary gaining access to a system. Common methods of gaining access include through social engineering, which is the process of gaining access through tricking someone into providing log in information, or by using an exploit, such as a Zero Day. A Zero Day exploit is a previously unidentified vulnerability for which the manufacturer of the program or operating system does not have a patch or fix. Once a Zero Day is identified, manufacturers will quickly design a patch to prevent perpetrators from using them in the future. Once inside the system, attackers can gather intelligence, steal information, manipulate information, or otherwise operate undetected until they are found and their access removed.

The cybersecurity and defensive cyberspace operators have different roles

when it comes to patching in response to a previously identified vulnerability or in responding to a true Zero Day. In the event of a previously identified vulnerability, the network and systems administrators who fill the duties of the cybersecurity professional are responsible for applying the patches and searching for indicators of compromise on the network. The cyberspace defense operators are responsible for assessing the intelligence from the threat environment, providing recommendations to the administrators, and assessing the overall protection level of the network. In the event of a true Zero Day, the defensive cyberspace operators are responsible for hunting, isolating, and gathering intelligence on the intrusion while providing recommendations to the network and systems administrators to fix the network security. Without both of these elements operating in sync, networks will remain vulnerable and the response timeline for the eventual intrusion will increase, which results in more damage occurring.

### What Is the Difference Between Cybersecurity and Cyber Defense, and What Is Synergy Between Them?

The DOD is currently postured in a three-column approach to deterring cyberattacks: Offensive Cyberspace Operations, Defensive Cyberspace Operations (DCO), and Department of Defense Information Networks (DODIN) Operations (DODIN Ops). The 0600 occupation field is focused on the DODIN Ops portion of cyberspace operations, specifically on the on the planning, installation, security, operation, and maintenance of communication architectures. The 1700 occupation field has the responsibility for Offensive Cyberspace Operations and DCO, with the 1721, Defensive Cyberspace Operator, supported by the 1702, Cyberspace Operations Officer, having a primary focus on DCO. The difference between DCO and DODIN Ops can be summarized with the following statement: DODIN Ops is responsible for a threat agnostic but threat informed security posture, while DCO is an intelligence driven investigative, as well as command and control function, body working



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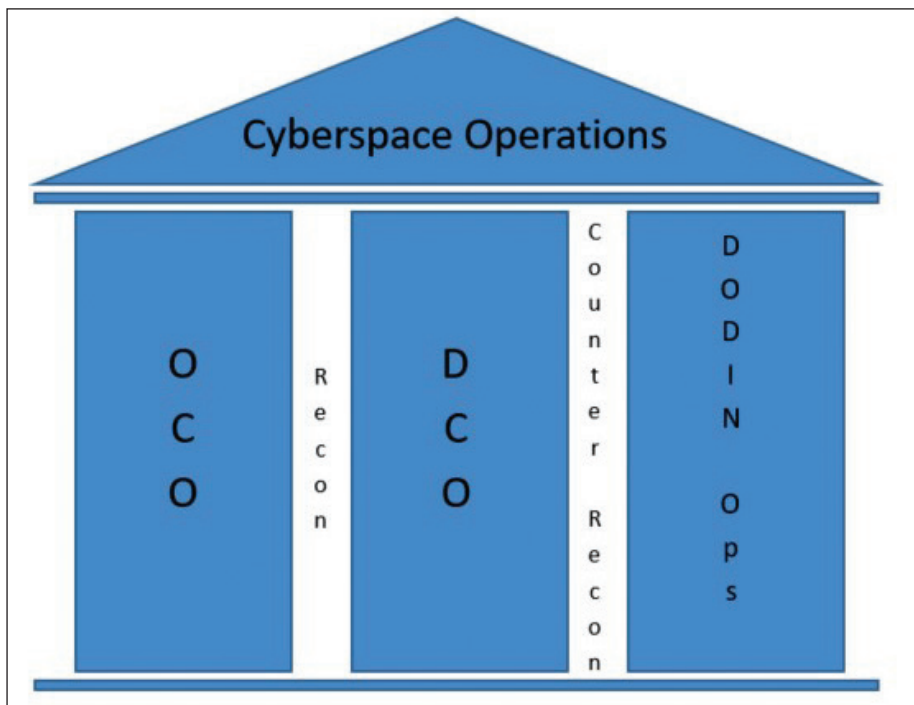
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against an identified specific anomaly or threat. In practice, this equates to the following: DODIN Ops secures the network and any suspicious activity is routed to DCO to investigate and, if identified as an actual threat, neutralize that threat.

The risk that arises with this three-column approach is the space that exists between them. While DODIN Ops and DCO are separate functions, they need to be closely aligned in order to ensure that the security and defense of the network is synchronized. Without the DODIN Ops support to apply changes to the security posture of the network, DCO is unable to truly eliminate a threat once it is identified. Without the intelligence and recommendations provided by DCO, DODIN Ops is unable to secure the network against the specific threats it faces.

**What Is the Way Ahead?**

As the DOD ramps up its cyber defense in response to increasing threats and invests heavily in the evolution of defensive cyberspace operations, it is worth noting that the first line of defense against these attacks is not the 1700 community but the 0600 community. The 0631 Network Systems Administrators and 0671 Data Systems Administrators throughout the Marine Corps are the primary MOSs responsible for the security of our systems and for patching previously identified vulnerabilities. However, the biggest risk that we face in current practice is the fact that our threat agnostic defense is often a *threat uninformed defense*. In other words, while a vulnerability may be listed as medium risk by the Defense Information Systems Agency (DISA), it may also be a tactic, technique, or procedure (TTP) that is frequently employed by an adversary involved in our area of operations. In that situation, a threat formed approach would grant a higher priority for patching than a vulnerability listed as critical by DISA that is not a TTP of that specific adversary. Traditional DODIN Ops uses a checklist to address the most dangerous vulnerabilities rather than the most likely vulnerabilities. The solution to this is to improve the synergy



**Reconnaissance and counter-reconnaissance in the context of the pillars of cyberspace operations.** (Graphic provided by author.)

of the defensive cyberspace analysts and the cybersecurity administrators by facilitating the relationship between these units in order to increase information sharing, intelligence gathering, and threat response. The defensive cyberspace analysts have access to the intelligence resources to identify which advanced persistent threat, or specific adversaries that contain “sophisticated levels of expertise and significant resources,”<sup>9</sup> may be active in a region as well as the TTPs associated with those advanced persistent threat. Furthermore, increased synergy between the DODIN Ops and DCO teams enables the network administrators to assist DCO is intelligence gathering and reverse targeting of adversary teams through the use of various tools and network changes.

Currently, the synergy between DODIN Ops and DCO is not where it needs to be. Rarely do the DODIN Ops Marines responsible for maintaining the cybersecurity posture receive relevant intelligence briefs in order to prepare them for operations. This causes significant delays in response and can lead to disastrous consequences like NotPetya and Colonial Pipeline. The correct ac-

tions for a synergistic operation would include the following: along with the usual intelligence preparation of the battlespace, the defensive cyberspace intelligence analysts would provide an additional intelligence preparation of the information environment, to include the cyberspace threat actors active in the region. The cyberspace intelligence analysts would review which peer adversaries were likely to be active, which friendly systems are at risk, and which exploits are likely to be used against U.S. forces. The intelligence analysts would also prepare a threat briefing to the G-2, G-3, and G-6 about the risks in the area and which advanced persistent threats belonging to which country would be in play.

Using this information, the defensive cyberspace intelligence analysts and the DODIN Ops community would prepare a threat informed security environment, with a focus on patching vulnerabilities likely to be exploited. This is much more threat focused and relevant than the typical critical, high, medium, low risk assessment included within the information assurance vulnerability alerts provided by the DISA. Once the security posture is in place


to counter an identified adversary, the Systems Control Center (SYSCON), which monitors, maintains, and changes the communication architecture and is staffed by the 0600 personnel, and the Cyberspace Defensive Operations Center (CDOC), which commands and controls the investigation of network anomalies and mitigation actions and is staffed by the 1700 personnel, would have a synergistic relationship. This would enable the staff to address every anomaly and vulnerability as a team to fully analyze the potential threat and response action.

Some leaders argue that the 1700 community does not require the 0600 community to conduct cyberspace operations. Other than the network being established, what benefit does the 1700 community gain from the 0600 community? It is a fair question, especially since the 0600 community will always create the network to enable commanders to execute C2 across the battlespace.

Much of the intelligence gathered by the 1700 community is often at the top-secret level, which is above the security clearance required by the vast majority of the 0600 community. Additionally, since DODIN Ops focuses on a threat agnostic security posture, the specified threats posed by adversaries are rarely addressed by the 0600 community. However, as discussed earlier, this results in a *threat uninformed* and therefore vulnerable network architecture. Furthermore, the 1700 community lacks the ability to implement network and systems changes in the architecture in order to mitigate specific exploits discovered.

There are two main benefits of the 0600 community to defensive cyberspace operations: the implementation of changes on the network to respond to a threat, and the understanding of the network as a whole. The majority of the network changes that are required by defensive cyberspace operations against

a specific threat are implemented by the network and systems administrators that the 0600 community owns and develops. Without the administrators to patch systems, update the architecture, and create mitigations, the 1700 community is unable to successfully defend the network against identified threats. But most importantly, the communication officer and communication chiefs have the specific requirement built into their billet and training to translate commander's operational priorities into communication plans that enable command and control. This means that communication officers and chiefs, by necessity, must be able to effectively understand and translate the risks identified by cyberspace focused intelligence. Without that synergy between the communication officers, communication chiefs, and the defensive cyberspace intelligence analysts, it is difficult to translate threats to risks, understand when risk is unavoidable, and identify



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additional mitigation that improve the chance of operational success.

**Conclusion**

The relationship between DODIN Ops and DCO already exists within II MEF. The CDOC, as a component of the Information Command Center and the MEF SYSCON, both manned and operated by 8th Communication Battalion Marines, already have a relationship due to the proximity of command. The MEF Network Operations Center already has defensive cyberspace operations liaisons located within their structure. The intelligence section within the MEF Information Group Information

*The Watch Officer for the MEB Operations Center attempts to log in to his NIPR Computer but receives an error stating his account is locked because of excessive failed log in attempts. He angrily calls over to the Communication Help Desk, stating that he had just come on shift and had not attempted to log in yet. The Help Desk Marines register the anomalous activity of a locked account without login attempts to the SYSCON. The SYSCON Watch Officer logs the issue with the CDOC, which begins investigation into the anomaly. The DCO Marine investigates the issue and discovers a breach in the network which is impacting the logistics supply chain resulting in manipulated logistics requests and*

*formation from the honey-pot, to identify specific adversary units involved. This information is then provided to the Information Operations Center which provides recommended targeting solutions to the MEB G-3 for action.*

**... in conducting reconnaissance, counter-reconnaissance and counter-exploitation of our networks, the synergy between the 0600 and the 1700 communities must be ... strengthened.**

Command Center already synthesizes the intelligence requirements identified within an area of operations. However, as demonstrated by the significance of cyberattacks throughout the world, movement needs to be made to ensure that these two occupational fields are more closely aligned than ever, with a focus on closing the space between DCO and DODIN Ops. Without a clear threat picture provided by cyberspace intelligence analysts, patched systems provided by the network and systems administrators, and the investigative and response actions by defensive cyberspace operators, the Marine Corps places itself in a position of significant risk. But most importantly, in the question of providing cybersecurity to the MEF and in conducting reconnaissance, counter-reconnaissance and counter-exploitation of our networks, the synergy between the 0600 and the 1700 community must be nourished, grown, and strengthened. When the synergy between the 0600 and 1700 community is maximized, the opening vignette would have proceeded very differently:

*weather reports. The DCO Marine identifies that an adversary had compromised login credentials for the MEB Operations staff allowed the adversary to manipulate data and harvest intelligence within the MEB NIPR network.*

*After analyzing the specific threat vector used, he begins to hunt for the perpetrating unit. After receiving approval from the MEB G-6 and Information Control Center, the CDOC and SYSCON work together to establish a cyber-operations approved honey-pot; a collection point designed to lure in the adversary to gather intelligence. Once the adversary is identified, the CDOC provides recommendations to the SYSCON, which coordinates with the MEB G-6 to implement network changes to protect the network. The Network Systems Administrators update the MEB firewalls to limit adversary traffic into the network and the Data Systems Administrator update the Assured Compliance Assessment Solutions scanners to search for specific indicators of compromise. The CDOC provides information to the Cyberspace Intelligence Analysts who are able to connect the TTPs for the specific threat vector used, along with in-*

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# Humans Are More Important Than Hardware

Putting “OIE Truth #1” into action

by LtCol Jeff Starr & Maj Jacob Showalter

**P**roficimus more irrenti: we make progress unhindered by custom. This is the Air Corps Tactical School’s motto in the 1930s when strategic bombing doctrine was only theory and considered radical because it was contrary to established doctrine. Such is the nature of operations in the information environment (OIE), which continues to evolve as the seventh joint function. As the *Joint Concept for Operating in the Information Environment* concludes, “Information is changing the character of modern warfare”<sup>1</sup> in the era of conflict and great power competition. Planning and executing support to OIE, while intriguing, is a challenging endeavor. There is perhaps no more significant example of this than the ongoing effort to define the interconnection between information and intelligence and their respective roles in warfighting. This work serves as the first in a series of articles intended to chart a path to understanding the information-intelligence relationship at the tactical level and will be followed by works on multi-intelligence support to MEF operations and information, intelligence, and fires fusion.

After the 2d Intelligence Battalion (2d Intel) change of command in June 2020, our first operationally focused task was presented in a two-part question. How does intelligence support OIE in MEF operations, and which section or unit in II MEF is best suited to research the problem? The II MEF Information Group (MIG) S-2, under-resourced and heavily engaged in day-to-day opera-



**OIE spotter (intelligence) and shooter (information related capabilities) collaboration is essential to creating the nonlethal effects necessary to achieve a commander’s objective. (Photo by SSgt Jacob Osborne.)**

**>LtCol Starr is a MAGTF Intelligence Officer currently serving as the 2d Intelligence Battalion Commander. Previous billets include 2d MEB AC/S G-2, 2d MEB Future Operations Officer, and Service HUMINT Manager, HQMC Intelligence Division.**

**>>Maj Showalter is a MAGTF Intelligence Officer currently serving as the 2d Intelligence Battalion Operations Officer. Previous billets include Battlespace Surveillance Company Commander, 2d Intelligence Battalion, Assistant Intelligence Officer, 6th Marine Regiment, and African Foreign Area Officer.**

tions, had little time for discovery learning. *In the throes of perpetual competition*, the MIG Information Command Center (ICC) was no better postured to do so. Perhaps 2d Intel, a unit whose primary mission is to man, train, equip

and provide intelligence support to the MAGTF? Why not? We had the bandwidth and, by proxy, a vested interest to explore solutions.

Over the course of two weeks, a 2d Intel working group reviewed OIE doc-

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trine, spoke with members of II MIG and the greater intelligence community, and discussed ways and means before coming to a glaring conclusion: there is no existing model of intelligence support to OIE, at least not at the MEF level. In the absence of precedent, we determined the best immediate solution to meet mission demand was to bring spotters (intelligence) and shooters (information related capabilities) together in an immersive, real-world learning environment. As identified in the Five OIE Truths, the training and educating of intelligence professionals supporting OIE, coupled with an understanding of the adversary's human domain, is more important than legacy intelligence support.<sup>2</sup> Simply put, there is no substitute for experiential learning.

In the fall of 2020, 2d Intel assembled a multi-discipline intelligence direct support team (DST), aligned to the ICC, to inform and educate intelligence professionals on OIE processes and procedures and increase understanding between the intelligence and information warfighting functions. The following is an initial assessment composed by one component of this DST, the CI/HUMINT Detachment (CHD). It is, in effect, a summarized narrative of observations and lessons learned focused on challenges in establishing tactical HUMINT in cyber, manpower constraints, and C2. To be clear, none of these observations are meant to cast aspersions but rather to inform, and wherever possible, to advance the operational posture of CI/HUMINT Marines serving either with or in support of the MIG mission. Further, this article does not seek to provide an all-inclusive model to answer each operational shortfall gleaned from the CHD's experience. Instead, it primarily serves to outline considerations identified thus far as 2d Intel continues to refine the ICC DST model.

**Early Days and Hard Truths**

Upon assignment to the ICC, the CHD's first order of business was to understand the II MIG Commander's vision and intent, including efforts to enable HUMINT in cyber, similar to

several activities conducted at U.S. Cyber Command. CI/HUMINT Marines build relationships with sources to collect information of intelligence value in the physical domain and, given the necessary training and permissions, can employ their craft in cyberspace where activities are practicable, agnostic of time and space.

While conducting research, the CHD established numerous valuable contacts with U.S. Cyber Command, Marine Corps Forces Cyberspace Command, Marine Corps Forces Command, and various components of interagency organizations. As they deepened conversations with these stakeholders, shortfalls in all facets of the ICC CHD's knowledge in offensive and defensive cyberspace operations became apparent. At the MEF level, HUMINT in cyberspace is uncharted territory that requires Service direction and guidance. Further, a tour rotation of approximately six to nine months in the ICC may not be the best use of resources because of a required thirteen-month tailored training pipeline to meet operational requirements. Lastly and most informative was the frequent reminder that the tools, funds, and authorities and permissions needed to operate within the MIG commander's intent are difficult to obtain—both monetarily and temporally.

**Talent Management**

A frequent topic of conversation (or consternation) across the Marine Corps Intelligence, Surveillance, and Reconnaissance Enterprise is the low density, high demand nature of the CI/HUMINT community, further complicated by a significant shortfall in CI/HUMINT Marines with cyber-related and sensitive support requirements. This shortfall proved consequential because the CHD could not organically satisfy specific ICC requirements. For example, while conducting threat assessments on various ICC information-related capabilities and evaluating emerging technology fielded across elements of II MEF, the CHD leaned heavily on Marines with technical surveillance countermeasures and electronic warfare backgrounds. The absence of organic cyber and technical surveillance countermeasures subject matter experts required the CHD to outsource to gather even basic knowledge on the problem, thereby slowing the response time.

Another concern was 2d Intel's struggle to identify and retain experienced cyber personnel to support the MIG mission. Of the few CI/HUMINT Marines with extensive cyber-focused training and operational experience, 2d Intel was fortunate to have one within its ranks until he executed orders to fill

*The current manpower model ... forces Marines to move out of skills they excel at in the name of developing them, and cuts careers off near the 20-year mark when workers have decades of productivity left in them. These policies drive increased PCS costs, throw away talent at the point it is most productive and highly trained, and discourage performers who would like to continue serving, but may be less interested in promotion or constant disruptive moves of questionable personal and professional value.<sup>3</sup>*

**—Gen Berger,  
Commandant's Planning Guidance, 2019**

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a traditional role in PACOM, despite several attempts to retain his services. With the reemergence of great power competition and investment in niche, technical competencies to support activities in the grey zone, we must, where appropriate, adjust the assignment process to place highly trained, technically proficient Marines at the point of friction. Enforcing traditional manpower assignment models on these Marines is antithetical to emergent operating concepts.

**Command Relationships and Effective Communication**

II MIG, the ICC, and 2d Intel reside within the same compound, a unique situation that supports continuous communication, collaboration, and decision making. By virtue, the ICC CHD is at the forefront of communication between key members of the II MIG and 2d Intel staffs. This model works, in large part, because the ICC

***“[Information Operations] is not about ownership of individual capabilities but rather the use of those capabilities as force multipliers to create a desired effect.”<sup>4</sup>***

**—Joint Publication 3-13, Information Operations, 2014**

CHD has the luxury of proximity to MIG and 2d Intel staffs. Furthermore, the MIG commander promotes a risk-tolerant environment, encourages inter-organizational cooperation, and values the insights and considerations of his subordinate commanders and subject matter experts. The rapid pace of operations in the ICC and limited time for subordinate commanders and staffs to engage the MIG commander outside battle rhythm events means the ICC CHD regularly carries operational

the training, material, manpower, and funding lines to produce a permanent solution. Understanding the threat in the information environment is essential to disrupting adversaries, protecting the force, and ensuring command and control. The ubiquity, rapid growth, and highly interconnected nature of the cyber domain as an operational environment is something we must fully commit to if we hope to compete now. Our adversaries are persistently engaged in the information environment and reaping the benefits of their investments across the full spectrum of OIE. It is imperative that we do the same.

***Our adversaries are persistently engaged in the information environment ...***

updates between the two units. Given their job description, observing and reporting on key-leader engagements is a common practice for CI/HUMINT Marines. Relying on the CHD to bridge communication requires establishing relationships and gaining the trust of key staff in both commands, a situation alleviated by physical collocation.

**Conclusion**

CI/HUMINT support to OIE in MEF level operations is a work in progress that requires a deliberate DOTMLPF-C analysis. Still, lessons learned through immersion and experience will help build a pathway to long-term support models. 2d Intel established the current model to answer the immediate demand, but the Service must compose the doctrine and identify

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# MEF Command Element Employment Constructs

Leveraging operational naval concepts

by LtCol Robert A. Fairley

*“We must adapt our training in a manner consistent with the threat and anticipated operational challenges.”<sup>1</sup>*

**—38th Commandant’s Planning Guidance**

*>LtCol Fairley is the Commanding Officer of II MEF Support Battalion. Prior to reporting to II MEF, he served as the Logistics Combat Element and Supporting Establishment Branch Head, Total Force Structure Division, HQMC Combat Development and Integration. He is a Logistics Officer with 24 years of service in the officer and enlisted ranks and numerous worldwide deployments.*

ity to contribute to sea control activities and operations from both a sea and landbased posture. The II MEF CE exercises C2 of the nearly 45,000 Marines, Sailors, and civilians of the MAGTF, is outwardly focused, and is positioned to generate effects on behalf of the Combined Joint Forces Maritime

Component Command. II MEF leadership provided II MSB with necessary authorities and responsibilities to enable the MEF CE to conduct the C2 of all assigned forces.

While traditionally considered an administrative headquarters or even a force provider to support the endur-

The II MEF Command Element (CE) is charged with maintaining readiness of all assigned forces, organizing forces for employment, and exercising MAGTF command and control (C2) as part of the Combined Joint Forces Maritime Component Command, integrated with allies and partner forces. II MEF’s mission for their MEF Support Battalion (MSB) was remarkably clear: fight the MEF CE. This article will outline II MSB’s approach to MEF-level warfighting against a peer adversary, describe the operational concepts which enable this warfighting capability, and provide an overview of critical components required to best support the MEF CE.

## Fighting the MEF

The MEF is representative of the largest and most capable MAGTF and retains unquestionable capabil-



**LCpl Elvis Agosto-Santiago, a transmissions system operator with 2nd Landing Support Battalion, 2nd MLG, exchanges radio transmissions during a training event on Camp Lejeune, NC, 16 June 2021. (Photo by LCpl Jacqueline Parsons.)**

ing requirements of the MEF CE, 2d MEB, and II MEF Information Group (MIG), II MSB has recently been fully operationalized to enable the CE to persist and operate forward as a naval expeditionary force-in-readiness. The Marines and Sailors of II MSB are now increasingly woven into the fabric of the II MEF CE and vice versa. II MEF requires their MSB to be an all-domain unit with a unique mission set critical to the success of the MEF.

### Leveraging Naval Concepts to Inform Employment Options

According to the *Commandant's Planning Guidance*,

The U.S. Navy and Marine Corps do not seek to merely “discern the future operating environment,” but are determined to define the future character of maritime conflict, so that naval forces will deter or fight from a position of enduring advantage.<sup>2</sup>

Given the uncertainties of MEF-level warfighting against a peer adversary, II MEF recently completed a series of unique, large-scale exercises designed to enhance staff proficiency across all warfighting functions. The II MEF employment options remain consistent with the tenets of Distributed Maritime Operations (DMO), Expeditionary Advanced Base Operations (EABO), Littoral Operations in a Contested Environment, and the Joint Concept for Access and Maneuver in the Global Commons.

As an example, between October and November 2020, II MSB supported the MEF CE during MEF Exercise (MEFEX) 21.1. MEFEX 21.1 was a constructive, model-driven, script-supported exercise featuring live II MEF and Major Subordinate Command headquarters supported by higher, adjacent, and subordinate units participating from live command posts across the Eastern United States. The exercise design called for the deployment and employment of the MEF CE, under canvas in a singular location. This proved to be the largest MEF-level exercise conducted by II MEF in recent years.

Additionally, building upon the momentum from MEFEX 21.1, II MEF conducted a subsequent exercise be-

tween April and May 2021 designed to evaluate a unique C2 employment model while simultaneously enhancing CE readiness and staff proficiency. This exercise, Dynamic Cape 21.1, validated II MEF CE Echelons of Command from distributed, expeditionary C2 locations to exercise II MEF's warfighting construct for blunt to surge layer activities. II MSB supported the MEF CE from distributed II MEF Forward, MAIN, and Tactical C2 cells in the Camp Lejeune, NC, area. Ultimately, II MSB enabled the II MEF CE to inte-

sequently jumped part of one to create a fourth

A third MEF-level employment option to C2 assigned forces is arguably less-strenuous to exercise but requires further analysis. With the prevalence of reliable communications available world-wide, and especially throughout Camp Lejeune, II MEF leaders and planners have explored the feasibility of providing C2 of all assigned forces without deploying as a collective headquarters to theater. Having the II MEF CE, at least in part, remain at home

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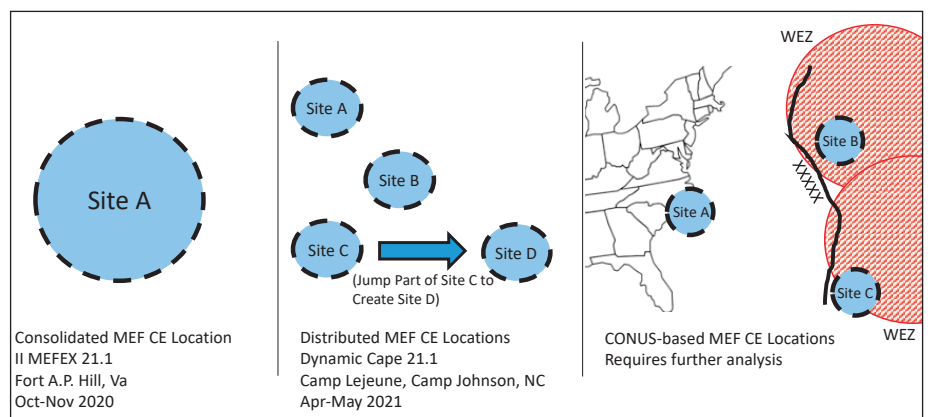
grate the seven warfighting functions as a MAGTF in a fictitious United States European Command scenario.

Recognizing the character of DMO and EABO on a widely dispersed formation, the II MEF CE broke the traditional mold from operating within a singular location and distributed the principal and special staff across several geographically separated locations. This provided an alternative to the MEF CE's traditional employment model and afforded a unique opportunity to explore efforts to hide in plain sight. II MSB established and consistently supported three independent nodes and then sub-

station will reduce II MSB's demand to provide transportation, sustainment, and force protection requirements forward while simultaneously limiting exposure for MEF leaders inside the adversarial weapons engagement zone (Figure 1).

### Critical Components to Support the MEF CE

Whether responding to crisis or contingency, II MSB must be prepared to complement the MEF CE's diverse employment options to best enable them to C2 all assigned forces. II MSB serves to complement the MEF CE's balanced



**Figure 1. II MEF CE employment constructs (not all inclusive). (Figure provided by author.)**

and flexibly capabilities designed to respond to military operations across the competition continuum. Many support requirements exceed II MSB's organic capabilities and will likely require augmentation from throughout the MAGTF. Additionally, regardless of which MEF CE employment construct is selected, critical components remain common to each model. The below describes a few components but is not all inclusive.

*Signature Management.* As the Commandant of the Marine Corps noted, "Friendly forces must be able to disguise actions and intentions, as well as deceive the enemy, through the use of decoys, signature management, and signature reduction. Preserving the ability to command and control in a contested information network environment is paramount."<sup>3</sup> To generate continuous uncertainty for an adversary, signature management planning must be fully-integrated by all stakeholders and nested within the broader operational plan, not done as an afterthought or at the expense of completing traditional exercise objectives. The three signature domains—physical, technical, and administrative (Figure 2)— may provide indicators of friendly force actions. By leveraging the diverse and extremely capable intelligence experts resident within the MIG, units can gain a bet-



**Marines must balance reliable, technologically-advanced communications with signature management efforts to prevent revealing friendly force activities and intentions.** (Photo by Cpl Brendan Custer.)

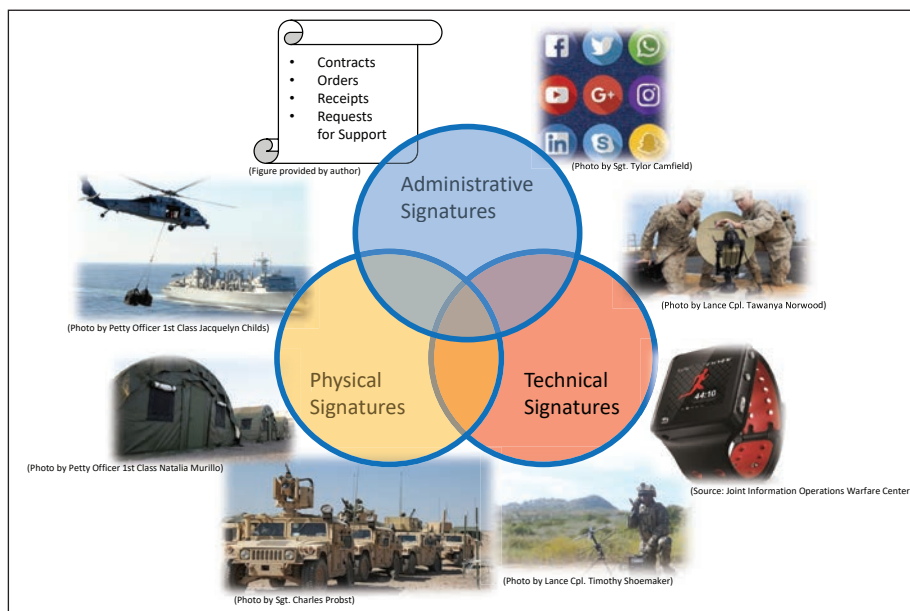
ter understanding of the operational environment and develop a signature management plan accordingly.

Military planners work diligently to gather essential elements of information: "the most critical information requirements regarding the adversary and the operational environment needed by the commander to assist in reaching a decision."<sup>4</sup> Similarly, it should be understood an adversary is work-

ing simultaneous collection efforts on friendly forces. We rely heavily upon the Critical Information List (CIL), which may include unclassified information but still warrants protection. The aggregation of information on the CIL could lead to discovering or revealing otherwise classified information. The CIL works to protect essential secret information paramount to achieving success for friendly forces in the operational environment.

The MEF CE's signature may take many forms. If not monitored, potential friendly force indicators revealed in one domain may be closely examined and combined with other indicators to reveal a more comprehensive snapshot of friendly force activities and intentions.

A few often-overlooked scenarios are highlighted below to further showcase the importance of signature management. As an example, host nation support for products and services is essential to achieve favorable results during crisis or contingency response. To solicit and obtain such services, however, often requires specific details to be made publicly available for sourcing. The joint force often requests seaport terminal services to be sourced from the host nation to support their requirements.



**Figure 2. Signature domains.** (Figure provided by author.)

This action may potentially provide an adversary with pertinent information on ship class, capabilities, offload timelines, locations, and throughput of military resources.

Additionally, aircraft, ships, trains, and other modes of transportation often have transmitters that operate almost entirely on unclassified networks. With relative ease, nefarious actors can generally pinpoint past and present locations of these assets commonly used for military personnel and equipment movements. When these data points are pieced together, they can often be used to reveal information otherwise protected by the CIL.

*Force Protection.* For each MEF-level exercise, II MSB has requested and received a host of augments from each Major Subordinate Command to complement the battalion's force protection efforts. As a result, II MSB provides 24-hour force protection capability to the CE, but there are limitations on what the team of augments can accomplish by themselves. During real-world crisis or contingency response, a robust force-protection capability is required and must be influenced by intelligence experts, regardless of which MEF CE employment construct is chosen. Force protection requirements would be threat-informed to address matters such as survivability; protections from adversarial special operations forces; air and ballistic missile threats; as well as chemical, biological, radiological, and nuclear attacks.

The consolidated, traditional MEF CE model is easier to protect in many regards as everyone is centrally located. A quick reaction force also remains in close proximity ready to respond on short notice if needed. The challenges with massing the CE in a singular location leaves many leaders susceptible to a singular attack. Force protection efforts must be closely integrated with the Rear Area Operations Center and in concert with the rear area coordinator, the joint force, our allies, and partners, as well as the host nation to address matters such as a layered defense in depth, integrated air missile defense, and similar threats. II MSB uses force protection efforts to safeguard the MEF CE's centers of



**II MSB provides a Force Protection capability to the MEF CE which must be nested with Navy, Joint, Host Nation and other stakeholders (Photo by Sgt Alexis Flores.)**

gravity while protecting, concealing, reducing, or eliminating their critical vulnerabilities. Thus, II MSB's force protection efforts have many relevant equities with signature management, combat service support, and other critical components.

*Combat Service Support.* II MSB can more-easily push all logistical requirements forward to support the MEF CE in a consolidated site. Health services,

extend organic support, distributed foraging and increased contracting will position II MSB to best support the MEF CE through non-standard and commercial procurement while limiting reliance on the traditional supply chain. Additionally, II MSB discovered host nation support and a comprehensive reachback capability allowed the distributed MEF CE cells to receive the necessary support while also limiting

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***To complicate an adversary's decision cycle and provide increased opportunities for the MEF commander, II MSB must remain prepared to support a variety of CE employment constructs.***

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transportation, maintenance, engineering, food service, and others can efficiently operate from a singular area. To support a more-distributed CE, the battalion can no longer leverage economies of scale common in a consolidated site and must be prepared to replicate support for each smaller CE cell. This increases the complexities with developing a comprehensive concept of support while ensuring adequate services remain available at point and time of need. To

their overall footprint. A hub-and-spoke approach, combined with 21st century foraging, will nest nicely with this employment construct.

#### **Recommended Way Forward**

To complicate an adversary's decision cycle and provide increased opportunities for the MEF commander, II MSB must remain prepared to support a variety of CE employment constructs. These options must be fully understood,

exercised, and rehearsed to build and maintain unmatched proficiency.

Commanding and controlling a widely dispersed formation as described in DMO and EABO may increase the requirement for communications and electronic equipment. Thus, *careful consideration must be given to signature management efforts*. Units must be prepared to consistently operate within strict emissions controlled environments. Commanders, planners, and communicators should reevaluate traditional communications practices. In the past, low-signature communications may have been set aside for the technologically-advanced, expedient, and reliable means to communicate. Consider what communications may hide well in the relative noise floor: “Special attention is required to ensure effective signature management and signal security during each phase, stage, and step of an operation.”<sup>5</sup>

*Encourage the use of spectrum and signal frequency analyzers when practical.* If done accurately, this enables electromagnetic compatibility testing and allows friendly forces to monitor our own signatures. The analyzers should be used to observe and set to trigger an alarm should signatures surpass a certain threshold.

*Adversary intelligence collection capabilities, including satellite vulnerability requests and times, should be understood early in the planning process.* This will give planners an idea of what may be overhead and what capabilities may be leveraged against friendly forces. Matters such as these, which are derived from intelligence and information experts from throughout the MIG, may inform how II MSB will fight the MEF. Plan actions and applicable protections accordingly.

*Establish and promote the importance of a Signature Management Operational Planning Team.* To be effective, signature management requires a “whole of staff” approach. Just like operations security has equities throughout the entire organization and extends down to the most junior Marine and Sailor, so does signature management. It must not be limited to a singular section and requires the support from everyone in-



**Health services support, to include casualty care and evacuation, remains one of the many services II MSB provides.** (Photo by Sgt Isaiah Campbell.)

involved to be effective. Otherwise, we risk giving an adversary an otherwise preventable advantage.

II MSB will continue to identify and coordinate anticipated augmentation needed to conduct operations across the range of military operations. Baseline personnel and equipment requirements must address a host of MEF CE employment constructs. Planners should not wait until crisis to begin identifying resource shortfalls and sourcing. This has certain signature management, force protection, and combat service support equities as well.

### Conclusion

There is no one-size-fits-all solution for the commander to employ the MEF CE. As a result, II MSB must focus on providing a host of diverse MEF CE employment options to set favorable conditions for MEF-level warfighting. Flexibility and reliability, especially across the MSB, work in concert to generate increased operational capability and overall force resiliency for the commanding general’s headquarters. Anticipating requirements in advance to support a variety of MEF CE employment constructs is complex and requires ongoing collaboration with many key stakeholders. II MSB recognizes the importance of this no-fail mission and is

committed to work in concert with the II MEF CE and II MIG Headquarters to achieve ultimate success.

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### Notes

1. Gen David H. Berger, *38th Commandant’s Planning Guidance*, (Washington, DC: July 2019).
2. Ibid.
3. Ibid.
4. The Joint Chiefs of Staff, *Joint Publication 2-0, Intelligence*, (Washington, DC: October 2013).
5. Headquarters, Marine Corps, *Tentative Manual for Expeditionary Advanced Base Operations*, (Washington, DC: February 2021).

*>Author’s Note: The author wishes to honor the late Col Arthur J. Corbett, USMC(Ret) for his insight and counsel which paved the way for this research; the Marines, Sailors, and civilians of II MSB who continue to push the envelope; and his family for inspiring him beyond measure.*



# ANGLICO and OIE

## The Marine Corps' counter to "Little Green Men"

by Maj Jacob Corl

In today's world, information is gathered, analyzed, and acted on at speeds no one thought possible 30 years ago. These drastic changes have had enormous effects on modern militaries directly affecting the United States' ability to maintain its military dominance. Today's world is back to near-peer competition and conflicts that have been a part of every other period except for the last half century.

The U.S. military has finally seen the writing on the wall and has redirected its efforts to address current force designs to meet these the evolving threats. Under the Tri-Service Maritime Strategy and the *Commandant Planning Guidance*, Marines today will be tasked with enabling commanders with dedicated all-domain reconnaissance and counter-reconnaissance forces which will see smaller units capable of delivering a wider range of battlefield effects to ensure freedom of movement for the Naval Service while denying the same to our adversaries.<sup>1</sup> These all-domain teams, with their access to allied and coalition partners, will be the backbone for the future Naval Service and ensure a place for the Marine Corps by giving us the capability to regionally counter hostile "Little Green Men"<sup>2</sup> around the world. With the current Marine Corps force structure, equipment, and training, the base unit for all-domain effects teams are the Air Naval Gunfire Liaison Companies (ANGLICO) because of its seasoned combined arms and liaison officers and staff non-commissioned officers, their ability to quickly task organize from within the MEF Information Group (MIG), and overt access to allied countries that can generate effects within the fast paced, information intensive style of warfare across competition and conflict.

Our rivals have seen our might and adapted to counter it. Russia and China

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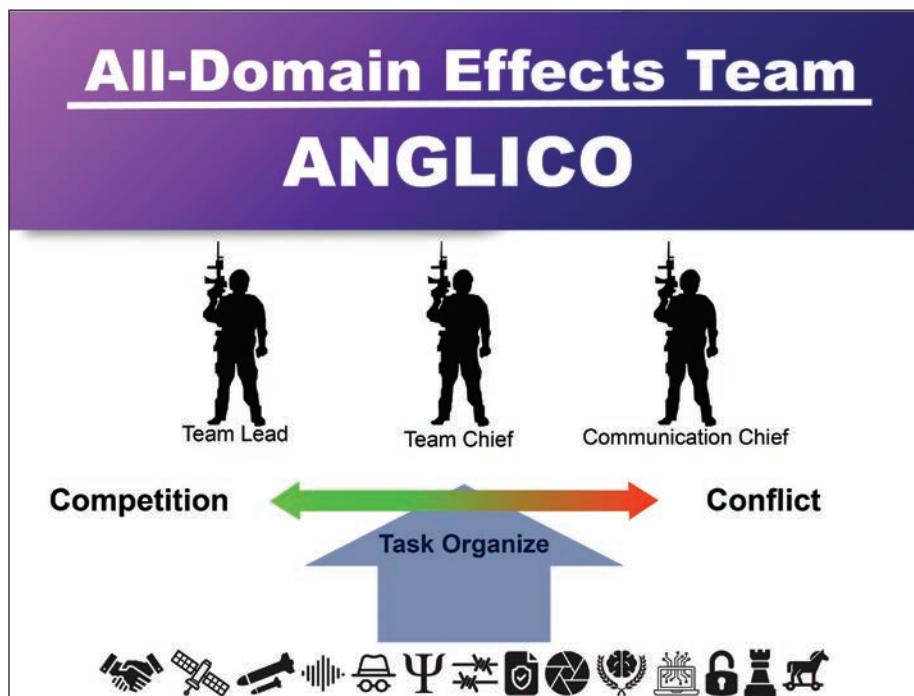


**2D ANGLICO with its foreign partner's at the conclusion of Burmese Chase 19, an annual exercise incorporating British, Norwegian, French, and Dutch forces. (Photo: courtesy 2D ANGLICO.)**

have mobilized to create militaries that seek to perfect information operations that outthink, out maneuver, and out cycle us. Russia gave us a full demonstration of how current conflicts will play out with their invasion of Crimea. During this event, Russia was able to use its extensive cyber-attack capabilities, troll farms, and propaganda skills to push for political unrest in the disputed Crimea region of Ukraine. Under this cover, they moved Russian "volunteers" along with a broad force of armor, long-range artillery, special operations forces, unmanned aerial vehicles, and electronic warfare equipment across the border to safeguard Russian citizens and assets. These tactics allowed these "Little Green Men,"<sup>3</sup> (a reference to them posing as a green camo-clad paramilitary force with no recognizable insignia) to cut a bloody swath through the unprepared Ukrainian forces. They performed lethal attacks initiated through inventive and novel target location means by using cell phone signals of senior-level Ukrainian

officers, catfishing Ukrainian soldiers, and hacking military computer applications that tracked Ukrainian friendly positions. Once the Russians had this information, they would use their extensive long-range towed and self-propelled artillery to eliminate those targets. In one particular case, the Russians tracked down a Ukrainian artillery battalion through its commanding officer's mother via Facebook, which subsequently cost him most of his battalion and his life. Russian forces controlled the narrative on the regional populace, which allowed them unprecedented levels of freedom of movement and support from sympathetic people. No other time in history has this level of speed and all-domain combined arms lethality ever been seen. This new character of warfare serves as a catalyst for change in the U.S. military.

ANGLICO extends the MAGTF commander's influence by providing a liaison capability that plans, coordinates, and terminally controls fires for joint, allied, and coalition forces. At



**ANGLICO-led All-Domain Effects Team.** (Image provided by the COMMSTRAT Company.)

the same time, ANGLICO is capable of leveraging joint, allied, and coalition assets to enhance the MAGTF’s operational capabilities. As a result of its mission, ANGLICO is specially manned and equipped with a higher number of captains and senior non-commissioned officers in order to quickly task organize and operate in small teams independent of MAGTF units. Operating independently creates a culture founded upon being flexible, adaptable, and able to solve complex dynamic problems. ANGLICO’s access and amount of time training to combined arms is unmatched. Properly task organized capabilities from the MIG make ANGLICO lead teams the ideal unit to conduct combined arms across all domains.

Properly tasked organized, (e.g. cyberwarfare (attack or defense), intelligence (open source intelligence, human intelligence), psychological operations, communications strategy, and operations, the ANGLICO-led all-domain effects teams can achieve combined arms effects across all domains in competition through conflict.<sup>4</sup> These teams could affect theaters by informing friendly decision makers with information environment battlespace awareness

while influencing enemy’s decision making cycle through projected information messaging—all the while effecting the normal perceptions, attitudes and beliefs of everyday life.<sup>5</sup> These teams are also able to convey that awareness through its organic communication equipment and command and control (C2) architecture across MAGTF, joint force, and allies forming a fully integrated fires system into the operations in the information environment (OIE). These teams are what the Marine Corps needs to match Russian and Chinese capabilities and are exactly what the Navy and Marine Corps believes will be critical for success in the OIE: “Navy information warfare hinges on three fundamental capabilities: assured C2, battlespace awareness, and integrated fires.”<sup>6</sup>

ANGLICO extensive relationships with allied forces create immediate access to strategic locations and enable the MAGTF commander to leverage their assets. These relationships are already being utilized by 2D MIG all-domain effects teams. There is currently a team providing OIE battlespace awareness to the British Navy in support of the maiden voyage of their aircraft carrier the Queen Elizabeth.

These opportunities give the MIG and ANGLICO Marines crucial experience on how to shape these all-domain teams as the Commandant’s and the Tri-Service’s Maritime Strategy are implemented. OIE in the competition phase depends on mature, capable teams who have organic assets and personnel who understand and have the proper authorities to take advantage of or to counter hostile nation-states.

These ANGLICO lead all-domain effects teams could quickly transition to conflict by adding additional delivery and detection capabilities such as electronic warfare, cyber intrusion systems, long-range persistent command, control, communications, computers, cyber, intelligence, surveillance, reconnaissance, and targeting, to standoff weapons systems like the High Mobility Artillery Rocket System armed with Naval Strike Missile.<sup>7</sup> These capabilities at the hands of the all-domain effect teams would drastically reduce kill chains and be able to achieve operational- and strategic-level objectives at a fraction of the footprint of comparable elements. This greater capability allows for this team to be assigned missions that would normally be reserved for higher echelon forces and staffs. These teams create a greater degree of flexibility and lessens the degree of risk to the force.

In order to be successful these all-domain effects, teams will require properly spelled-out authorities. The current authorities models are highly centralized with decisions resting at the highest levels. For all-domain effects teams to be fully leveraged, authorities would need to be decentralized to increase the speed to decide (with commander’s intent), detect, deliver, and assess effects to out cycle our adversaries. We need to shift from a delivering information to authorities approach to a moving authorities to the information approach. These authorities must articulate exactly what targets can be affected by which lethal and non-lethal fires, which adversary networks can be exploited, and the ability to influence the narrative to allow for an effective and unified strategy within competition and conflict. Without these spelled out authorities, this construct will not be



**ANGLICO Marines routinely train with and operate alongside allied and partner-nation forces.** (Photo: II MEF Information Group.)

able to operate effectively or at worst, restricted drastically. A solution to this problem, which 2D MIG is currently doing, is through iterative campaigning with allies and partners who already have those authorities. Combining those authorities from each nation with our own fills in the gap required for successful operations on the modern battlefield.

Another issue that arises is one of assets capable to meet the demands of command, control, communications, computers, cyber, intelligence, surveillance, reconnaissance, and targeting in austere environment like the islands of the South West Pacific or on the shores of Eastern Europe. Russian and Chinese forces do not have to focus on C2 that spans large sections of the planet, but we will be required to defend and counter them. For command, control, and communications, more high frequency and satellite communications radios would be needed to achieve these ranges with low probability of intercept and detection in the quantities required to be successful. More capable and cheaper unmanned aerial systems to provide ISR with the additive manufacturing capability is needed to help sustain these small, isolated teams. Electronic warfare capabilities have been neglected for far too long and would need substantial reinvestment to be useful at the

small-scale and long ranges required for the types of competition and conflicts that we are already facing. We can solve this problem set by conducting live experimentation and employment with Marine Corps' and joint forces current capabilities. 2D MIG sent a team to support the Navy's Hershel Woody

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***There are few units ...  
which can match ... a  
task organized ANGLI-  
CO-led all-domain ef-  
fects teams ...***

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Williams, an E-class Navy ship, to gain a better understanding of MIG's and Navy's current equipment capabilities. Fortunately, sizeable amounts of resources are being invested into addressing these gaps, not only by the Marine Corps but also across the department of defense with many of these solutions being fielded in the near future.

In the *Tri-Service Maritime Strategy* and *Commandant's Planning Guidance*, the Marine Corps is seeking to be the scouting and screening force for the Naval Service through recon-

naissance and counter-reconnaissance operations.<sup>8</sup> This article is not to say this is the only way the Marine Corps can counter "Little Green Men" around the world but seeks to open the door for discussion on what the way forward should be. Nor does this concept seek to mirror Russian or Chinese force designs, but it attempts to counter their capabilities and flexibility. There are few units, agnostic of authorities, which can match the capabilities, combined arms and liaison experiences, mature and flexible leadership that a task organized ANGLICO-led all-domain effects teams can provide for the Marine Corps in any competition or conflict around the world.

#### Notes

1. Headquarters Marine Corps, MCWP MAGTF Information Operations 3-32, (Washington, DC: April 2018); Department of Defense, "Advantage at Sea: Prevailing with Integrated All-Domain Naval Power," (Washington, DC: 2020); and Gen David H. Berger, "Preparing for the Future: Marine Corps Support to Joint Operations in Contested Littorals," (Washington, DC: May 2021).
2. Christian Brose, *The Kill Chain: Defending America in the Future of High-Tech Warfare*, (New York, NY: Hachette Books, 2020).
3. Ibid.
4. Ibid.
5. MCWP MAGTF Information Operations 3-32.
6. Marine Corps Combat Development Command, *Tentative Manual for Expeditionary Advanced Base Operations*, (Quantico, VA: 2020).
7. Peter Ong, "Black Sea Drill Again Validates HIMARS As An Anti-Ship Weapon System," *Naval News*, (November 2020), available at <https://www.navalnews.com>.
8. Gen David H. Berger, "Preparing for the Future: Marine Corps Support to Joint Operations in Contested Littorals," (Washington, DC: May 2021).



# Intelligence and the Defense of Cyberspace

Intelligence and personnel requirements for intelligence support to network defense

by Capt Jessica J. Connatser

The Marine Corps is not adequately manning, training, and equipping intelligence sections charged with providing intelligence support to defensive cyberspace operations. This is because of a misapplication of human talent wherein the section is entirely comprised of 0231 Intelligence Specialists, who are ill-suited for the task they are assigned. This article will explore the necessary skills to conduct cyber threat intelligence support, describe what types of intelligence products are necessary to support various cyberspace operations at various levels of command, and will advocate for an interdisciplinary approach to building intelligence support sections with a shared additional MOS to build and retain human talent that will professionalize cyber threat intelligence in the Marine Corps—making the Service more adaptable and lethal in the cyberspace warfighting domain.

There seems to be a lack of consensus on what cyber threat intelligence is. The Director of National Intelligence defines it as:

the collection, processing, analysis, and dissemination of information from all sources of intelligence on foreign actors' cyber programs, intentions, capabilities, research and development, tactics, targets, operational activities and indicators, and their impact or potential effects on U.S. national security interests. Cyber threat intelligence also includes information on cyber threat actor information systems,

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infrastructure, and data; and network characterization, or insight into the components, structures, use, and vulnerabilities of foreign cyber program information systems.<sup>1</sup>

CrowdStrike, a commercial cybersecurity entity, defines cyber threat intelligence as:

Threat intelligence is data that is collected, processed, and analyzed to understand a threat actor's motives, targets, and attack behaviors. Threat intelligence enables us to make faster, more informed, data-backed security decisions and change their behavior from reactive to proactive in the fight against threat actors.<sup>2</sup>

Though the Director of National Intelligence and CrowdStrike differ in their definitions, both describe *technical cyberspace sources* as the foundation of characterizing the threat. In order for an analyst to effectively evaluate and characterize a threat, they must have a foundational understanding of the subject in which they are analyzing. In the cyberspace warfighting domain, the analyst's foundation must be the technical data, sources, systems, and networks contained within cyberspace. The commercial cyberspace community and

intelligence community both recognize the technical requirements to analyze and produce cyber threat intelligence, yet the Marine Corps has not developed this skillset within its ranks. Developing this capability requires bringing cyberspace skillsets to bear for network collection requirements, coupled with all-source intelligence analysts.

The Office of the Director of National Intelligence utilizes a unifying intelligence strategy to comprehensively bring collection and analysis to bear on issues of importance to national security. The Office of the Director of National Intelligence utilizes a unifying intelligence strategy to comprehensively bring collection and analysis to bear on issues of importance to national security. These focus areas are divided up between regional and transnational issues. There are seven regional issues—Africa, East Asia, Europe and Eurasia, Near East, South Asia, Western Hemisphere, and Iran—and there are nine transnational issue areas: counterterrorism, counterproliferation, counterintelligence, cyber, economics, military, space, technical intel, and threat finance.<sup>3</sup> This gives us a baseline understanding for how we tackle the functions of intelligence

analysis: analysts are versed in either a geographic area, which can be broken down further into country-specific focus (China, Russia, etc), or they are versed in transnational issues like counterterrorism or, notably, cyber. The three intelligence agencies responsible for all-source intelligence analysis, the Central Intelligence Agency, Defense Intelligence Agency, and the Bureau of Intelligence and Research at the State Department, provide ample insight into the hiring and training of analysts.

Analysts are hired into topic-specific analytic positions, such as: cyber analyst; economic analyst; leadership analyst; military analyst; political analyst; or science, technology, and weapons analyst. The requirements for these analytic positions require a degree/background in the topic area. (Economic analyst requires a degree in economics, technology requires an engineering degree, cyber requires cybersecurity or cyber operations, etc).<sup>4</sup> This means the Agency will teach new hires the analytic methodologies, building on the base of knowledge the analyst will bring to bear. Junior intelligence Marines have the daunting task of developing both analytic tradecraft skills and a knowledge base for their assigned unit or billet. 0231's conducting analysis at an infantry battalion must build upon their analytic tradecraft taught at the entry-level schoolhouse while also developing understanding of friendly and enemy infantry unit capabilities, such as armored troop carriers and learning their armor thickness, small and medium arms weapons and their employment, and the cultural and doctrinal employment methods of adversaries like China and Russia. If we understand analysis to be a methodology used to understand a threat problem-set that the analyst understands, it immediately becomes clear that a foundational knowledge of a topic is essential for conducting analysis.

Cyberspace was designated as the fifth domain of warfare in 2010.<sup>5</sup> The U.S. military now engages in military operations on land, sea, in the air, space, and now cyberspace. If we understand intelligence analysis is conducted on topics or geographic areas, military intelligence analysis should be understood

to focus on transnational military threat topics and geographic areas within these warfare domains. The Navy focuses on the sea domain and its premiere maritime threat intelligence agency is the Office of Naval Intelligence.<sup>6</sup> The Army and Air Force respectively focus on land and air domains with the National Ground Intelligence Center and the National Air and Space Intelligence Center, respectively.<sup>7</sup> Each domain has unique threat systems with differing tactics, techniques, and procedures that require dedicated intelligence professional competency to evaluate the threat and relate it to the capabilities of friendly systems and forces within that domain. The air domain has aircraft, surface-to-air missile systems, varying

There are key distinctions in the cyberspace domain as compared to the other domains of warfare, which necessitate the development of technical cyberspace expertise for intelligence personnel assigned to cyberspace units. The first distinction is the cyberspace environment, or battlespace, itself. Intelligence personnel must have intimate knowledge of the operating environment, yet 0231 Marines are not trained in cyberspace. Entry-level training develops the 0231's ability to understand the difference between a T72 (tank) and a Boyevaya Mashina Pekhoty (BMP/ Infantry Fighting Vehicle) and apply their understanding of the BMP's capabilities and limitations to the threat characterization of the enemy in the intelligence

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***Marines assigned to the Marine Corps Cyberspace Operations Group ... includes ... Sec+ certification ... training courses at the Defense Cyber Investigations Training Academy, and other ... cyber-specific certification and training events.***

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capabilities for multiple generations of systems, and systems of command and control and tactics, techniques, and procedures for engagement unique to various adversary countries.

Within the Marine Corps, we have dedicated intelligence analytic competency to the air and land domains to support MAW units and various ground units within the MLGs and Marine divisions. Our Marines receive extra professional competency training in these domains through attending Weapons Tactics Instructor School, where students are awarded the 0277 additional MOS, and through the Intelligence Tactics Instructor (ITI) course, which awards the 0233 additional MOS (AMOS). We have not yet developed professional competency in the cyberspace domain of warfare. Addressing this gap will require both the intelligence and cyberspace occupational fields to work in tandem to support intelligence analysis and intelligence operations in cyberspace.

preparation of the battlespace planning process. They are not taught the difference between a router and a switch, the purpose of a Domain Controller, nor the purpose of the Domain Name System. Our current method of training and employment of 0231 Marines assigned to cyberspace units is backwards from the foundational model of teaching analytic tradecraft on top of an area of intelligence focus. Instead, they are taught entry-level analytic tradecraft in the schoolhouse and are then assigned to cyberspace units per the needs of the Marine Corps wherein they must learn cyberspace-specific skills. Current training for 0231 Marines assigned to the Marine Corps Cyberspace Operations Group and other defensive cyberspace units includes having those Marines acquire Sec+ certification, attend training courses at the Defense Cyber Investigations Training Academy, and other various cyber-specific certification and training events. This training develops foundational knowledge of cyberspace

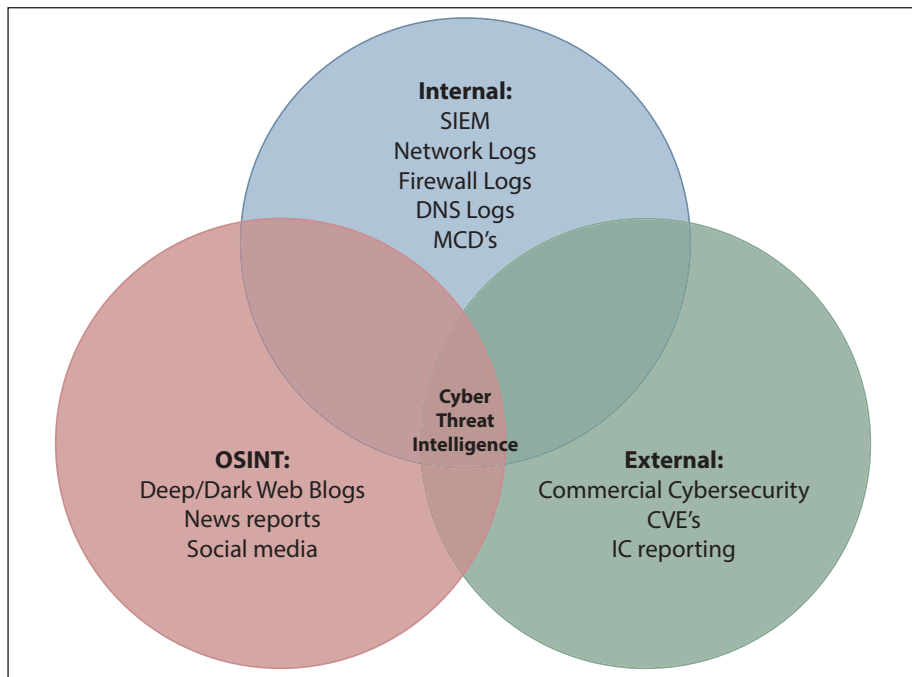


Figure 1. (Figure provided by author.)

terrain, terms, and capabilities which are essential for being able to support the development of cyber intelligence. This is an excessive amount of training to ask of a junior Marine—or anyone for that matter—to develop an entire knowledge base outside of their primary MOS. The acquisition of these certifications and the pursuit of cyberspace skills results in the atrophy of their fundamental MOS skill sets as outlined in their *MOS Manual* and the individual training and readiness events they are charged with demonstrably executing. The allocation of the right mix of human talent is essential to developing intelligence in the cyberspace environment.

Cyberspace threat intelligence is less reliant on traditional intelligence sources. Traditional intelligence collection platforms collect intelligence within various intelligence disciplines. Human intelligence, signals intelligence, measurement and signature intelligence, geospatial intelligence, imagery intelligence, and open-source intelligence (OSINT) are all used together to collect on areas of interest in the *physical* warfighting domains. It is not controversial to say some intelligence disciplines, like geospatial intelligence, have limited applicability in the cyberspace environment, especially

in the defensive environment. Within the cyberspace domain, there are essentially two categories for sources of intelligence: internal threat network intelligence and external threat network intelligence. External threat intelligence can be divided in two subsections that address OSINT and commercial and intelligence community reports. Figure 1 provides a graphical depiction of how these sources relate together.

Internal threat intelligence requires information technology organizations to source and analyze data from their

network(s) inside the DOD Information Networks (DODIN) boundaries, commonly referred to as blue space. Each federal agency and Service in the armed forces operate and maintain their own networks within the DODIN, creating adjacent sources and entities within blue space. The sources for internal threat intelligence for the Marine Corps come from the Marine Corps' primary information network—the Marine Corps Enterprise Network (MCEN). The sources of MCEN internal threat intelligence are the security information and event management software, Domain Name Systems logs, firewall logs, Marine Collection Database investigations, and other sources as the MCEN adapts and implements new technologies.

External intelligence sources are the more traditional sources of intelligence with the addition of the rapidly expanding commercial cybersecurity sector that collects and produces cyberspace intelligence from grey space reporting. Grey space is the commercial internet outside of the boundaries of the DODIN. OSINT is where analysts can collect within the deep and dark web and gain access to malicious cyber actors selling cyber tools, discussing intentions, and discover stolen Marine Corps credentials. Red space is defined as the adversary's networks. Intelligence from within red space will come from traditional technical intelligence sources, like signals intelligence, in the form of

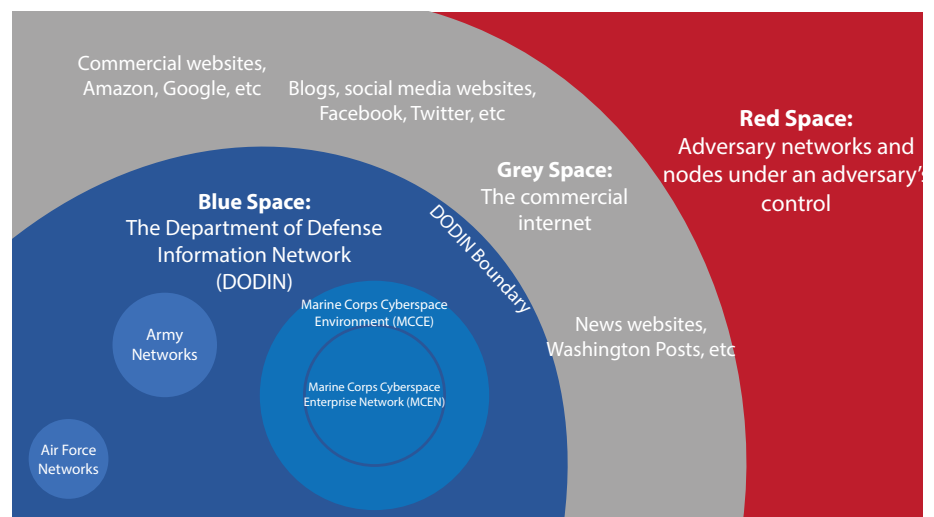


Figure 2. (Figure provided by author.)

reporting from the intelligence community agencies. Understanding these sources of cyber threat intelligence allows us to align specific techniques to the collection and analysis of cyber threat intelligence. A graphical depiction of the cyberspace domain of warfare is depicted in Figure 2.

The most challenging mindset shift for intelligence to support defensive cyberspace operations and the secure, operate, and defend mission requires all personnel to understand that the blue force network, or the Marine Corps Cyberspace Environment network sensors are a collection asset. It is counterintuitive to think of any blue terrain, or friendly terrain, as the area requiring intelligence collection. However, when it comes to deriving intelligence of value, the defended network itself is the primary source of critical intelligence because it contains the adversary's activity.

Reducing the burden of developing cyber specific skills in 0231s can be accomplished through employing the currently existing MOS of 1721 Defensive Cyberspace Operator or the newly developing 1731 Marine in intelligence sections, who bring foundational cyber knowledge to bear; 1721 training and readiness events have an intelligence flavor that suit the conduct of intelligence support. These events include: 1003: conduct forensic analysis; 1005: conduct system research; 2002: identify potential compromise; 2003: analyze system architecture; 2004: identify anomalous network behavior; and 2005: conduct risk analysis.<sup>8</sup> These 1000- and 2000-level events are skillsets the 1721 Marine would immediately be able to bring to bear to the intelligence section upon assignment. These specific skills are necessary for the conduct of intelligence support to defensive cyberspace operations in a multidiscipline fashion. Partnering 0231's with 17XX's creates a multi-disciplinary intelligence section that leverages the cyber skillsets of the 17XX and the analytic tradecraft skillsets of the 0231 to develop cyber intelligence in support of cyberspace units with the secure, operate, and defend mission.

Employing 17XX's in an intelligence section allows them to bring their ex-

pertise of blue-force capabilities, cyber weapons, and understanding of networks to the intelligence section. 17XX's can play many roles in the intelligence section. The primary function will be to conduct collection operations using network sensors and creating intelligence reports from this data. Intelligence reports derived from the data acquired by network sensors will characterize network activity, looking for anomalous behaviors and events. 17XX's can also characterize threats from community reporting. There are thousands of cyber intelligence threat reports from commercial vendors, but quickly discerning which reports are applicable to the defended network is the most important part of the process of producing meaningful and actionable intelligence. For example, a report about Iran using destructive malware on Saudi Arabia is of intelligence value. A 17XX can quickly characterize that threat in relation to the blue force network through understanding what aspects of that malware are blocked at

The proposed employment model seeks to recognize the cyberspace occupational field is not yet at full capacity and is low on manpower. It also seeks to recognize that not all 17XXs possess the same knowledge set, in the same way it acknowledges not all 0231s possess the same analytic competencies. The 0231 community is also being pulled in myriad directions, and professionally developing them and employing them in roles within their skillsets is essential for the health and retention of the community. To optimally employ both 17XXs and 0231s, the forthcoming model seeks to provide commanders greater flexibility while enhancing the Marine's skillsets and expertise. These billets would be filled for one year and would be sourced internally on a rotational basis within the command. The rotational basis with one year in the billet (or less, based on the commander's needs) allows the 17XXs to develop the network-specific knowledge of their unit that is required to optimally

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***Defensive cyberspace operators ... currently do not have a professional requirement for education in the adversary's threat capabilities ...***

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various DODIN boundaries or firewalls, and which are not, and how the blue-force network may be vulnerable to that threat. The 0231 can then leverage their analytic skillsets to combine network event data with intelligence community reporting and fusing it with their understanding of adversary capabilities and intent in order to develop the most likely and most dangerous courses of action. This framework is not meant to absolve 0231s of developing cyber knowledge and skills entirely. 0231s absolutely must learn cyberweapons, capabilities, and have a basic competency in networks while they are serving in a cyberspace billet. The employment of 17XXs in the intelligence section rather allows the intelligence to be more technical, more network-specific, and enhanced in understanding of the threats posed to the defended network.

understand it and subsequently defend it. Further, a "tour" in the intelligence section professionalizes the 17XX by imbuing them with threat expertise that they would not get otherwise. The goal is to enhance each Marine's career and professional development, and a tour in the intelligence section would allow 17XXs to become familiar with threat trends, adversary cyberweapons, and increase basic knowledge and understanding of the adversary. Pilots develop expertise on threats to their aircraft through briefing requirements for various flights and qualifications. Infantry Marines develop competency in adversary tactics through professional reading and military education. Defensive Cyberspace Operators, 1721, currently do not have a professional requirement for education in the adversary's threat capabilities they are expected to defend

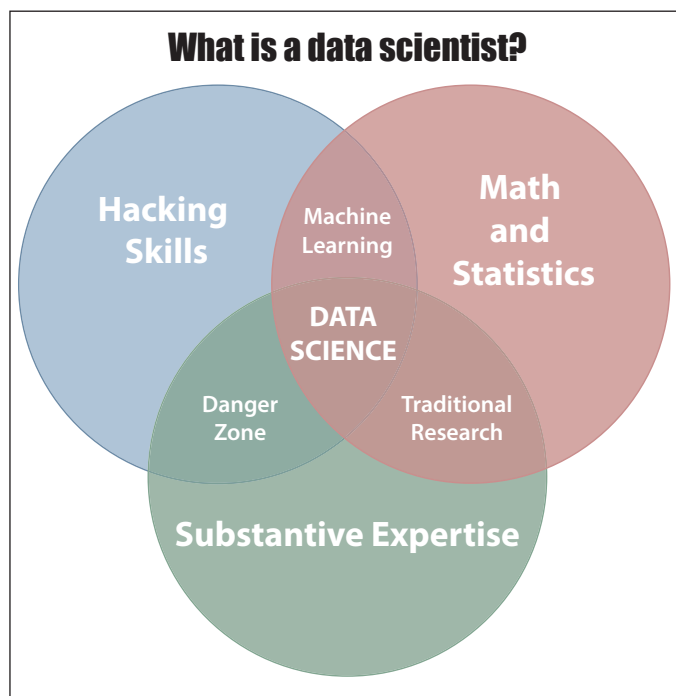


Figure 3. (Figure provided by author.)

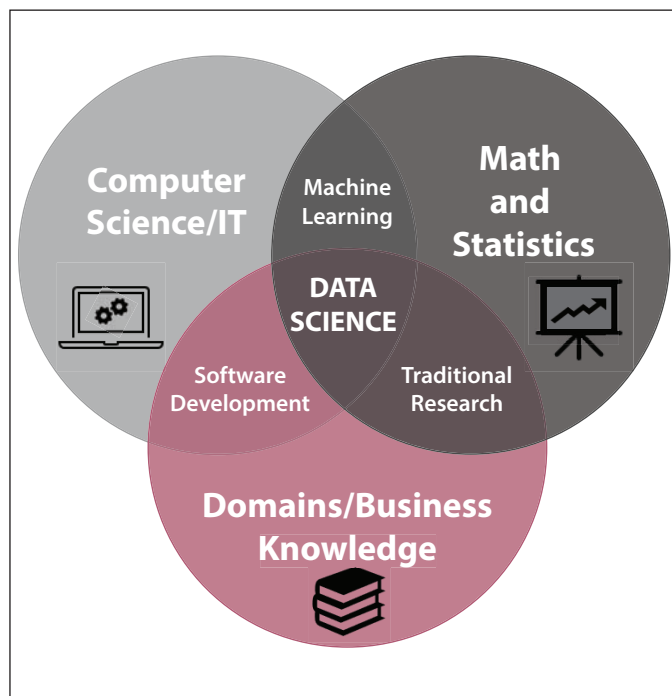


Figure 4. (Figure provided by author.)

against. Employment in the intelligence section can bridge that knowledge gap. A tour in the intelligence section should result in the awarding of an additional AMOS, such as 0217, Cyber Threat Intelligence Analyst, to allow the Marine Corps occupational fields responsible managing talent and personnel to see how many Marines have developed cyber intelligence skillsets and knowledge. Until a formal MOS producing school is created, the 0217 AMOS would be awarded after a one-year tour in the intelligence section for both 17XX Marines and 0231s. The AMOS allows for the monitoring of population skill and potential follow-on assignment to Marine cyberspace units or joint cyberspace billets. This experience should be recognized by the wider Marine Corps community on promotion and selection boards, so the Marine Corps is able to appropriately manage and develop technical talent within the ranks.

The Marine Corps is developing the 2652, Intelligence Data Engineer, who will be trained in data science tradecraft. This occupational specialty is essential to meet the demands of aggregating and synthesizing voluminous amounts of data in order to sense and make sense of otherwise imperceptible pieces of

data. Data science is defined as “an inter-disciplinary field that uses scientific methods, processes, algorithms, and systems to extract knowledge and insights from many structural and unstructured data.”<sup>9</sup> A data scientist’s skills are outlined in Figures 3 and 4.

As we can see in Figures 3 and 4, data scientists possess the mix of cyber and analytic skills that are essential for

must have access to the sensors and must be able to make sense and aggregate data in order to support sensor operators with incident responses with fused intelligence. Employing a data scientist at the enterprise level within the intelligence section will enhance intelligence production that is specific to the supported command and will generate *network specific* intelligence.

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***The Marine Corps is developing the 2652 Intelligence Data Engineer who will be trained in data science tradecraft. This occupational specialty is essential ... to sense and make sense of otherwise imperceptible pieces of data.***

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trending cyber incidents on the network that can then be correlated against intelligence community reporting to discern potential malicious cyber actor activity against the MCEN.<sup>10</sup> As our network software and sensors develop, it will not be sufficient to simply send this data from the sensor operators to the intelligence section as part of staff coordination. The intelligence section

The size of the intelligence section will vary with the mission of the unit they are supporting. Tactical-level operations require tailored technical support. For example, hunt missions need technical intelligence of advanced persistent threat in the form of the signatures of their malware and various exploit tools are essential for finding the adversary. At the enterprise level, intel-

Intelligence support ranges from situational awareness of threat actors and recent events that affect network hardening decisionmaking to supporting specific operations ranging from DCO web assessment missions to prioritizing patching vulnerabilities in DODIN operations. Mission enhancement, professional development, and career enhancement are the goals of this manning proposal. Figure 3 depicts the proposed structure of the intelligence sections at the Marine Corps Cyberspace Operations Group and subordinate units charged with conducting DCO missions.

Generating better intelligence support is essential to meet the demanding needs of the information environment during great power competition. At the end of 2020, Russia conducted the greatest cyberattack on American government networks and infrastructure in history via the SolarWinds intrusion.<sup>11</sup> The analysis of this event is still ongoing, and it will likely take months to years to fully assess the damage. The assumption moving forward should be that compromises shall continue and will only grow more lethal in tradecraft that is harder to detect. The solution to the commander's requirement for cyber threat intelligence is the employment of 17XX's alongside 0231s to appropriately provide the technical and analytical tradecraft requirements. Intelligence sections must take an interdisciplinary, fusion approach, and no longer task only 0231s with meeting the challenge at the group level and below. Mixing professional skills focused on the cyber threat intelligence problem will enhance threat assessment and intelligence collection in support of cyberspace operations. The 1721 or 1731 Marines who serve intelligence tours in cyberspace units must be recognized with the 0217 AMOS, which enables the Service to track their progression for follow-on assignment throughout the cyberspace community. Additionally, 0231 Marines serving in cyberspace units should earn the 0217 AMOS to track their progression as well. This talent management is essential for developing and professionalizing the intelligence and cyberspace forces who are meeting the realtime challenges in the

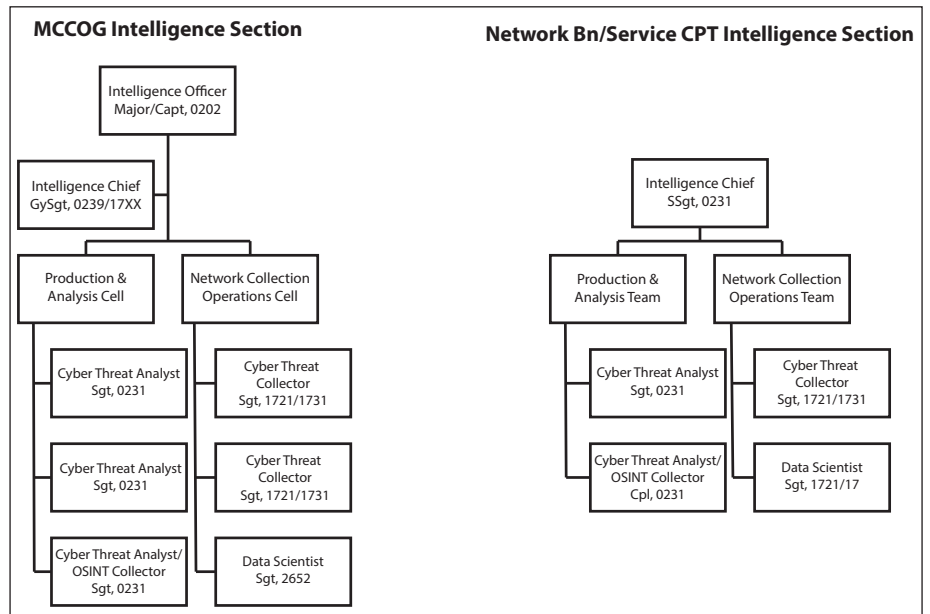


Figure 5. (Figure provided by author.)

cyberspace domain. This will enable MARFORCYBER, the fleet operating forces, and the Marine Corps as a Service to leverage technically trained, developed, and experienced intelligence and cyberspace personnel in a multi-domain warfare environment. The threat grows and adapts daily, and it is imperative that we adjust our personnel management and employment to meet the challenges we will continue to face.

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# Failed Strategy in Cyberspace

Reliance on foreign supply chains

by Maj Patrick Hylant

**F**ailed domestic policies and strategies have allowed the cyberspace warfighting domain to be increasingly, if not wholly, reliant on foreign supply chains—mainly from China. This article evaluates the President’s National Cyber Strategy of 2018, conducts an analysis of the cyberspace supply chain’s threats and dangers, and makes recommendations on securing the cyberspace domain.

## Failed and Failing Strategy

The President’s National Cyber Strategy of 2018 addresses many of the security concerns that the DOD and the United States face as a whole. Still, it only briefly identifies and, for the most part, glosses over the United States’ most critical vulnerability: reliance on foreign hardware manufacturing from China. The strategy states explicitly that it will promote an adaptable, sustainable, and secure technology supply chain that supports security based on best practices and standards.<sup>1</sup> However, it fails to identify and address U.S. reliance on foreign hardware acquisitions and procurements. Chinese hardware at the microelectronic component level through complete electronic systems comprises most of the cyberspace infrastructure. It represents 90 percent of the world’s smartphones, computers, and other electronics.<sup>2</sup> Reliance on more than 90 percent of the supply from one country is not a sustainable supply chain approach. Ironically, China understands the need for self-reliance in cyberspace supply chains and is attempting to remove the United States as part of its microelectronic supply chain. Communist leaders see advanced technology as a path to prosperity and to restoring

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China’s national greatness. Xi Jinping is quoted as, “Self-reliance is the base of the struggle for the Chinese nation to stand among the peoples of the world.”<sup>3</sup> The Chinese know that their technology is behind the United States when it comes to technical advancement, and they will steal what they do not have. On multiple stages, Gen Alexander has described the Chinese theft of American intellectual property, which is the “greatest transfer of wealth in history,” likely costing the United States upward of \$400 billion per year.<sup>4</sup>

## Threats and Dangers

Often overlooked and misunderstood is how aggressive China is in the cyberspace domain. China is using cyber espionage for military and economic advantages. In 2018, the Justice Department estimated that more than 90 percent of economic espionage cases involved China, and more than two-thirds of the cases involved the theft of trade secrets were connected to China; this is in spite of China’s 2015 pledge not to use espionage for their economic benefit.<sup>5</sup> One primary attack vector that could be easily used by China is a supply chain attack where counterfeit electronic parts are intentionally introduced into the supply chain. The key to understanding a supply chain attack is understanding what constitutes a counterfeit part and how parts can be

injected into the system. A counterfeit electronic component is defined as an unlawful or unauthorized reproduction, substitution, or alteration that has been knowingly mislabeled, misidentified, or otherwise misrepresented to be an authentic, unmodified electronic part from the original manufacturer or a source with the express written authority of the original manufacturer or current design activity—including an authorized aftermarket manufacturer.<sup>6</sup> As per the Federal Acquisition Regulations definition, China has, in fact, intentionally infected U.S. cyberspace interests with compromised hardware. During a top secret probe, which remained open more than three years, investigators determined that counterfeit chips allowed the attackers to create a stealth doorway into any network that included the altered machines. Multiple people familiar with the matter say investigators found that the chips had been inserted at factories run by manufacturing subcontractors in China.<sup>7</sup> Since most U.S. original equipment manufacturers manufacture in China, there is a much higher likelihood of inserting intentionally compromised equipment with backdoors into the U.S. supply chain at U.S.-operated facilities in China.

## Broken Policy with Good Intentions

The United States needs a whole of government and industry approach to

break the dependence of Chinese manufactured micro electrotonic parts. Small policy advancements such as the Trade Agreement Act (TAA) have proven incapable and inefficient when trying to break the reliance of foreign original equipment manufacturers and U.S. corporations that manufacture in China. One example of a failed TAA regulation is the policy stipulation: provide a certificate of origin or certification from the manufacturer verifying that all products represented as manufactured in the United States or a designated country are TAA-compliant.<sup>8</sup> Ultimately, this policy has done nothing to prevent Chinese manufacturing but instead introduced an additional step into the process: the assembly of Chinese components in the United States with a “Made in the USA” sticker on the device. The policy fails to address where sub-components are manufactured. Components of the size of a grain of rice, which can create vulnerabilities into a network, may now have “Made in the USA” on them. Ultimately, if the United States wants to remove China from the supply chain, U.S. corporations have to return manufacturing to the United States. At this time, the incentives to move micro-electrotonic manufacturing back to the United States do not exist. The United States will need a significant paradigm shift of the corporate tax code, laws, and incentives to protect our supply chains that, at this time, are too arduous to overcome.

### Conclusion

The hyper reliance on Chinese hardware, coupled with inadequate U.S. policies and strategies, should be alarming to U.S. policymakers, legislators, senior government officials, and American citizens. Increasing U.S. reliance on China for microelectronics while China is strategically and systemically attempting to remove the United States from Chinese supply chains can be likened to the pre-positioning of a Pearl Harbor-like cyber event. U.S. national security is becoming ever more threatened by China as each day goes by. Outside of the attack vectors mentioned in this article, China has an even easier alternative. They could simply cut

off all micro-electronics exports to the United States, which would hold the Nation hostage for years to come in the cyberspace domain. If the United States does not immediately address these strategic gaps in policy, China will surpass the Nation as a near-peer adversary in all warfighting domains.

### Notes

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# Foreign Language Capabilities

Improved talent management is needed

by John Durish, Kevin Johnston & Maj Genevieve Studer

The expeditionary nature of the Marine Corps demands a talent management system that aligns foreign language capabilities with a wide array of mission requirements. These requirements include, but are not limited to, the ability to directly engage foreign nationals in their native language, perform intelligence operations, and enable war-fighting functions inherent to security cooperation, expeditionary advanced base operations, and beyond. In his recent *Interim National Security Strategic Guidance*, the President of the United States repeatedly highlighted his strategy to lean on diplomacy as the primary posture for international relations and a focus on rebuilding the Nation's network of alliances and partnerships. At this time, however, the Marine Corps is hampered by a manpower system that the 38th Commandant describes as, "designed in the industrial era to produce mass, not quality." In his 2019 *Commandant's Planning Guidance*, Gen David H. Berger explains:

We assumed that quantity of personnel was the most important element of the system, and that workers (Marines) are all essentially interchangeable. As the complexity of the world has increased, the spread between physical jobs and thinking jobs has increased dramatically. War still has a physical component, and all Marines need to be screened and ready to fight. However, we have not adapted to the needs of the current battlefield.

The Marine Corps' need for foreign language capabilities across the fluency spectrum will increase in the coming years. As Marines deploy around the

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world, they conduct operations and have direct communication with local nationals. Furthermore, it is important that Marines possess these foreign language capabilities and that the Marine Corps not over rely on contracted employees. Contracted linguists, interpreters, and translators do not always understand military jargon or culture and lack the physical capabilities of Marines, limiting their full employability in austere locations. Marines who can support their commands with language capabilities can help ensure successful mission completion; their presence can save lives not only on the battlefield but also limit collateral damage among local populations.

To address talent management issues such as these, the Assistant Commandant of the Marine Corps, via the Talent Management Executive Committee, established a Language Operational Planning Team (OPT) to examine language testing and capability utilization. During its investigations, the OPT recognized that *the Marine Corps is unable to effectively and accurately identify language requirements, which results in validation and management gaps for foreign language capability at every Marine command echelon.* These

gaps result in decreased readiness and an inability to posture the right Marine, with the right language, in the right place, at the right time. The OPT developed three principle lines of effort to improve language talent management: enhance the Marine Corps' ability to identify language requirements, assess if the Marine Corps effectively validates language capabilities, and analyze existing talent management of language capabilities in order to identify areas to improve. These lines of effort are designed to benefit critical MOSs by identifying language capable Marines at the beginning of their careers, possibly offsetting the cost of training them at the Defense Language Institute Foreign Language Center. These identified Marines could also be better candidates for a Foreign Area Officer/Foreign Area Senior non-commissioned officer billet or even for a career in Marine Corps Forces Special Operations Command. Every special forces or special operations team require enablers (medics, drivers, supply Marines, cooks, etc.); therefore, regardless of their primary MOS, language-capable Marines can fill a pivotal niche. Every Marine is first and foremost a rifleman; even if they are not selected for one of these options, the

additional language skill set potentially makes them invaluable assets on routine missions.

Identifying requirements for depth and breadth of language capability across the fluency spectrum is the first step to solving how the Marine Corps employs its language capable Marines. As the Nation's premier force in readiness, the Marine Corps faces threats ranging across the global commons, where Marines regularly find themselves in contact with a wide array of foreign language speakers. In an environment where over 6,000 different languages and dialects are spoken, determining which language will be needed and when is a complex but not impossible task. The Language OPT has identified broad functional areas—including security cooperation and operations in the information environment—to examine and is taking steps to improve how force development requirements are formulated. In lieu of a perfect solution, the Language OPT must continue to look at the other broad problem sets of identifying individual language capabilities and managing Marines' talents. The Language OPT will seek to follow the *Commandant's Planning Guidance* and "not wait for perfect clarity when it comes to forecasting the future operating environment," ensuring that perfect does not stifle movement in the right direction.

Once capability requirements are recognized, the Marine Corps needs to improve how it identifies latent foreign language talent. The problem of identifying language-capable Marines lies in recognizing, assessing, and reporting capabilities. Marines can self-profess a language capability in Section I, Part 13 of the DDI966 when they enlist or by filling out a simple module on *Marine Online*. Although not required, when Marines do choose to profess a language skill, the current system does not require them to undergo an official assessment via the DOD's standardized test, the Defense Language Proficiency Test (DLPT). The DLPT is currently the Marine Corps' only method of identifying and tracking language capability across its ranks. Nurturing and then capitalizing on those capabilities in the

right context remains an additional hurdle for the Marine Corps today. It takes years to master a language, and it is a perishable skill. Revamping how the Marine Corps identifies, tracks, and retains existing language talent is a first step in being more proactive—especially with the recognition of the difficulty of forecasting future conflict zones.

Once language speakers are identified, they must be effectively tracked and their skill set made available to commanders at every level; this is the simple crux of talent management. Communicating language capabilities across the Marine Corps requires a ubiquitous information system linked between commands and accessible at all echelons. In the simplest terms, a commander cannot use what he does not know that he has. Currently, there are several disparate systems that make finding language capability information difficult for even the savviest leader. As a result, even if a Marine has self-identified, or taken the DLPT, the results are not always readily available—or clear—to commanders. To optimize talent management at the tactical level, DLPT scores must be as readily available as physical fitness and marksmanship scores. This current lack of visibility of language capability prevents units from communicating with Allies with whom they are training and potentially deprives linguistically qualified Marines of the opportunity to highlight those abilities in the field and on behalf of their units' missions. A possible solution involves linking the DLPT information that is stored in MCTFS and *Marine Online* to Command Profile and to delineate a Marine's DLPT score with a date or to mark it as "self-professed and untested."

In support of identifying language capabilities and enabling talent management, the Marine Corps must do a better job of incentivizing Marines to self-identify and address ad hoc capability requirements. There are several potential incentives for Marines to take the DLPT without incurring additional financial burdens to the enterprise. For example, encourage Marines to take the DLPT by incorporating test results

into the overall cutting scores for junior Marines and educate small unit leaders on the potential value to both the individual Marine and the Corps. Additionally, new recruits can be promoted directly to private first class out of Boot Camp if they score above a 2/2 on the DLPT. Midshipmen in Marine ROTC scholarship programs and at the U.S. Naval Academy are not currently required to take language courses as part of their bachelor's degree education. Offering DLPT opportunities for midshipmen and incentivizing taking the test through academic standing scores either toward graduation or at The Basic School after commissioning may help the Marine Corps identify incoming language talent.

Increased visibility of language capability at the unit level will enable units training OCONUS to identify language speakers within their ranks who are ready to provide immediate, accurate, and unbiased translations. In addition to resolving language problems, these Marines will also help their peers bond more easily and quickly with their allied nations and partners at the tactical level. Once these steps are enacted, not only the individual Marines but the Corps writ large stand to benefit. Marines will have their valuable skills documented and have more flexibility in pursuing a career path they desire. This flexibility will result in higher retention rates and help the military retain its most needed skill sets. Additionally, the Marine Corps will enjoy newfound capabilities and skills, ensuring adaptability in environments where foreign languages are prevalent. Implementing the cost-efficient controls proposed in this article is a small part of ensuring that the Marine Corps remains the world's most lethal fighting force.



# Hiding in Plain Sight

OpSec for the 21st century

by Maj John G. Long III, PhD

**L**egend has it that if you catch a leprechaun, he must take you to his pot of gold. One day, a lucky Irishman caught a leprechaun napping in the woods, who dutifully agreed to show him where his gold was buried. Deep in the woods, the leprechaun pointed out the tree under which he had buried his gold then demanded his freedom. The Irishman, needing to retrieve his shovel from home to dig up the gold, and worried he would be unable to find the tree again, marked it with a red string and extracted a promise from the leprechaun that he would not touch the string. He then freed the leprechaun and ran home to get his shovel. When he returned, he was dismayed to find that while the leprechaun had kept his promise not to touch the original string, there were now identical red stings on every tree in the forest. The Irishman spent the rest of his life digging under trees, but never found the gold.

The proliferation of easily networked sensors combined with the increasing ef-

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fectiveness of precision lethal fires have made detection by an adversary tantamount to destruction. On a battlefield where being observed rapidly leads to being destroyed, concealment will be critical to survivability. Yet, judging by how we act today, we have lost the art of concealment. Nearly two decades of combat against clever but technologically unsophisticated foes have dulled us to the need of not being seen.

Based on how we act, many Marines seem to misunderstand concealment, or

at least they have a myopic view of how to achieve it. Concealment—as per its military definition—is protection from observation or surveillance. What does it mean for an object to be protected from observation (i.e., unobserved)? It does not necessarily mean invisible or unseen. It means the target cannot be discerned from its surroundings. A well-camouflaged object can be hard to pick out even when you are staring right at it. We attempt to conceal ourselves when we use camouflage to make ourselves look like our surroundings. But there is another route to concealment—instead of making ourselves look like the surroundings, we can make our surroundings look more like us.

The leprechaun used the second method. The tree with the red string under which the gold was buried was left untouched after the Irishman left and was still sitting there in plain sight when he returned. But now, every tree had a red string, so the tree with the gold looked the same as every other tree. Concealment was achieved not by changing the target tree but by changing the forest.

**To Be a Needle in a Haystack, Bring Your Own Hay (or a Lot More Needles)**

As we plan and prepare for conflicts with sophisticated adversaries against



**Natural camouflage.** (Photo by Sgt Michael Connors.)

whom detection is tantamount to destruction, we need to be prepared to employ both methods of concealment: making ourselves look like our surroundings and making our surroundings look like us. There will be times when one method is easier to employ or provides more benefit than the other. But there will likely be times when employing both simultaneously can make it all but impossible for an adversary to detect us in time to take counter action.

This is particularly important when we move beyond talking about being seen in the visual spectrum and start thinking about a unit's electromagnetic (EM) signature. Modern military forces bring with them a plethora of radio communication devices—HF, VHF, UHF, SatCom—a veritable alphabet soup of acronyms that I will not waste page space by listing. Suffice it to say, when our adversaries look in the EM spectrum, U.S. forces show up like a sparkle of fireflies on a dark night.<sup>1</sup>

Our adversaries are aware of this and have made great strides in improving their ability to detect us so they can close the reconnaissance-strike kill chain. We too are aware of this and have put a growing effort into minimizing our EM signature to thwart them: we have instituted emission-control protocols so that units only transmit what and when necessary; we have invested in low signature radios that utilize low power, burst, or narrow-point transmission; and we have even looked at our SOPs to minimize the amount of information we need to transmit to communicate (i.e. do not send a 50-slide PowerPoint deck when a text string will do).

But these efforts will not be enough. As an increasingly networked force, our communication needs will only grow. Clever technology will slow the rate of growth, but there is no magic pixie dust that will reduce our emissions. We will therefore increasingly find ourselves on the wrong side of an investment/counter-investment arms race—one in which the seeker has an easier job than the hider. For each move/countermove, the hider must invest more to establish an edge than the seeker does to regain parity. This asymmetric payoff profile

will force the United States to invest much more to hide than a seeker will need to invest to find us. Against an adversary with limited means, we can win this investment race. Against a peer, we cannot.

Instead of continuing along the path where we bankrupt ourselves trying to be invisible, we need to pursue options that reduce our need to be invisible. This will have the dual benefit of not only being cheaper but also far more

be too late. We could use this time gap to our advantage in a strike or raid, or to move to a new location. Nor should we underestimate how introducing uncertainty into the enemy's understanding of the battlespace can complicate their decisionmaking.

One could envision this as a job for drones. A large swarm of drones dispersed over a wide area could easily provide the excess signals to serve as a screen. A longer mission might call

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### ***Instead of continuing along the path where we bankrupt ourselves trying to be invisible, we need to pursue options that reduce our need to be invisible.***

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likely to work. To return to our firefly analogy, we need to think less about making ourselves glow less to blend in with the dark of the night and more time trying to make the night less dark so that it blends in with us.

Framing the problem in these terms opens up a host of possible solutions, many of which are far less expensive to implement, some of which could even be implemented today with off-the-shelf technology from Walmart. I leave it to the reader to think of more, but here are a few options to start the thinking.

#### **Put Out a Lot More Fireflies**

A ship in the open ocean or a Marine firebase trying to blend in on an atoll stand out because there are no other emitters anywhere near them, making them easy to pick out against the background. But if U.S. forces, operating in a contested environment, deployed hundreds (if not thousands) of decoy emission sources that saturated the battlefield with EM emissions that were indistinguishable from actual units, it could greatly complicate adversary targeting.

A robust, realtime decoy plan may not be perfect, but employing it will have some complementary benefits. It will make it harder for the enemy to locate us, forcing them to divert resources from other tasks to this one. Even if they do eventually locate us, by then it may

for cheap but reusable drones, whereas a snap or popup mission may be accomplished with even cheaper, disposable drones (perhaps 3D printed). One could even envision a Marine Corps in which we stood up units for this very purpose (a Screening Company as part of a Low-Altitude Air Defense battalion for example) or updated our doctrine or command relationships in which we defined defense as a continuum: from signature management through decoys to point defense (another LAAD battalion mission). An even more clever solution might involve those drones establishing a wide-area mesh network in which they act as retransmitters; their density and dispersion could lower our power requirements to communicate while making it impossible for the enemy to destroy them all.

#### **Make the Oceans Noisy**

*The Hunt for Red October* has a memorable scene in which a Soviet Typhoon class submarine gives off an acoustic signature that a U.S. attack submarine's targeting computer interprets as "whales humping." Though fictional, this example highlights the reliance of undersea warfare on very sensitive acoustic measurements. The Navy has invested huge amounts of money ensuring the United States has the quietest submarines in the world. But does this matter?

Instead of making subs quiet, what if we made the ocean noisier, making it more difficult to hear the sub over the background noise? It is hard to understand someone talking over a loud noise, and this applies to submarines as well. Though less applicable to the open ocean, this may be a viable option for localized operations in a contested littoral area.

### If We Don't, They Will

A frequently repeated maxim of war is “the enemy gets a vote.” Possibly the only thing more frequent than people saying it is institutions ignoring it. The forces that turn individual wisdom into collective stupidity are a fundamental part of military organizations. But they are even more powerful when there exists a large capability gap between adversaries, an inflection point in the balance of power, or disruptive technology.

To a much greater degree than they will usually admit, long-dominant powers have institutionalized their way of fighting and thinking. This leads to institutional inertia that makes it difficult for them to view problems in a new way. Upstart or revisionist adversaries do not have that problem. They want to change things and have no vested interest in the status quo. They, therefore, focus on weak points that are susceptible to pressure and rarely challenge a status quo power head-on.

The *Kriegsmarine* realized it could never achieve battleship superiority over the Royal Navy and thus focused on submarine warfare, wreaking havoc with British naval doctrine. The British found this so disruptive that they attempted to have submarines declared illegal to preserve their surface superiority. Similarly, an upstart today unable to deploy subs as quiet as ours may decide making the ocean off their coast noisy gives a better return on investment than trying to match our quietness. They will have gained parity with us for far less cost. And if they can hide their subs for less, why can't we? Why should we spend billions making quiet subs when we can spend millions making the oceans noisy, achieving the same thing?



**In addition to making submarines quieter, resources are required “to make the ocean noisier” as a means of camouflage. (Photo by Petty Officer 1st Class Jason Swink.)**

### Everything Old Is New Again

If the ideas presented above seem revolutionary, they should not. Decoys are not a new idea. Flares are deployed by aircraft to give a heat seeking missile something else to aim for. Chaff, an even older idea, was developed as a very simple way to confuse enemy radar. Going back further, the Romans would light extra campfires at night to make their army seem larger than it was (or

mask the fact that part of it had peeled off from the main force to surprise the enemy).

Examples can be found in modern times as well: the Marine Corps operated EA-6B Prowlers in three VMAQ squadrons for over three decades until the final stand down of VMAQ-2 in 2019. The aircraft was an electronic warfare platform which could, amongst other things, jam enemy radar by put-



**Use of decoys like the Miniature Air-Launched Decoy (MALD) ADM 160X is nothing new. (Photo by Airman 1st Class Celeste Zuniga.)**

ting out an overwhelming signal that made it difficult to distinguish actual aircraft above the background noise (the EM version of making the ocean too noisy for sonar to be useful).

As we refocus our attention on great power competition, we will need to re-discover the ideas of military deception. Simply trying to not be seen is an amateur's tactic; professionals will look at the full spectrum of options on how they can prevent an enemy from identifying them. As they do so, they will see that this opens up a range of options whose outcome is actually a key part of maneuver warfare: creating confusion in the mind of the enemy.

Part II of this article will expand upon the idea that the tenets of maneuver warfare dictate that we should focus not on keeping the enemy unaware of our options but on forcing them to prepare for multiple friendly COAs. Being forced to do so will prevent them from preparing for any single COA—weak-

ening their response—as well as keeping them guessing to what our actual COA is, thus delaying their response to it.

### Conclusion

The ideas presented above on how units can conceal themselves are an effort to expand the thinking in the Marine Corps about what it means for the enemy to not know where you are. There is more to it than they just do not see you. Maybe they do see you, but do not realize they are looking at you. Or maybe they see hundreds of copies of you, but do not know which the real one is and become paralyzed by that indecision. This should be a standard part of our operational planning in the days to come.

It is also an effort to reframe the thinking on what technologies we should be investing in to win the hider/finder battle. We have a tendency to choose the expensive and technologically sophisticated solution at the ex-

pense of the simple and workable. This is a legacy of our nation's overwhelming technological and economic superiority, which allowed us the luxury of such massive spending that we did not have to consider our return on investment. We no longer enjoy this advantage over peer adversaries and need to reorient our decision making to focus on the science and technology investments that will give us an actual and affordable advantage.

### Notes

1. Like "school" of fish or "pride" of lions, "sparkle" is the collective noun for fireflies.



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# MCIA's Enterprise Operations Center

## Synchronizing MCISRE support

by the Marines and Civilian Marines of MCIA's Enterprise Operations Center

Upon setting his boots back onto the dusty ground of Helmand Province in April 2017, Task Force Southwest's J-2 intelligence officer faced a daunting task: reassembling a complete understanding of the battlespace, its key actors, and the extremist threat after a long absence of Marine Corps presence. Complicating this was the relatively small size of his intelligence section, a reflection of the overall size of the task force itself. Although his Marines were welltrained and highly capable, the J-2's tasks far outweighed his organic capacity. Placing his faith in the reachback concepts pioneered in the *Marine Corps Intelligence, Surveillance, and Reconnaissance Enterprise (MCISRE) Plan 2015–2020*, the major and his team relied heavily on the analytical capability and capacity offered by the enterprise itself and Marine Corps Intelligence Activity (MCIA) in particular. Nine months later, during post-mission assessment, he would note confidently how the reachback support MCIA provided was critical to mission success, and in his own words, "MCIA never let [him] down." A critical nuance one can easily overlook in context of that greater success story, but one with profoundly positive implications for the future of the enterprise is the mechanism within MCIA by which TF-SW leveraged this support—the Enterprise Operations Center (EOC).<sup>1</sup>

Located within MCIA's headquarters aboard Marine Corps Base Quantico, the EOC is the Service's only persistently manned intelligence operations

center—essentially the intelligence functional equivalent of Headquarters Marine Corps' Marine Corps Operations Center (MCOC). Manned by active duty and civilian watch officers ranging in rank from sergeant to major and GG-13, the EOC fills two critical roles both as the MCIA Commander's Watchfloor and as the Hub of the Marine Corps ISR Enterprise. First, the EOC serves as an intelligence-centric supplement to the Marine Corps Operations Center, specifically for the Marine Corps' vast, worldwide intelligence community, spearheading the *MCISRE Plan's* guidance to fully integrate operations and intelligence.<sup>2</sup> Daily, EOC watch officers maintain and disseminate global situational awareness of all

and synchronizes intelligence collaboration between Marine Corps operating forces and supporting establishment, the Defense Intelligence Enterprise (DIE) including our Service Intelligence Center partners, and the wider National Intelligence Community (IC). Lastly, largely because of its nature as the only persistent 24/7 intel center within the Service, the EOC performs an essential implied task: organically providing initial triage-level analytical and intelligence support to MCISRE customers' urgent requirements (especially during traditional garrison non-working hours) until such time MCIA, MCISRE, or external DIE/IC resources can be leveraged. It is within this construct the EOC finds its highest levels of interac-

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***Located within MCIA's headquarters aboard Marine Corps Base Quantico, the EOC is the Service's only persistently manned intelligence operations center ...***

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MAGTF operations and exercises, as well as other joint and combined operations and exercises in which Marine Corps units participate. The EOC ensures the MCIA Commander and key intelligence leadership within the Service remain abreast of emerging operational requirements that may necessitate enterprise support. The second task, nested within the core of the enterprise concept itself, is integration.<sup>3</sup> Within MCIA's role as a Service intelligence center and member of the intelligence community, the EOC directly facilitates

tion with the most forward, tactically focused nodes of the enterprise. Facilitating and synchronizing requests for information and requests for support from MCISRE nodes and IC customers both within and outside MCIA and organically answering initial triage level intelligence requests from MCISRE customers has become the norm for the EOC. Such was the case in March of 2017 at 0200 Eastern Standard Time on a Saturday when the EOC successfully fielded its first of many requests for rapid intelligence support from TF-SW



**As in all Intelligence Operations Centers, MCIA's EOC Marines analyze, integrate, produce, and disseminate finished intelligence products. (Photo by Cpl Laura Mercado.)**

in Helmand Province, a scenario that repeats itself many times throughout the diaspora of deployed MAGTFs. That said, the EOC provides a value far greater than the sum of its parts—a value and impact to the Service that can only be fully appreciated by examining the context of necessity that has driven the EOC's evolution.

While the existence of an EOC as the commander's watchfloor is neither a new nor revolutionary concept, the EOC's new role as the central node of collaboration and synchronization within the MCISRE is one borne of the near-term and future operations environments and the transformation these changes have sparked within the Marine Corps as a warfighting organization. As the *MCISRE Plan* astutely notes, longstanding presumptions of U.S. firepower and technological dominance can no longer be taken for granted.<sup>4</sup> As such, the MAGTFs commander's decisive edge must instead be derived from an evolving warfighting philosophy that is responsive to this evolving shift in the traditional operating environment. Applying the Marine Corps' inherent maneuverist philosophy to this uncertain new paradigm, the *Marine Corps Operating Concept* argues that success must now be derived from less quantifiable and tangible facets than traditional

firepower and technological superiority. Indeed, success cannot be ensured merely in the physical environment but must also be seized in the cognitive via the exploitation of "psychological [and] temporal" advantages.<sup>5</sup> The importance of operating at a more rapid tempo than the enemy is also not news to any serious student of maneuver warfare or the ideas of John Boyd; what has changed is the emphasis on temporal maneuver is now more essential than ever before. The warfighting function of intelligence has long been the central pillar of building the commander's situational awareness and understanding of the battlespace to sufficiently enable successful temporal maneuver, and the traditional challenges faced by the intelligence field in ensuring the timely, rapid dissemination of relevant information represent a critical vulnerability in this new environment.

The requirement to break down the barriers and stovepipes that inhibit the timely flow of accurate, relevant intelligence across the force have been examined in great detail and do not need to be rehashed here. The existence of the enterprise as a concept and its guiding document, the *MCISRE Plan*, owe themselves to the recognition of this issue and the comprehensive ongoing effort to redress it—an effort that is currently yielding great success, if often

in the context of unexpected growing pains. Rather, we must acknowledge this context in order to fully appreciate the EOC's critical role as the connective tissue and catalyst for breaking down these barriers, enabling the exercise of the enterprise function across the Service and realizing the MCISRE's vision of federated production and rapid dissemination enabling successful maneuver in the temporal domain. The EOC and the functions it performs are the enterprise's bid to bypass the traditional impediments imposed on the intelligence warfighting function—by its nature, a rapid, collaborative, and flattened process—by the rigidity of organizational and staff hierarchy, both within and outside the Marine Corps. Traditionally, with a handful of noteworthy exceptions, Marine units at the forward edge of the fight relied on intelligence information from higher that had to move at the pace of a slow trickle through multiple layers and echelons of bureaucracy before reaching the commander. Inversely, relevant tactical-level intelligence emerging from the evolving battlespace also often encountered similar obstacles in reaching higher decision makers in a timely manner. This became especially apparent when intelligence requirements necessitated support from entities outside the Service, such as theater, national, or other Service entities. As a full-fledged Intelligence Community Watch Floor, the EOC has the authority to reach out directly to any of its peer entities throughout the DIE and allowing it to bypass many of these procedural obstacles and leverage the vast intelligence wealth of the greater IC directly on behalf of the tactical-level commander. Additionally, the EOC also serves as a collaborative catalyst within the MCISRE itself, by which the various members of the Enterprise, ranging from deployed MAGTFs, to garrison operating forces, and to the supporting establishment can coordinate. As such, it shares information, pool resources, and synchronize efforts without being constrained by the tyrannies of geography and institutional hierarchy.

This function and its profound impact on the way the Enterprise does

business is best represented by three recent vignettes. As addressed earlier in this article, in spring of 2017, Task Force Southwest’s enterprise-derived intelligence successes originated quite literally with a Saturday 0200 local time phone call to the EOC. The request was for urgent support in the form of specialized geospatial products needed to support aerial delivered fires. The task force’s supported Afghan forces were in contact throughout the battlespace, and these products were needed with the utmost urgency—an urgency which greeted the EOC watch officer who picked up the phone. As one may expect, this watch officer immediately notified MCIA leadership of the need to activate its geospatial production capability over the weekend and begin immediate production. In the interim, the Marines downrange needed a solu-

Within 24 hours of receiving notification of the MEU’s task, the EOC Watch initiated “push” intelligence support to the MEU. This support included: addressing an exhaustive list of intelligence requirements ranging from geospatial support to route studies to analytical products of the threat to coordinating comprehensive intelligence support during the insert of the force. This support persisted for the full duration of the operation. Leveraging its unique position, as a central collaborative node per the MCISRE concept, the EOC equipped the MEU with rapid and accurate national-level intelligence support to enable planning and execution. Lastly, perhaps the most satisfying example of EOC and enterprise success is one that hits closest to home: enterprise support to Marine units participating in Defense Support to Civil Authorities

challenging scenario. As noted, it was a true coalition effort across the Enterprise and IC that yielded tremendous success in this endeavor, but the EOC’s critical role as central coordinator serves as powerful validation of the Enterprise concept of the EOC’s role therein. These initial successes have not been without mistakes, missteps, and in some cases painful lessons learned. However, as the Service continues its effort to rapidly modernize in preparation for tomorrow’s fight—a fight that will occur as much in the information, space, and cyber domains as it does in the physical and will be fought against the backdrop of emerging great power competition and near-peer threats—the role of the EOC can only become more critical. MCIA will in turn continue to grow in its role as the hub for expeditionary intelligence within the Service and IC, and the EOC will remain at the forefront of that evolution.

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***As the Service continues its effort to rapidly modernize in preparation for tomorrow’s fight—a fight that will occur as much in the information, space, and cyber domains ... the role of the EOC can only become more critical.***

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tion and the EOC did not fail. Combining the archives of historical ENDURING FREEDOM geospatial, within two hours of receipt of the request, the EOC had provided Task Force Southwest’s intelligence selection a workable solution in the form of historical products that fulfilled the requirement until new production could occur. As a result of these efforts, the Marines in Helmand and their supported Afghan forces controlled multiple airstrikes against enemy forces—a potent micro-level example of the EOC exercising the enterprise concept to provide rapid intelligence support to urgent tactical level requirements. During this same tumultuous timeframe—specifically, February 2017—the deployed 11th MEU received an order to provide indirect fire support for Operation INHERENT RESOLVE, specifically requesting the MEU deploy conventional forces to Northern Syria.

and Humanitarian Assistance Operations in the wake of Hurricanes Harvey and Maria in the fall of 2017. As both Hurricanes made landfall, Marine active and reserve forces throughout the United States were called to assist. The need for a central collaborative hub for intelligence support immediately became evident. Assuming this role, the EOC adeptly synchronized a powerful coalition of intelligence capability and capacity across the Enterprise, including the MAGTF Intelligence Centers in both I MEF and II MEF, as well as intelligence nodes within Marine Forces Reserve.

Additionally, the EOC leveraged its unique position and authorities to reach out to the IC, federal law enforcement, and disaster-relief entities to ensure the strongest possible availability of information and unity of effort regarding intelligence support to this unique and

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Notes

1. Interview between MCIA CO and TF-SW ROTO-1 S-2, January 2018.
2. Headquarters Marine Corps, *Marine Corps Intelligence, Surveillance, and Reconnaissance Enterprise Plan 2015–2020*, (Washington, DC: 2014).
3. Ibid.
4. Ibid.
5. Headquarters Marine Corps, *Marine Operating Concept: How an Expeditionary Force Operates in the 21st Century*, (Washington, DC: September 2016).



# The Information Renaissance

## Systems, Culture, and People

by Capt Daniel G. Lim

In his 2019 *Commandant's Planning Guidance*, Gen Berger stated that new threats, missions, and technologies require the Marine Corps to adjust its organizational design and modernize its capabilities to thrive in future operations.<sup>1</sup>

With a shared understanding of strategic guidance and a responsibility to inform force design, 1st Intelligence Battalion communications platoon has identified critical gaps—specifically in sensitive information communications capabilities—and has come to the following conclusions: today's platforms are insufficient to thrive tomorrow; the application of strategic vision at a tactical level demands exigent modernization; the dichotomy between tactical and garrison systems is ineffective; no new technology in and of itself will solve the cultural intransigence against transforming antiquated tactics, techniques, and procedures; and today's manpower and talent management practices require a revamp to effectively prepare for the next paradigm of information operations.

The historically dominant communications platforms are at a warfighting disadvantage, rendering the Marine Corps Intelligence, Surveillance, and Reconnaissance Enterprise (MCISRE) ineffective in expeditionary advanced base operations. To thrive in operations in the information environment, the communications platforms must be expeditionary with increased mobility, flexibility, and resiliency. The desired endstate is for the MCISRE to maneuver both in physical and information domains while maintaining the flexibility to adapt and outpace the adversary's targeting cycle. To achieve this, informa-

**>Capt Lim currently serves as the Headquarters Company Commander while dual hatting as the Communications Officer, 1st Intelligence Battalion, I MEF Information Group, I MEF. Capt Lim comes from II MEF where he served as a Primary Staff as well as Experimentation Lead for Combat Logistics Battalion 8 (CMC-selected Experimental Unit for the Marine Corps in 2018) and as a MAGTF communications planner for 2d MLG G-6, spearheading operations.**

tion systems must be cost-effective and less cumbersome, especially for stand-in forces conducting reconnaissance and counter-reconnaissance across the competition continuum.<sup>2</sup> Heavy and expensive communications platforms are combat-ineffective for stand-in forces needing to operate within the adversary's weapons engagement zone with an array of low signature, affordable, and risk-worthy platforms and payloads.<sup>3</sup> Lastly, the communications platforms

must be resilient and survivable with a low probability of intercept and detection. In a space characterized by the proliferation of anti-access/area denial (A2/A2) threat capabilities in a mutually contested, command and control (C2) denied and degraded environment where air and space superiority is not guaranteed, information operations solely reliant on information systems with a high probability of intercept and detection are recipes for catastrophic loss.



**The full implications and effects of overreliance on high bandwidth remain to be seen in the years and decades ahead. What is certain, however, is that the MCISRE is at an inflection point in the history of the information environment. (Photo provided by author.)**

Today's readiness, to quote Gen Brown and Gen Berger, "remains inappropriately weighted in favor of what is available to fight today with what we currently have on hand."<sup>4</sup> Over time, we have generated significant inertia by pursuing capabilities and platforms based on previous commitments and requirements—many of which, including sensitive information systems, existed over a decade ago and well before the release of existing strategic guidance.<sup>5</sup> Therefore, concerns highlighted in readiness reports and articulated through the table of organization and equipment change requests (TOECRs) are more important than ever. In turn, higher headquarters must deliberately validate these suggested changes and properly equip tactical units such that they can provide robust communications support to operations in the information environment.

In 2019, the Chief of Naval Operations and the Commandant of the Marine Corps approved the Concept for Expeditionary Advanced Base Operations, a foundational naval concept. Applying this strategic guidance at a tactical level, the communications platoon realized an even more exigent need to communicate while mobile than was previously recognized. In close coordination with higher headquarters, we have identified and communicated our modernization requirements including, but not limited to: C2 automation for the intelligence architecture, unmanned sensors for surveillance, and enhanced C2 capability for counterintelligence/human intelligence. More specifically, we articulated the need to communicate sensitive information across the force throughout future operating environments, enabling joint command, control, communications, computers, cyber, intelligence, surveillance, reconnaissance, and targeting within the weapons engagement zone. In the future operating environment, the MCISRE must modernize its sensitive information systems with the following end state: receive and disseminate sensitive information from stand-in forces to larger intelligence community realtime, shortening the kill chain across the competition continuum; facilitate reconnaissance and counter-recon-

naissance by maintaining positional advantage and survivability through mobility; and enable network access and integration with naval, forward deployed formations operating under maneuver warfare principles at extended ranges. As research and development continue, new and innovative technologies will play an instrumental role and pay dividends in future operations in the information environment. The ultimate challenge rests with the MCISRE. It must realize the marginal relevance of legacy equipment to a strategy that prioritizes readiness for conflict with revisionist great powers, take advisement from the tactical unit commanders, and place more weight on factors related to service modernization.<sup>6</sup>

In the information environment, the one network and two systems communications concept, which bifurcates tactical and garrison employment, is antiquated and ineffective. As Gen Berger underscored, what served us well yesterday may not continue to do so today, let alone tomorrow.<sup>7</sup> We must continually seek improvements with an eye toward the future—specifically changes in technology—and consider what adaptations we need to make.<sup>8</sup> Though we will continue to wage campaigns against current adversaries, the great power competition requires our strategy and way of thinking to expand at an accelerated rate to maintain relevance. In the same way that amphibious platforms project power in a hybrid manner, so should hybrid communications platforms operate in environments where the adversary does not distinguish between garrison and tactical networks and systems.<sup>9</sup>

The current operational environment, characterized by decades of warfighting in the Middle East, enables the connection of tactical and garrison workstations only to their respective platforms; there is no crossover between the two systems. To thrive in the information environment, MCISRE must have one interchangeable, hybrid workstation interoperable with any sensitive information system (compatible with either garrison prepositioned facilities or austere, tactical environments), under one network. Moreover, platforms must resemble characteristics of a thin

client, a cost-effective and risk-worthy workstation that runs from resources stored on a central server or a cloud instead of a localized hard drive, reducing encumbrance in weapons engagement zones.<sup>10</sup>

The MCISRE must recognize that modern operations, particularly distributed operations, require connectivity and access for success; therefore, creating a C2 system that facilitates high-tempo decision making is critical to our future combat capability.<sup>11</sup> Furthermore, with the increased requirement to process sensitive information, there has been a complementary rise in demand for information systems (both garrison and tactical). To answer this increased demand, the tactical unit must undertake the admittedly long and arduous task of submitting TOECRs and wait, trying to influence the approved acquisition objective numbers unchanged since 2018. Not only must the tactical unit contend with outdated and insufficient equipment, but it must also struggle with obsolescent methods to rectify those deficiencies. Currently, given that the TOECR process is the only sanctified means to alleviate these shortages, we must operate within these constraints. Moving forward with an eye toward the future, the MCISRE can no longer accept the inefficiencies inherent in antiquated legacy systems, concepts, and processes that inhibit progress—taking cues from the needs of its ranks, placing a greater emphasis on voicing those needs, and alleviating the unnecessary burden from warfighters in the information environment are central to the development of an integrated architecture for operations in the information environment.<sup>12</sup>

While force design focused on innovation is a great opportunity for the MCISRE, no new technology will solve the cultural issue at hand—the community's overreliance on high bandwidth communications platforms. Today, communications battalions within MEF command elements provide redundant and robust network architecture, including high bandwidth general services, upon which the intelligence and information operations rely heavily. The current MAGTF communications

systems provide eclectic arsenals with employment opportunities in electromagnetic spectrums extending across wide frequency ranges. Yet, in every training exercise, the MCISRE places the preponderance of its reliance on high bandwidth communications. These alarming viewpoints are not designed to negate the importance of having reliable and robust C2 infrastructure (systems, network, and qualified people) that can support high-bandwidth architecture. In the information age and with an inexorable accumulation of data, the ability to harness “big data” through cloud computing, automation, and artificial intelligence is paramount. Nevertheless, the issue is that the MCISRE is not only unprepared but also intransigent to conduct information operations using paths other than those that provide high bandwidth.

In the Marine Corps, while we have yet to fully develop a robust capability necessary to maintain advantages in the information environment across all seven warfighting functions, a further problem is the cultural resistance to the use of band diversity.<sup>13</sup> This is partly because of the experiences that have shaped the intelligence community in the past. Over the last two decades, we have mastered the art of intelligence operations in an asymmetric environment, where relative military power, strategy, and tactics between belligerents differed significantly. The years of technological superiority and electronic warfare dominance we experienced have bred a culture of complacency in our strategy and tactics—predominantly our overreliance on high bandwidth for intelligence operations.

Operating almost solely on high bandwidth is based on two false assumptions. First, our networks are impenetrable. This quixotic and dangerous school of thought can eventually be achieved through quantum computing but requires a considerable leap of faith (remains out of reach for now). Second, our cyberspace operations (information networks, defensive cyberspace operations, and offensive cyberspace operations) and information operations capabilities far outstrip those of our potential, future adversaries. Ultimately, to



**265X talent management requires a cultural shift and better employment to thrive in the next paradigm of information operations against the pacing threat. (Photo by LCpl Marcus Melara.)**

operate and thrive in the next paradigm of operations against the pacing threat, we must understand information and train to collect, process, analyze, and disseminate it in any medium (systems operating on diverse electromagnetic spectrums) or form (voice, video, or data), whichever is most effective at a given time. Continued technological hubris among intelligence operators and leaders will render the community obsolete in the future fight against a pacing threat without a competitive C2 plan. Consistent with *MCDP 1, Warfighting*, what has been our center of gravity over the past decades of warfare has the potential to become a critical vulnerability that, when exploited (not if exploited), will most significantly negate our ability to operate and thrive in the information environment.<sup>14</sup> The full implications and effects of over-reliance on high bandwidth remain to be seen in the years and decades ahead. What is certain, however, is that the MCISRE is at an inflection point in the history of the information environment. What we do to myriads of communications assets available to us today and their corresponding electromagnetic spectrums will impact the outcome of future information operations once subjected to the fog of war. We must exercise band diversity and remain versatile.

Finally, today’s 265X talent management requires a cultural shift and better employment to thrive in the next

paradigm of information operations against the pacing threat. As Gen Berger averred, everything starts and ends with the individual Marine, and all of our investments in force modernization are designed to unleash the incredible talent of our Marines.<sup>15</sup> As the Information Age accelerates, manpower and talent management questions are still to be answered for those who are responsible for the sensitive network architecture. The 265X workforce historically responsible solely for the installation and operations of sensitive information systems is now responsible for a wide range of highly specialized and technical engineering duties. Some of these duties (integration of sensitive information systems and networks through automation, implementation of data engineering through data management, and information assurance through network security) require a significant amount of time and experience to master. However, the implementation strategy published in 2017 designed to recruit and develop the 265X community to level the additional requirements levied by the information environment is only a dream unfulfilled.<sup>16</sup> As a result, during a three-year enlistment span, the MCISRE fails to gainfully employ these 265Xs to information operations, for which they were recruited. The average system engineer (upon completion of a training pipeline) executes perfunctory administrative IT duties which adds

little value to our combat capability. To make the 265X community most lethal, we must set conditions for them to focus more on warfighting tasks rather than special security or redundant administrative processes frequently performed by the Geek Squad services at a local neighborhood Best Buy. If the MCISRE seriously considers thriving in the information environment, we must alleviate unnecessary burdens through organizational reconstructing and enable the 265X community to hone their MOS skills most effectively—collecting data systematically, refining processes to make sense of the data collected, and leveraging the data for the decision space through best practices in data science and analytics.

Gen Berger has challenged us to consider adaptations we need to make in emerging technologies by continually questioning the status quo—a directive with clear applicability not only to the technology itself but also to the Marines who will operate that technology in support of information operations. As leaders, we must understand that the first element of C2 is people, and the rest of the system exists only to serve them.<sup>17</sup> In line with the Commandant’s guidance, to fight and win in the information environment, it is imperative to reassess our talent management for the

best return on investment, especially when the Service does not have the tools needed to recruit the skills it wants and retain highly specialized talents.<sup>18</sup>

In closing, the MCISRE is at an inflection point; it must ready itself for competition against an adversary who is committed to an ambitious and explicitly stated national strategy of attaining global leadership in the information age. Here before our eyes is an information renaissance and its fallout. Recent history has revealed that companies that failed to take advantage of each new generation of technology ceased to be competitive, and without a culture that encourages innovation and risk taking, even the best thought-out digital transformation strategy will fail.<sup>19</sup> The Marine Corps’ C2 capabilities could go the same way if not aggressively improved soon. As Sun Tzu stated, “if you know the enemy and know yourself, you will not be imperiled in a hundred battles.”<sup>20</sup> While the outcome of our gray zone competition remains uncertain, “knowing ourselves” by identifying critical readiness deficiencies, developing strategies to rectify those deficiencies, and tailoring our force structure to the future is well within our sphere of influence. We must forcibly overcome our cultural stagnation and act now to operate and thrive in the next paradigm

of information operations against the pacing threat.

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**As leaders, we must understand that the first element of C2 is people, and the rest of the system exists only to serve them.** (Photo provided by author.)



# The National Intelligence University

Strategic resource for Marine Corps intelligence

by Maj Toby J. Collins

***“In the training and education of intelligence personnel, we seek to achieve a balance between specialization and generalization. Intelligence officers must possess a broad operational orientation—an understanding of just how intelligence supports operations in general terms—while also developing the specialized skills required by many intelligence disciplines.”<sup>1</sup>***  
—MCDP 2, Intelligence

In the *Commandant’s Planning Guidance*, Gen Berger observes that the “complexity of the modern battlefield and increasing rate of change requires a highly educated force.”<sup>2</sup> The Marine Corps Intelligence, Surveillance, and Reconnaissance Enterprise (MCISRE) concept echoes this sentiment, calling for “an intelligent workforce, uniformed and civilian, [that] anchors the MCISRE with the skills, professional acumen, and functional expertise that mark them as a world-class contributor to our Corps and IC [Intelligence Community] missions.”<sup>3</sup> As we prepare current and future leaders to rise to the challenges of great power competition, the National Intelligence University (NIU) is uniquely capable of building on service training and education to develop the highly educated intelligence professionals envisioned in the Commandant’s guidance and the MCISRE concept. Having evolved over nearly six decades

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***Since 2015, an average of 31 Marines have been enrolled in NIU programs annually ...***

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from a narrowly focused military intelligence training organization into the Intelligence Community’s premier educational institution, NIU now offers a wide range of undergraduate and graduate programs, certificates, joint professional military education, and continuing education courses. These programs afford unparalleled oppor-

tunities to prepare Marines—officer and enlisted, active and reserve component—to excel in intelligence assignments in which they directly interact with or operate as part of the joint force or the interagency.

NIU has helped to educate and develop many noteworthy Marine leaders. Four Directors of Marine Corps Intelligence have studied at NIU. Gen John R. Allen (Ret), former Commander, International Security Assistance Force–Afghanistan and U.S. Forces. In 2002, MajGen Michael F. Fahey III, Commanding General of 4th MarDiv, graduated from NIU. He subsequently taught in and served as the Director of the Master of Science of Strategic Intelligence (MSSI)–Reserve Program. MGySgt Aaron L. Hoffman (Ret), former Senior Enlisted Advisor to the Director of Marine Corps Intelligence, graduated from NIU in 2006. MGySgt Joseph Davila, U.S. Indo-Pacific Command J2 Senior Enlisted Advisor, graduated from NIU in 2006.<sup>4</sup> In addition to these distinguished alumni, hundreds of Marines have studied at NIU over the years. Since 2015, an average of 31 Marines have been enrolled in NIU programs annually, with the majority being part-time students pursuing a Master of Science of Strategic Intelligence.<sup>5</sup>

***>Maj Collins retired from the Marine Corps Reserve in April 2021; he served two tours as a Lecturer at NIU while assigned to Headquarters Marine Corps’ Intelligence Division. He previously served with DIA (including a tour in Iraq), MCI, Marine Forces-Korea, Marine Forces Reserve’s Intelligence Support Battalion, the 31st MEU, 3rd Reconnaissance Battalion, and 3rd Intelligence Battalion.***

**NIU's History: From Service School to Intelligence Community University**

NIU traces its foundation to the merger of the Naval Intelligence School and the Army Strategic Intelligence School to create the DIS in October 1962. Perceiving the existence of the two separate Service strategic intelligence schools as unnecessarily duplicative, Deputy Secretary of Defense Roswell Gilpatric had issued a memorandum the previous February directing the recently established Defense Intelligence Agency to develop a plan for the merger. On 2 November 1962, *DOD Directive 5105.25* officially created the school as a professional military educational institution under DIA.<sup>6</sup> The DIS opened its doors on 1 January 1963, operating out of the Naval Intelligence School's Anacostia Annex across the Anacostia River from the Navy Yard in Washington, D.C.<sup>7</sup> Its mission was to enhance the preparation of selected military officers and key DOD civilian personnel for important command, staff, and policy-making positions in the national and international security structure; prepare DOD military and civilian personnel for duty in the military attaché system; and assist the broad career development of DOD military and civilian personnel assigned to intelligence functions. The DIS graduated its first class in June 1963.<sup>8</sup>

In 1973, DIA Director Vice Admiral Vincent P. de Poix approved a DIS pilot program to grant a graduate degree in strategic intelligence. In 1980, President Jimmy Carter signed *Public Law 96-450*, formally authorizing the DIS to award the MSSSI degree. After the Middle States Commission on Higher Education, a federally recognized accreditation agency, granted accreditation for the degree program in 1983, the DIS was redesignated as the DIC to reflect its role as an institution of education rather than training. It subsequently moved from the Anacostia Annex to the new Defense Intelligence Analysis Center at Bolling Air Force Base (present day Joint Base Anacostia-Bolling).<sup>9</sup>

In 1993, the DIC was redesignated as the Joint Military Intelligence College, reflecting growing emphasis on the joint force constructs. Four years later,

Congress authorized Joint Military Intelligence College to grant a Bachelor of Science in Intelligence (BSI) as part of a fourth-year degree completion program for students who had accumulated the equivalent of three years of undergraduate credits elsewhere.<sup>10</sup>

In 2006, *DOD Instruction 3305.1* renamed the school the National Defense Intelligence College (NDIC), reflecting the institution's growth and

to the IC's widely dispersed workforce by establishing four academic centers and sixteen additional educational sites in Colorado, Florida, Georgia, Hawaii, Maryland, Missouri, North Carolina, Ohio, Virginia, Australia, England, and Germany. In December 2019, Congress directed the NIU to transition from DIA to the Office of the Director of National Intelligence, and that transition is currently underway.<sup>13</sup>

***“Projected future challenges for the Marine Corps include the potential for adversaries to achieve technological equivalence or superiority with the United States. That possibility, coupled with Marines’ expeditionary nature, means that the Marine Corps must be a more lethal, thinking force that fosters continuous personal and organizational learning.”<sup>11</sup>***

**—MCDP 7, Learning**

maturation to service the needs of an evolving Intelligence Community in the years following the 11 September 2001 terrorist attacks, the initiation of Operations ENDURING FREEDOM and IRAQI FREEDOM, the passage of the Intelligence Reform and Terrorism Prevention Act of 2004, and the creation of the Office of the Director of National Intelligence in 2005. In 2007, NDIC established a Center for Science and Technology Intelligence, paving the way for the creation of the Anthony G. Oettinger School of Science and Technology Intelligence in 2010. A 2011 revision to *DOD Instruction 3305.1* prompted yet another name change, and NDIC became NIU. The following year, Congress authorized it to grant a Master of Science and Technology Intelligence degree.<sup>12</sup>

From late 2016 to early 2017, NIU relocated from DIA Headquarters at Joint Base Anacostia-Bolling to the purpose-built, state-of-the-art Roberdeau Hall at the Intelligence Community Campus-Bethesda in Bethesda, MD. In the years since, NIU has sought to increase the accessibility of its programs

**Programs: A Range of Options for Degrees and Certifications**

NIU offers one undergraduate degree, two graduate degrees, and several certifications, including Joint Professional Military Education Phase I (JPME-I). All programs are tuition free and available to active component Marines, and all but the undergraduate program are available to reserve component Marines. Marines seeking sponsored participation in one of NIU's degree programs must meet both Marine Corps and NIU enrollment requirements and incur a three-year service obligation upon successful completion. Marines seeking unsponsored participation in one of the part-time graduate or certificate programs need only meet NIU enrollment requirements and incur no service obligation.

*Undergraduate Programs.* The BSI is NIU's only undergraduate degree program. It is a fourth-year completion program available to Marines who have completed the equivalent of three years of undergraduate study elsewhere. The BSI program is only available for full-time enrollment and lasts for eleven

months, during which time students are enrolled in five classes per quarter.<sup>14</sup>

The BSI program is available to qualified enlisted Marines in the 02XX, 26XX, and 68XX MOS in the rank of corporal through master sergeant. Applicants must have between four and eighteen years of service at the start of the program; they must have completed CMC-directed PME; they must meet height, weight, and military appearance standards; they need to possess a top secret clearance; and they must be eligible for access to top secret/sensitive compartmented information.<sup>15</sup>

Any Marine requesting enrollment in the BSI program must submit an application to HQMC with an endorsement from his commanding officer at the battalion or squadron level. The application must include certification of eligibility for reenlistment and compliance with height/weight and military appearance standards, a copy of a Page 11 entry for the obligated service requirement, a completed NIU application for admission, and an unclassified 500-word “Statement of Purpose.” Applicants must arrange for their undergraduate transcripts to be forwarded directly from the issuing institution to NIU along with copies of standardized tests such as CLEP or DLPT. A separate copy of the application package must be simultaneously submitted to NIU.<sup>16</sup>

In addition to Marine Corps requirements, NIU requires that BSI applicants possess a high school diploma or GED, and that they have completed at least 80 semester hours of undergraduate coursework (30 of which must have been earned at a regionally accredited institution) with a GPA of 2.5 or higher on a 4.0 scale.<sup>17</sup>

*Graduate Programs.* The two graduate degrees available to Marines at NIU are the MSSI and the Master of Science and Technology Intelligence (MSTI). The MSSI program is designed to prepare students for the complexity of intelligence work in the 21st century, focusing on three main themes—globalization, future-focused intelligence, and intelligence for national security. The MSTI program is designed to prepare students to recognize the impact of technological change on national se-

curity and intelligence through study in one of five concentrations—weapons of mass destruction, cyber intelligence, data science in intelligence, information and influence intelligence, and emerging technologies and geostrategic resources. Both programs entail a 43-credit curriculum designed to facilitate completion in one year for full-time students and two years for part-time students.<sup>18</sup>

Full-time sponsored participation in NIU’s graduate programs is available to commissioned officers only through the Marine Corps’ Junior Officer Strategic Intelligence Program (JOSIP). Marines in the rank of first lieutenant or captain with a primary MOS of 0202 with at least two years intelligence experience and not more than ten years total service are eligible to apply for JOSIP. Applicants are screened through the Commandant’s Career-Level Education Board; those selected are enrolled in NIU’s MSSI or MSTI programs.<sup>19</sup>

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***Full-time sponsored participation in NIU’s graduate programs is available to commissioned officers only through the Marine Corps’ Junior Officer Strategic Intelligence Program (JOSIP).***

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Full-time sponsored participation in NIU’s graduate programs is available to enlisted Marines in the 02XX, 26XX, and 68XX military occupational specialties in the rank of corporal through gunnery sergeant, although 0231 master sergeants may also apply. Marines must have between four and eighteen years of service; be PME complete; meet height, weight, and appearance standards; and possess a top secret clearance with eligibility for access to SCI.<sup>20</sup>

Part-time sponsored participation in NIU’s graduate degree programs is available to Marines in the 02XX, 26XX, and 68XX MOS in the rank of corporal through lieutenant colonel. Additional eligibility requirements are similar to those for full-time sponsored participation.<sup>21</sup>

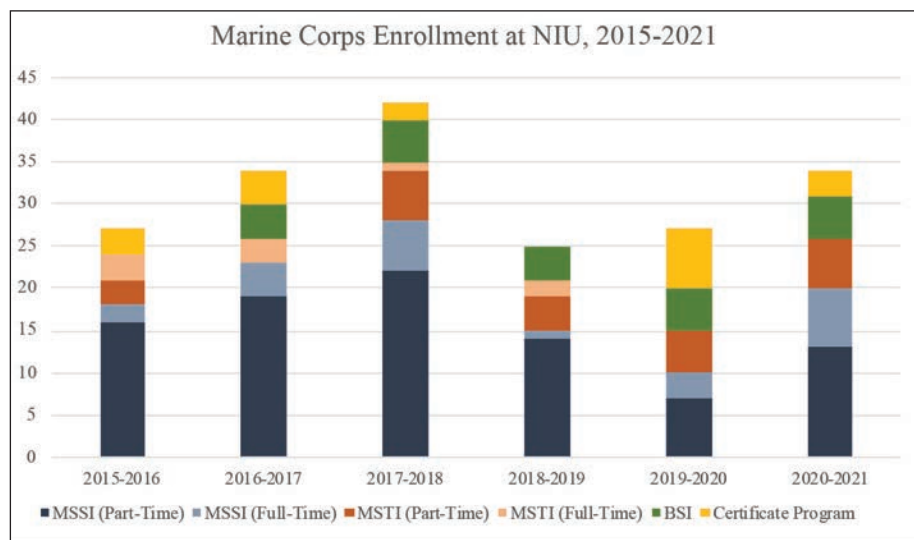
Marines requesting enrollment in the MSSI or MSTI programs must submit

an application to HQMC with commanding officer endorsement at the battalion or squadron level. Applications must include certification of compliance with height/weight and military appearance standards, a copy of a Page 11 entry for the obligated service requirement, a completed NIU application for admission form, and an unclassified 500 word “Statement of Purpose.” Enlisted Marines must also include certification of eligibility for reenlistment. Applicants must arrange for undergraduate and graduate transcripts to be forwarded directly from the issuing institution to NIU, along with copies of standardized tests. A separate copy of the application package must be simultaneously submitted to NIU.<sup>22</sup>

In addition to meeting Marine Corps requirements, Marines must meet several for NIU. Applicants must possess a baccalaureate degree from a regionally accredited institution; NIU has no

minimum GPA requirement, but competitive applicants have a cumulative undergraduate GPA of 3.0 or higher on a 4.0 scale. Applicants must also have completed the Graduate Record Exam (GRE) within the last five years. While NIU does not specify a minimum score, competitive applicants should be in the 50th percentile or higher in verbal and quantitative reasoning, and 3.5 or higher in analytical writing. Those who have earned a master’s or a doctoral degree from a regionally accredited institution are not required to submit GRE scores. For Academic Years 2020–2021 and 2021–2022, the school has temporarily waived the GRE because of testing-site restrictions associated with COVID-19.<sup>24</sup>

A range of options for participation in NIU’s MSSI and MSTI programs are available to Marines—active duty



Since 2015, an average of 31 Marines have been enrolled in NIU programs annually, with the majority pursuing a Master of Science of Strategic Intelligence as a part-time student.<sup>23</sup> NIU's programs are available to officers and enlisted Marines in the active and reserve components with the exception of the BSI program, which is only available as a full-time study option for enlisted Marines. (Figure provided by author.)

and reserve, officer and enlisted. Some options require formal Marine Corps nomination and sponsorship, while others do not. The options are as follows:

- *Full-time.* Marines may only enroll at NIU in a full-time capacity with Marine Corps sponsorship. Full-time MSSI and MSTI students undertake an eleven-month program that typically begins in August and ends in July. During this time, NIU is the Marine's place of duty, and he is not expected to assume additional duties outside of the program. Marines enroll in four to five daytime classes per quarter and must complete a master's thesis in addition to all required coursework.
- *Reserve/Monthly Executive Program (MEP).* Marines may participate in the Reserve/MEP in either a sponsored or unsponsored capacity. The only appreciable difference between the two options is whether the reserve Marine receives drill pay and points for attending classes and receives funded annual training orders to participate in NIU's two-week summer intensive term. Individual Mobilization Augmentee, Selected Marine Corps Reserve, and Inactive Ready Reserve reserve component Marines are eligible to apply for sponsored participation. Prerequisites for sponsored participation in the Re-

serve/MEP differ slightly from those outlined above. Applicants must be first lieutenant to major, chief warrant officer 2 to chief warrant officer 3, or staff sergeant to gunnery sergeant and not have failed selection to the next higher grade. Majors must have less than four years' time in grade. The programs are open to any MOS, but preference is given to 02XX and 26XX Marines. Applicants must have a minimum of five years intelligence or cryptologic experience, and officers and staff non-commissioned officers must agree to remain in an intelligence billet in the Individual Mobilization Augmentee or Selected Marine Corps Reserve for three years following graduation. Reserve Marines' applications for sponsored participation in the Reserve/MEP must also include a Reserve Qualification Summary, Master Brief Sheet, and one-page resume detailing military and civilian experience. Active duty Marines participating in the Reserve/MEP do so on their own time at no additional expense to the Marine Corps. Reserve/MEP students undertake a two-year, part-time program, throughout which they typically enroll in two classes per quarter. Fall, winter, and spring quarter classes are conducted on weekends, with summer intensive term classes

taking place Monday through Friday for two consecutive weeks.<sup>25</sup>

- *Evening.* Marines may participate in NIU's evening program in an unsponsored capacity. The program is part-time and requires two years to complete. Most students begin in August, and they enroll in two classes per quarter.

- *European and Southern Academic Center Cohorts.* NIU offers the MSSI program at its European Academic Center in Molesworth, England, and the Southern Academic Center at MacDill Air Force Base in Tampa, Florida. Both cohorts are two-year, part-time programs. Marines may participate in these programs in an unsponsored capacity with chain of command approval.<sup>26</sup>

*Certificates.* In addition to undergraduate and graduate degrees, NIU offers several specialized certificates providing intelligence professionals with the opportunity to focus on specific regional, technical, or topic areas of interest at any point in their careers. Examples of current certificate programs include Afghanistan/Pakistan, Africa: Strategic Intelligence Studies, China: Intelligence Concerns, Leadership and Management in the Intelligence Community, Strategic Warning Analysis, and Data Science Intelligence. These programs typically entail part-time enrollment with one class per quarter for four consecutive quarters. Marines interested in applying must hold a bachelor's degree, have a top secret clearance, and be eligible for access to SCI. Participation in a certificate program is typically undertaken in an unsponsored capacity, requiring no HQMC approval. However, Marines must formally apply to NIU to participate in certificate programs.<sup>27</sup>

*JPME-I Certification.* The Chairman of the Joint Chiefs of Staff authorized NIU to grant credit for JPME Phase I to graduate students who complete the prescribed curriculum. To receive credit, students must complete the full curriculum for the MSSI or the MSTI degree, take certain designated JPME courses, participate in a staff ride class, and complete an examination on joint doctrine.<sup>28</sup>

### Value Proposition: Good for the Marine, Good for the Corps

Sending Marines to NIU is an expensive proposition for the Marine Corps. Full-time participation in one of NIU's degree programs effectively removes a Marine from the fight for an entire year, while part-time participation will demand a considerable amount of the Marine's time and attention for two years. This is in addition to time away from the operating forces that the Marine might spend attending Expeditionary Warfare School, the MAGTF Intelligence Officers Course, Command and Staff College, and other training or education. In the case of reserve component Marines, sponsored participation in one of NIU's graduate programs will consume all of his or her drills and AT periods for two to three years. Although NIU charges no tuition or fees, the Marine Corps continues to pay an active duty Marine's salary, BAS, and BAH, and potentially PCS expenses. For reserve component Marines participating in NIU programs in a sponsored capacity, the Marine Corps will pay for drills, two weeks of AT, and associated authorized travel and lodging expenses. Despite these costs, the benefits to both the Marine Corps and to the individual Marine constitute a significant return on investment.

Perhaps the most profound and unique benefits of NIU's programs are the opportunities they provide to conduct classified research and think deeply about complex intelligence issues that characterize the contemporary operating environment or will shape that of the future. NIU is the only accredited, degree-granting educational institution designed, organized, equipped, and authorized to conduct all coursework and thesis research in a classified environment. A number of educational institutions now offer intelligence-related degrees, but NIU is unique in its ability to offer Marines the opportunity to incorporate classified intelligence into their studies, drawing from data unavailable elsewhere in the academic world. A sampling of recent unclassified thesis titles illustrates the depth of research and analysis on complex, operationally relevant intelligence issues:

- "Intelligence Driven Cyber Risk Management," GySgt Patrick Bolger, 2019.
- "Is It a Use of Force and How Will We Know? The Legal Inadequacies of Measuring the Scale and Effects of Cyberspace Operations," Maj Chris Pavlak, 2019.
- "The Evolution of the Department of Homeland Security Insider Threat Program," Maj Ray Wong, 2019.
- "Measuring Soft Power: A Survey on Soft Power Metrics and Their Utility For Strategic Intelligence Analysis," Maj Aled Fain, 2020.
- "Quantitative Discursive Analysis for Event Detection in Open-Source News Media," Maj Krysta Anthony, 2021.
- "The Future Legal Regime in the Space Domain: The Evolution of International Space Law," Maj James Astuno, 2021.

Just as NIU offers unique opportunities for Marines to pursue classified academic work and think about current and future challenges, its programs also offer unique leadership development opportunities not available elsewhere. Some might argue that given the Marine Corps' substantial investment in leadership training and education, there

designed to prepare students for the challenges of leadership in the IC. *MCR 608, Leadership and Management in the Intelligence Community*, and *MCR 611, Intelligence and National Security Policy*, are core courses that every Marine seeking a graduate degree must complete. These courses provide a foundation on which a number of leadership-focused electives build; these include *INT 603, Intelligence Resource Management: Process, Politics, and Money*, *INT 604, Professional Ethics*, *INT 605, Intelligence and National Security Law*, *MSI 501, Leadership and Intelligence*, *MSI 502, Leadership, Intelligence, and National Security Decision-Making*, and *MSI 504, Organizational Management and Change*.<sup>29</sup>

Beyond formal coursework, NIU offers a form of leadership development with a value that is virtually impossible to quantify—the expansion and diversification of the Marine's professional network outside the Marine Corps. For Academic Year 2018–2019, NIU's total enrollment was just under 660 students representing over 53 different organizations. Every branch of the military—active duty, reserve, and National Guard—was represented, as were dozens of agencies and activities

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### ***Beyond formal coursework, NIU offers a form of leadership development ... the expansion and diversification of the Marine's professional network outside the Marine Corps.***

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is no need to incur the additional cost of sending a Marine to NIU for leadership development. However, NIU offers unique perspectives that prepare Marines for the nuanced challenges associated with leadership of intelligence organizations within the Marine Corps, the joint force, or the interagency.

While virtually every course at NIU will increase a Marine's readiness for positions of greater responsibility and authority by strengthening his or her regional or technical expertise, a body of core and elective courses are specifically

including CIA, DIA, MCIA, NGA, NRO, NSA, ODNI, ONI, and the Departments of Commerce, Defense, Energy, Homeland Security, Justice, State, and Treasury. Represented law enforcement organizations included the AFOSI, ATF, FBI, DEA, NCIS, and U.S. Secret Service. In addition, organizations not typically associated with intelligence uniquely contributed to the organizational diversity of NIU's student body—including the Nuclear Regulatory Commission, the Office of Personnel Management, U.S. National



**The National Intelligence University is located in Roberdeau Hall at the Intelligence Community Campus-Bethesda, MD. (Photo courtesy ICC-Bethesda.)**

Archives and Records Administration, and the U.S. Agency for International Development.<sup>30</sup> The opportunity to meet and develop relationships with such a remarkably diverse set of colleagues outside the Marine Corps likely exceeds that found in any of the Marine Corps' Service schools or even in the majority of other Services' schools or joint schools some Marines attend. It is of inestimable value to Marines charged with leading intelligence activities within the joint force or interagency, as well as to Marines leading intelligence organizations within the Marine Corps' operating forces that are integrated into a joint or interagency endeavor.

Closely related to, but distinct from, the leadership development opportunities NIU affords are the ways its programs prepare Marines to excel in the joint or interagency environment through both formal instruction and informal exposure to diverse organizational cultures and perspectives. Marines successfully completing command and staff programs will have had a thorough exposure to the Joint Operational Planning and Execution System. NIU offers elective courses that provide graduate level examination of the nuanced intelligence aspects of Joint Operational Planning and Execution System, including *DEF 601, National Strategy:*

*Theory and Intelligence Considerations, DEF 602, Joint Campaign Planning and Intelligence,* and *DEF 624, Operational Capabilities Analysis.* In addition to formal instruction and coursework, NIU exposes Marines to an exceptional range of organizational cultures across the federal government, both internal and external to the IC. Marine Corps intelligence professionals are exposed to concepts pertaining to IC organization, roles, and functions during initial MOS training, and intelligence officers explore these concepts in greater depth during the MAGTF Intelligence Officers Course. NIU builds on this baseline knowledge by affording Marines the opportunity to interact with students from all the aforementioned organizations.<sup>31</sup>

Having extolled the virtues of NIU's programs and detailed the various paths and mechanisms through which Marines may take advantage of them a few words are appropriate addressing who should not apply. NIU coursework—whether for continuing education, a certificate program, or to satisfy the requirements for an undergraduate or graduate degree—requires a substantial amount of time and effort. Students should not expect rote memorization or lecture designed to convey what to think—exams rarely feature multiple choice questions. Rather, students

should expect problem-posing educational methods designed to convey how to think, decide, and act. While this often contributes to a more rewarding educational experience, many will find it extremely strenuous and challenging. Marines applying to NIU should have strong written communication skills. Poor writing skills will compound any difficulties the Marine might encounter with the substance of coursework, and reduce the likelihood of timely, satisfactory thesis completion. Considering the time required to attend classes, complete readings, research and draft papers and presentations, and for graduate students to complete a thesis, Marines should carefully consider the potential impact on other aspects of their lives such as family, work, religious, and social obligations. This is particularly true for those considering part-time enrollment. Marines anticipating significant life events such as marriage, divorce, the birth of a child, or transition between civilian positions for reservists should probably defer application to a later date, as should those considering simultaneous enrollment in Service nonresident PME.

### Recommendations for Prospective Students

More Marine Corps intelligence professionals should take advantage of NIU's programs. A relatively small number of commissioned officers and SNCOs are able to enroll in NIU's full-time programs each year; however, the number of Marines able to apply for NIU's part-time programs is virtually unlimited. As we posture for an era of great power competition that is very likely to emphasize distributed operations, we should leverage NIU's part-time programs to prepare more junior officers, warrant officers, and SNCOs to thrive in the joint and interagency intelligence environment.

While being able to attend class full-time and focus predominantly on school might be ideal, part-time enrollment carries some unadvertised and lesser-known advantages. Part-time students have more time to think about both their coursework and their theses. Perhaps more importantly, they often

join cohorts with greater organizational and experiential diversity than those available to their full-time counterparts. Part-time programs are full of students from across the interagency who cannot get time off from work for full-time participation, and reservists in part-time programs often bring a staggering amount of non-military, non-intelligence professional experience that amplifies the breadth and complexity of class discussions.

A range of resources are available to assist Marines weighing the decision to apply for one of NIU's programs. NIU's website (<https://www.ni-u.edu>) contains a wealth of information for prospective students, including the most current course catalogue and information on NIU's enrollment requirements. Detailed information on Marine Corps requirements is available in MARADMINs released annually to solicit applications for full-time and part-time programs for active and reserve component Marines. Additional information on Marine applications for NIU programs is available on the Intelligence Division website (<https://www.hqmc.marines.mil/intelligence/Intel-OPS-PERS/Educational-Programs/>).

#### Notes

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>Author's Note: This article presents the views of the author and does not necessarily reflect the official policy or position of the National Intelligence University, the Marine Corps, the DOD, the U.S. Intelligence Community, or the U.S. Government. The Defense Intelligence Agency has reviewed this draft article and approved it for public release.



# Proposed Change

Eliminate the AC/S G-6 function from the Marine Corps

by LtCol Christopher S. Tsirlis

The famous Prussian military strategist, Gen Helmut von Moltke (circa 1857), helped shape the modern general staff model by making it more efficient. Moltke knew that in order to be effective, the staff model needed to change and; correspondingly, he made the necessary changes to do so. Like an artist or world-class chef, whose grand works are known for their reductions rather than their additions, Moltke's vision required simplification and reordering of ingredients. This article seeks to challenge one aspect of the current Marine Corps staff model by seeking to make it more efficient. The premise is simple: *remove that which is not needed to be most effective*. Specifically, the usefulness of the current Assistant Chief of Staff G-6 staff functions at the MEF and Major Subordinate Command (MSC) levels within the Marine Corps.

**>LtCol Tsirlis is the former Commanding Officer of Marine Communications Squadron 28 and has over 31 years of service.**

Currently, the AC/S G-6 (and sub-functions) normally serves as the principal advisor to the commanding general and staff for enabling command and control (C2) operations in the information environment via command, control, communications, and computer (C4) systems. To greater or lesser degree this staff function has morphed into an ineffectual entity that does not provide utility to the Marine Corps. The function of the AC/S G-6 should be disbanded or subsumed by existing communications units (i.e. communication battalion MEF located within the MEF Information Group [MIG], communi-

cations squadrons [located at Marine Aircraft Wings] and communications companies [located at Division and Logistic Group]). The role of a single staff entity that supposedly synchronizes C2 system actions and network communications control for the MEF commander and subordinate MSC commanders is no longer is effective and makes the organization weaker and less effective against near-peer adversaries. The primary core functions of the AC/S G-6 could be easily adopted by subordinate levels of the organization, specifically communication battalions, communication squadrons, and communication companies. The current table of organization of the G-6 staff structure of this entity can be better distributed to communications units in the FMF, which can more effectively serve the MEF/MSC's strategic, operational, and tactical aims.

## Unneeded Layers of Bureaucracy

The MEF/MSC AC/S G-6 staff function creates barriers to progress and communications choke points that hamper communication commanders in garrison and on the battlefield. It ineffectively centralizes important C4 decisions and thus hampers decentralized execution by consolidating key information stores and resources. The AC/S G-6 is naturally oriented with a top-up approach toward enabling C2 and seeks to consolidate decision making. This often creates stovepipe-based policy decisions that do not positively effect changing battlespace dynamics at the speed of war, nor does this entity properly support subordinate commanders who rely on these decisions. The G-6 currently has a disproportionate negative influence on 06XX/28XX manpower staffing issues and often fails to understand command-



**The operational role of the MEF G-6 is tracking and reporting the status of communications systems and networks, not providing or operating these capabilities. (Photo by SSgt Jesse Stence.)**

er requirements. From the standpoint of equipment and administration, the G-6 unevenly exerts influence on operational matters, which constrains the ability of local commanders to solve their own operational and equipment problems. The AC/S G-6 function additionally creates unneeded bureaucratic layers and redundancy, supplemented by well-intentioned functional SMEs and the ever-changing personality-based processes that accompany it, which then creates unneeded scrutiny of resources and uneven application of HQMCI-C4 policy. The net effect is long decision-making lead times and skewed manipulation of resources and ideas that do not reflect the military market demands for commanders who need flexibility and decision making space to best determine their own information requirements and the delivery methods required for it. In summary, there is not one function the AC/S G-6 does that a communications unit commander cannot do with their own staff, assuming it is staffed properly. Therefore, *Force Design 2030* should consider eliminating the AC/S G-6 function from the Marine Corps entirely and replace it with a more communications/network commander centric model.

The efficacy of the AC/S G-6 has run its course. In today's digital networked world, the need for more top-down driven policy is clearly wrong. More policy and more rules usually equate to fewer positive outcomes. Short of being a technical advisor to the commanding general, the AC/S G-6's role is growing towards obsolescence because of what it does not effectively influence today: the network. A quick glance across the Marine Corps reveals that most AC/S G-6s (usually at the MSC level) are not even staffed at the proper O-6 level rank. This sends a clear message to the communications community about what HQMC thinks about the importance of the MSC AC/S G-6 function and its role in cyberspace.

The AC/S G-6 staff function is ineffective because it does not have the capacity to support the countless day-to-day decisions needed by commanders to support its information requirements. It also has almost no meaningful influ-

ence on programs that directly impact operations. Those decisions have already been centralized by HQMC, CD&I, and MCSC. In addition, the AC/S G-6 does not even own the network it uses and has little influence over it. Cyber Command now owns the networks and the domains we fight on. Therefore, Marine Corps Forces Cyberspace Command (MARFORCYBER) and correspondently Marine Corps Cyber Warfare Group (MCCOG) have effectively replaced the traditional AC/S G-6 role for each MEF. The recent creation of the network battalions (which fall under MCCOG) may even call into question the need for communication battalions and communications squadrons in the future. The *Force Design 2030* organizational changes in recent months should go one step further and reexamine where we need to eliminate unneeded manpower structure and thus improve the Marine Corps ability to execute its mission sets in a more fluid matter. A good place to start is the AC/S G-6 and its staffs.

For example, short of directly supporting MEF-level exercises, the MEF AC/S G-6 does almost nothing for subordinate units' C2 needs that they cannot organically do for themselves. There is no reason a communications commanding officer cannot both be the principal advisor on C2 network/systems for the commanding general and an operational commander at the same time. Communications control (operational control) should be stripped from the AC/S G-6 entirely and placed in the hands of commanders of communications units. Information should travel via the shortest path necessary to get the job done not through chains of layered staff. Communication battalions/squadrons and communications company commanders can simply do what the AC/S G-6 purportedly does much better and have more agency over the successful implementation of communications control activities as a result. The extra layers of communications staff at the G-6 level do not help the commanding general make any better decisions in which a communication battalion/squadron cannot help him make. Each entity has its own system

planning and engineering teams and can easily organize and synchronize C2 network planning activities. Flattening these functions would speed up decisions and better support commander needs. The same goes for division and logistics communications companies. Plus, the real impact of any decision related to enabling C2 systems can be better facilitated by those who actually own and implement the people and equipment. The AC/S G-6 only dilutes the effectiveness of commanders.

I contend, at the MEF level, the communications battalion is more than capable of conducting all current AC/S G-6 functions, if staffed in key positions properly. Further examples, the MEB commanding general does not use the MEF AC/S G-6 staff to execute integrated naval C2 plans. Infantry regiments do not need the MEF/MSCs to facilitate C2 system support. Individual maneuver battalions and flying squadrons do not require the MEF AC/S G-6 for any planning. All of the planning and execution activities is generally done at the MSC level or below can already be facilitated by organic communication entities that currently reside within. The functions of the AC/S G-6 is already being done at the lower C2 levels more effectively and efficiently.

To paraphrase a former MEF AC/S G-6: "If the MEF only has one network to manage, then why do we need five MSC level G-6s, only one of which (Base G-6) has any real authority to operate the network? Everyone else just accesses the network." In the era of force design and preparing for the future fight, it is time we make some bold moves and restructure/repurpose the entire communications community, starting with the AC/S G-6 and its staff. We may need to even go a step further and examine establishing a communications regiment where the unit commanders can both serve as the MEF/MSC-level principal advisor to the commanding general, as well as handle any operational taskers to the maneuver units and deal with garrison issues. Communications control can simply be executed by the same unit that already has the people and equipment to execute it. There is no logical

reason that operational control and communications/network control be through two separate paths. One path, one set of decision makers, to ensure unity of command over C2 system/network support. Communication units can just as easily engage MCCOG, MARFORCYBER, and any external communication agency more effectively and with better results. Requirements generation and program office engagement would be streamlined with both CD&I and MARCORSSYSCOM. Let us eliminate the layers of extra staff which currently does little to enable high quality networks and services for the Marine Corps and its mission.

**Hierarchal Centralized Planning and Execution May Not Work In 2030**

*Force Design 2030* demands a new look at our structure. The more distributed we operate, the more we push capabilities down to the tactical level and the less we need large centralized controlling agencies filtering and influencing operational and tactical decisions. Additionally with today’s current technology, we no longer require such huge formations of communication units. Our current communications tables of equipment (T/E) have little relationship with our tables of organization and are based off 20th century thinking. For example, most communications squadrons and communication battalions possess between fourteen to eighteen beyond-line-of-sight satellite systems. If you add in the network equipment and other items that are required to run a network node, you realistically only need between eight to ten cross-functional teams of Marines per node, depending on the mission. This means we really only need about 180–250 Marines of various MOSs to do what a 600 or 1,100 Marine battalion currently does—especially as we march toward Deployed MCEN and other enterprise network models that will use cloud computing at the tactical edge. Therefore, if we need a full spectrum communications node supporting a unit (whether in garrison or in the field), to a varying degree, we really need a lot less people—which means we do not need large centralized controlling agencies

like the AC/S G-6 involved in these functions.

In addition to the trend of enterprise networks with locally hosted warfighting applications, we do not require more policy or centralized control other than those who “own” the network and actually operate the network; in the Marine Corps’ case, this is MCCOG. A communications battalion commander needs to answer to both the AC/S G-6, the MIG, and now MCCOG. There is no reason why we cannot flatten network C2 communications control and have supported units work directly with MCCOG for network access and day-to-day operations in both garrison and while deployed. In fact, an argument could be made that *Force Design* concepts being developed today for 2030 should consider eliminating AC/S G-6s and seek to replace the entire Marine Corps communications apparatus with MCCOG/Network Battalions cross-functional communication support teams that are geographically dispersed. These teams would be better suited to support local commanders since they are in direct operational alignment with directives from MARFORCYBER and would be better equipped to synchronize efforts with the joint force.

**Lack of Innovation, Lack of Empathy = Recipe for Failure**

It is my observation, almost all innovation in the last ten years in C2 systems and operational concept employment has not come from the AC/S G-6. Almost all of it comes from frontline S-6s and small unit commanders who are closest to operational problem sets and who are desperately are looking for real solutions. Many technical solutions are commercially available today yet are bogged down by AC/S G-6 SMEs who lack technical competency and are too risk adverse to change. As history demonstrates, bureaucratic entities do not innovate well, they simply ride the coattails of those who incrementally and systematically end up breaking programmatic rules in order to accomplish *their* missions. Units do this regularly because of lack of meaningful institutional support, forcing local commanders to use their O&M funds to

buy additional capabilities. Units who improve C4 system capabilities usually need to procure commercial equipment or capabilities because their current T/E does not keep up with technology or there are not enough quantities for operational use. The current requirements generation process is so cumbersome, non-iterative, and the subsequent new equipment fielding process is too slow, most units scrounge for new capabilities that facilitates their commander’s needs. This leads to informal alliances with commercial vendors (feeding a long standing cottage industry) and other external entity support. This is to highlight the fact that behavior should be legitimized and seen as an acceptable construct since the AC/S G-6 function continues to provide inadequate support. These practices should be encouraged in order to spearhead innovation and adaptive change in the Marine Corps. This is how innovation is usually born, from the ground up. We need to continue foster and grow from within.

FMF units, and especially communication units, should be able to independently make decisions that support their C2 needs, especially when there are technologies and concepts that could have exponential positive affects for its effectiveness. The market place of good ideas should not be prematurely killed by process and top-down driven thinking. The death of countless good ideas has come about because they were put through the very process that kills innovation—usually by slowing things down in terrible ways and stymie initiative by death by a thousand cuts. Not everyone wants to innovate, but those who do should have less restrictions put on them. Eliminating the AC/S G-6 from the decision-making process would place these decisions in the hands of communication commanders who can better increase innovation and generate more positive results for the Marine Corps wit large.

**Communication Commanders as Principal Staff Advisors**

Some may argue that the elimination of the AC/S G-6s would be too extreme of a shake-up and would induce too much friction into our existing staff

model. Another argument would state that the current functions of the MEF/ MSC AC/S G-6 would not go away just because the staff section went away, and that those tasks would still need to be performed. Whereas this argument may be correct, at the same time, the elimination of the MEF/ MSC AC/S G-6 would place control in the hands of communications unit commanders who can just as easily manage their C2 system requirements and deal directly with the required external entities that best support the organizational requirements. My answer is to flatten and eliminate what you do not need. A shake-up of this magnitude would drive other AC/S primary staff functions to better synchronize C2 requirements with the actual execution arm (supporting communications unit) for their own unit or agency. Unit commanders would be free to drive innovation and force positive change and be able to better balance both objectives with

its own training exercise and execution plan (TEEP) much more effectively. The reality is the AC/S G-6 functions are too redundant, ineffective, and becoming less valuable to the Marine Corps because they are not grounded in operational realities faced by communications unit commanders.

### Less Is More

Gen Moltke is the father of the general staff model that still persists today. He was a master of planning and the implementation of new technology (use of rail) and operational art. This model is 174 years old and has worn out its welcome. Like the general staff model, the functions of the AC/S G-6 provide little value under our current and future operational construct. So we should eliminate it and use the current AC/S G-6 SME expertise and manpower in a different way. Eliminating this function would simply eliminate the redundancy of many actions that can occur in other

areas of the organization, streamline processes to be more flexible, and increase bottom-up innovation for commanders at all levels of the organization. The time has come to eliminate role of the AC/S G-6 and replace it with a better balance and flattened operational construct. While the winds of change are in the air, that time is now.

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### Notes

1. AC/S G-6 consists of several functions to include Operations/System Planning and Engineering, Network Operations, Spectrum, ISSM and other various information system roles.



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# The Next Fight

Marine Corps Aviation: 2030 and beyond

by LtGen Mark R. Wise

***“The United States is our enemy.”***

***—Sergei Riabkov, Russian Deputy Foreign Minister,  
April 2021***

***“The threat of a Chinese attack on Taiwan is manifest during this decade; in fact, in the next six years.”***

***—ADM P. Davidson, (Then-outgoing) Commander,  
INDOPACOM, April 2021***

This is second in a series of articles describing how Marine Corps aviation will support the Marine Corps of 2030 and beyond in theaters of war around the globe. We are thinking to the future, and that means we focus on expeditionary bases and how we will get our Marines to the fight at the time and place of the littoral force commander’s choosing.

That operational agility will enable us to be ready at the time and place of the commander’s choosing. We must think far ahead of the threat, innovate, and change.

Our Commandant has made clear that the Marine Corps is and will remain the Nation’s expeditionary power projection force. We will:

- Operate from hardened bases at distances beyond the reach of most

adversary long-range strike capacity.

- Operate from mobile, defended seabases that inject uncertainty into the adversary A2/AD targeting calculus, or from assets such as CVNs and LHAs/LHDs optimized for F-35B operations inside adversary strike capability.

- Operate from a large network of expeditionary shore-based sites, regularly displacing and shifting operations to improve survivability.

- Provide reconnaissance and counter-reconnaissance to the naval expeditionary force and to the joint force commander. This means we will have ISR assets to give the naval force the picture forward.

***“Littoral operations are inherently aviation intensive, because naval operations are inherently aviation intensive.”***

***—TM-EABO***

***“Our ability to innovate is a hallmark of the Corps.”***

***“It demands rigorous intellectual work ... and a certain ruthlessness to abandon familiar ideas, capabilities, and platforms.”***

***—Gen D. Berger, Commandant of the Marine Corps,  
“2021 Force Design Annual Update”***

## The 2030 Marine Corps

Our pacing threat is the People’s Republic of China, but as Minister Riabkov reminds us, it is not the only threat. We will be prepared to act across the levels of war and in all theaters of war across the spectrum of competition.

***>LtGen Wise is the Deputy Commandant for Aviation.***

## Ships

We are thinking constantly about innovating in the naval campaign. This means thinking about how to use ships in agile and new ways as well as protecting those ships as they control sea lanes of communication. The competition continuum demands decisive action in the world’s littorals—action at which the Marine Corps excels.

Amphibious assault ships—LHD-1 *Wasp* class and LHA-6 *America* class, as well as the *Queen Elizabeth* of our British allies—are the premier platforms

for afloat MAGTF operations, and our integration into that naval capability is key to the success of tomorrow's MAGTF and naval strike force. We are getting better at this tighter integration into naval command and control, experimenting relentlessly to get it right.

As we think to 2030 and beyond—a “generational undertaking,” as the Commandant describes it—it is instructive to absorb the lessons of the last time the Marine Corps executed change of this magnitude. We are standing on the shoulders, today, of the giants who built the foundations of the modern, expeditionary Marine Corps. They too were preparing for littoral operations against a peer threat. They too were using new technology, new tactics, and new thinking to maximize the warfighting punch of an agile force. They too invented or modified platforms to provide new capabilities, and their relentless focus on innovation and on swift, flattened decision-making processes yielded historic results. We are on the same path today.

### **Naval Innovation, Advanced Basing, and Peer Combat**

The Marine Corps has a maritime soul, and a hallmark of Marine Corps success has always been naval innovation: building the technology and developing tactics to have us ready to fight from ship-to-shore and keeping a sharp lookout for new capabilities that can make us tougher, faster, and smarter. The modern Marine Corps has its roots in the driving, relentless innovation of our forefathers in the years between World Wars I and II, and that interwar period is instructive as we move into a similar period today. That period, as now, revolved around technology, doctrine, and the farsighted planners who pulled the two together.

It is difficult now to place ourselves into the worldview of the 1920s and 1930s. At the time, officers and military planners were still recovering from the brutality of the World War I trenches and the attritionist mindset that killed millions on land, at sea, and in the littorals. Jutland and Gallipoli overshadowed the views of senior Army and Navy leaders as they envisioned naval

campaigns dominated by battleships and ground campaigns where amphibious operations were thought to be impossible or futile.

In the wake of the Washington Conference of 1921, prescient Marine and Navy officers foresaw a looming threat in the Pacific and knew they would need to build a different kind of naval strike-

CVL light carrier or “jeep carrier”: lighter, smaller carriers easy to produce, man, and deploy. Of all the carriers built during the war, more than 80 percent were these smaller ships, mostly built on commercial hulls and thus slower than the bigger capital ships. Light carriers were sometimes even cruisers with a flight deck simply welded on;

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***The Marine Corps has a maritime soul, and a hallmark of Marine Corps success has always been naval innovation: building the technology and developing tactics to have us ready to fight from ship-to-shore ...***

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ing force tailored to power project sea, air, and amphibious forces to wrest control of the sea and the advanced bases in Micronesia from a determined foe. The Navy and Marine Corps would need to adapt and change and experiment with new capabilities—vastly different than the ones they had employed in World War I.

For the Navy, these interwar years were mired in debate as one type of capital ship, the battleship, was supplanted by another: the aircraft carrier. Admirals of the 1920s and 1930s were battleship men, and the idea of any other ship as centerpiece of naval strategy was anathema. By the end of World War II, however, the carriers had come into their own—in many ways the center piece of the naval striking force—with now-legendary names like Halsey, Mitscher, Spruance, Fletcher, and McCain changing forever the very heart of the fighting Navy. Now the aircraft carrier reigned supreme, despite the fact that twenty of those carriers were damaged or sunk during the ferocious fighting in the latter half of the war. Such losses were attributable not to the ships themselves but to the savage nature of the A2/AD threat of the day—reminding us that these powerful instruments of war were vital, yet far from invincible.

In addition to employing big-deck carriers, the World War II Navy pioneered the CVE “escort carrier” and

they were very top heavy in rough seas and frighteningly difficult to handle but crucial real estate for attack aircraft and, in particular, for the then-new concept of night-attack squadrons. These escort carriers were crucial in defending task forces against aircraft and submarine attack and for supporting amphibious landings in both the European theater of war and in the Pacific campaign. Light carriers saved the day during the 1944 melee at Leyte Gulf and saved Admiral Halsey's Taffey-3 task force in the blue-water battle at Samar. Innovation wins wars.

The Marine Corps underwent its own metamorphosis during this period. In the summer of 1939, the Marine Corps stood at an authorized strength of 18,000 Marines. The whole fighting force was two brigades, totaling four battalions: one brigade in San Diego, one in Quantico, both stood up just that summer. There was neither a Camp Pendleton nor a Camp Lejeune. Marine Corps aviation, only three years old as a separate and distinct part of the Marine Corps, consisted of 1st MAG and 2nd MAG, both of which were a month old. We had only a few dozen planes, including biplanes, a budding glider program, and flying boats and inshore light amphibians.

We experimented, even then, pursuing (and then abandoning) such ideas as amphibious gliders. Marine aviation at that time was considered to be critical

to the then-new concept of amphibious operations, but no one could figure out how to get airplanes to the fight in the numbers we needed or how to maintain the planes and supply the units flying them. The obvious answer was forward expeditionary airfields, but as the Japanese threat grew in the early 1940s and came into ugly focus at Pearl Harbor, planners realized that the Pacific Ocean was too vast to use solely short-range landbased aviation. We would have to operate from a seabase, specifically Navy carriers, until such time that we could flow from that carrier to an expeditionary base ashore—like ADM Halsey and Gen Vandegrift did so successfully at Guadalcanal in 1942 and in the battles that followed. They would seize and defend islands to use as staging bases as we pushed toward the Japanese mainland.

Reflecting on that naval campaign, Vandegrift thought the power of naval aviation (Navy and Marine) flowed from the synergy and mutually supporting nature of their maneuvering seabases and expeditionary airbases ashore. Today, both Services have aviation platforms—tailhook, vertical, tiltrotor, and STOVL—that can support a naval campaign from a variety of seabases is a source of strength and a unique advantage for our naval strike forces today.

In the late 1930s, as today, our doctrine maximized our technological innovations. The *Tentative Manual for Landing Operations* was only five years old in 1939; the *Small Wars Manual* was in draft form. That latter publication, released in 1940, put forth the close air support doctrine and theory we still follow eight decades on:

In order to secure the full measure of cooperation between air and ground forces, it is necessary that each understand the problems of the other. The aviator must know something of the tactics of the ground patrol, and he must be ready and willing to assist the ground commander. The ground commander should understand the hazards and limitations imposed on aviation operating over difficult terrain, and should not expect the impossible.<sup>1</sup>

The *Small Wars Manual* broke aviation into three types—reconnaissance,

combat, and transport—which is not far from how we think of aviation today. For example, our current mantra of “every aircraft a sensor” and our Commandant’s emphasis on maritime reconnaissance and counter-reconnaissance echoes how we thought in the 1930s:

Primary consideration should always be given to reconnaissance ... at least twice the number of observation or scouting airplanes will be required. (They will conduct) dual missions of scouting and attack operations; visual reconnaissance will be the principal method of obtaining information.<sup>2</sup>

As capabilities and doctrine matured, they often adopted the personae of their creators. Gen Lejeune and the Commandants who followed him insisted that the Marine Corps think about, train for, and anticipate amphibious operations and movement to, and across, the littorals. The planners and experimenters found—in the 1930s, just as today—they needed aviation to tackle some of the problems inherent in amphibious assaults, such as attacking reverse slope artillery that naval gunfire could not address or providing close air support to ground forces.

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**... our current mantra of “every aircraft a sensor” ... echoes how we thought in the 1930s ...**

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Deeply impressed by the Japanese landing craft he had seen in 1937 as an officer in Shanghai, an aggressive young captain named Victor Krulak began a one-man campaign to bring such craft—and the doctrine to maximize their capabilities—into the Marine Corps inventory. He created training events as far afield as Culebra and as close as Quantico, putting Marines aboard ship and sending them ashore over and over for months on end and driving his men to develop, practice, and perfect the foundational amphibious warfare tactics we use today.

### Combat in the Pacific

In the summer of 1942, Marine aviation in the Pacific began flowing from ships and staging ashore in the first iterations of what we now call expeditionary advanced base operations (EABO) and distributed aviation operations. The now-legendary CACTUS Air Force on Guadalcanal—under the command of equally legendary Marine hero Roy Geiger, who took the title “ComAirCACTUS”—addressed and overcame the same problem that we think about today: naval forces spread across an immense ocean and 6,000 open-water miles from home bases:

(W)hen the First Marine Division made its initial landings in the Solomons the ground forces were beyond the effective flight range of Marine fighters and dive-bombers.

Denied escort carriers of their own and tied down to nearby, short-range land bases or to captured enemy airfields within actual objective areas, Marine aircraft had to be committed on a catch-as-can basis, shuttled in piecemeal ... such a concept was at distinct variance with the expected usage if not the fundamental role of Marine aviation.

Both Marine pilots and troops felt frustrated. Direct air support in the form of Marine aviation could not be supplied to the landings at Guadalcanal until thirteen days after the landing; 1st MarDiv, struggling against heavy odds to hold its perimeter, had to get along as best it could without benefit of air cover. Japanese aviation superiority was such that for the first two weeks at Guadalcanal it was definitely a one-sided affair.<sup>3</sup>

Ignoring his shortage of pilots, aircraft, ammunition, fuel, water, and food, Gen Geiger set up shop in a wooden shack and went to work. He built out the force: across islands and across Services. Using Marine, Navy, and Army pilots and planes scattered across tiny strips on far-flung islands, over sixty days in the fall of 1942 the CACTUS Air Force took control of the skies and of the support to Gen Vandegrift’s landing forces. This lesson is instructive to us today.

In October and November 1942, when the *Enterprise* limped into port

for combat damage repairs, the Navy flew several squadrons of fighters and dive bombers to Henderson Field and operated very successfully side-by-side with their Marine and Army brothers, taking the fight to the enemy in the air, attacking their ships and aircraft, and providing close air support to the Marines until *Enterprise* was ready to return to full service.

The foresight in planning these operations paid off in the next two years as the Marines and Navy drove across the Pacific, seizing advanced airbases on islands, flowing from and to escort carriers as the situation dictated, operating carrier aircraft aboard ship as the first true iteration of the air-ground team, and carrying the fight against—and defeating—the Japanese Navy. These operations revealed an important operational insight as relevant then as it is now and will be into the future: expeditionary landbased and seabased aviation operations are *complementary* and *impose costs* on the adversary, who will be on the horns of a dilemma. This is classic maneuver warfare.

By 1945, that tiny force of 18,000 Marines had grown to 486,000. Even the Army followed the Marine Corps' amphibious landing manual, fighting their way ashore onto Sicily, Italy, and France albeit against a different enemy and in a different theater. Air-ground coordination was now theology and doctrine, written in blood. This momentum and the synergy between air and ground carried into the postwar years, as finally planners

felt they had a solution to the ship-to-shore problem: the use of helicopters, which would fly off of well-dispersed carriers and drop attacking troops behind shore defenses. Major Generals Shepherd, Harris and O.P. Smith and the Commandant felt that "vertical envelopment" gave new life to the doctrine of amphibious warfare.<sup>4</sup>

The Marine Corps, through work and grit and hard thinking, had established itself as a naval expeditionary force that could innovate successfully; ADM Halsey himself insisted that these World War II Marines were "the fightingest of fighting men."

Form followed function as the Marine Corps paired new technology with new

tactics and new doctrine—as an integral member of a naval team to win our Nation's war. We can learn from this period of innovation, tactical agility, operational focus, and victory in the Pacific.

***"Let him who desires peace prepare for war."  
—Flavius Vegetius  
Renuus, 300 AD***

### Lightning Carrier

From these lessons of our history, we can draw intellectual and operational sustenance for the challenges of today. The ideas pioneered by our forebears resonate; the ships and platforms are different, but the spirit of innovation is the same. The strength of the Marine Corps is in synergy with the Navy in new capabilities used in new ways.

One of these ideas is the Lightning Carrier. This combines amphibious assault ships with the superior aviation capabilities unique to the F-35B. By employing a fifth-generation aircraft from amphibious ships, we in a stroke nearly double the number of "carriers"—to our CVNs we add LHD/LHAs—from which the United States can employ fixed wing aviation. Lightning Carriers can reposition and have operational effects anywhere within 3.9 million square miles within 24 hours; that is naval agility.

The F-35's high-end sensor suite and electronic warfare capabilities make it less dependent on Airborne Early Warning and Control and dedicated electronic attack assets in most threat environments compared to its 4th generation fighter counterparts. We will maximize F-35, and that means employing it integrated in a larger naval campaign.

Lightning Carrier is a naval amphibious assault ship equipped with up to two squadrons of F-35Bs, which equates to twenty aircraft per ship. Lightning Carriers can deploy independently, as part of an Amphibious Ready Group/Expeditionary Strike Group, or in conjunction with a Carrier Strike Group. Missions traditionally performed by

specialized aircraft (air-to-air combat, air-to-ground strikes, electronic attack) can now be executed by a squadron of F-35s.

We have done this before, to include the 1991 Gulf War and Operation IRAQI FREEDOM in 2003, with "Harrier Carriers" providing seabased TACAIR sorties.

We have also done this with F-35. We sent VMFA-121 aboard *Wasp*, March and April 2019, to work this concept as part of BALIKATAN. For this exercise, VMFA-121 (-) deployed ten aircraft and ten pilots. This is the best stress-test simulation of the Lightning Carrier concept we have executed to date.

To do this, 121 experimented with two combinations of aircraft. The first was ten aircraft. Second was a six-aircraft mix. This small-scale, short-timeframe experiment was a success, yielding an 87 percent mission capable rate and 92 percent sortie completion rate once those planes were launched. The success of 121's experiment is something we can build upon, so too will be the results of VMFA-211's deployment aboard *Queen Elizabeth* later this year.

***"The prospect of Chinese use of force is much closer to us than most think."***

***—ADM John Aquilino,  
(Then-incoming) Commander, INDOPACOM,  
March 2021***

### Basing

Everything we will do to prosecute a littoral campaign requires expeditionary basing, expeditionary command and control, and expeditionary fires. Lightning Carriers can provide the reach and punch, but bases ashore will be crucial to ship-to-shore movement, sustainment and protection. The ACE is uniquely postured to succeed in this environment through innovation, collaboration, and a focus on operational agility.

This spring, the Commandant of the Marine Corps wrote:

Stand-in forces will be constantly present in key maritime terrain during periods of competition below the threshold of violence, deterring and countering nonlethal coercive behavior and other malign activity directed at U.S. allies, partners, and other interests. These same forces will remain inside an adversary WEZ to provide necessary support to naval and joint campaigning should competition escalate to war.

Critically, given the vulnerability of large, fixed bases and shore-based infrastructure to long-range precision strike and the challenges of adequately defending that infrastructure, the stand-in force must be able to perform these functions from a *strictly expeditionary and highly mobile* posture.<sup>5</sup>

He pointed out another truth: many people both within and without the Marine Corps advocate for posturing,

training and deploying as we have always done—simply because we have always done it. This shuts down innovation and new thinking, the very things on which we are embarked today. Many assume we are going to do Camp Bastion again: a giant iron mountain of equipment built up over months and providing a huge, fixed target.

The opposite is true. We are going to be light, agile, and mobile. This is expeditionary thinking.

Getting Marines ashore and sustaining them there means building out expeditionary advanced bases, protecting those bases as aircraft cycle through, and withdrawing forces back aboard ship. It is this capability that makes us unique, and our campaign of learning will yield the force of the future our Nation demands.

Notes

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# The Ultimate High Ground

Space considerations for the tactical fight

by Capt Adam M. Fountain

***“Only with support from space will it be possible for the Armed Forces to reach maximum effectiveness ... The Russian President has repeatedly stressed that our army and navy must not only meet the requirements of today, but to [sic] be prepared for tomorrow’s means of conducting armed struggle. The solution of this problem doubtlessly depends directly on the availability of a modern orbital constellation of military satellites.”***

***—Russian Defense Minister Sergey Shoygu,  
6 March 2018***

The intent of this article is to inform commanders and staff about the opportunities that space planning can provide in support of their schemes of maneuver and dispose of any preconceived notions that space support is out of the realm of tactical-level planning considerations.

## Scenario

You are the commander of a task force built around an infantry unit and you are preparing to go on the assault. You have been busy planning your attack for days and things have not been going as well as you had expected. Your intelligence section has not been able to give your planning staff a clear picture of the enemy situation and the intelligence that you had to go forward with was inconclusive and somewhat questionable. The hyper-spectral imagery you wanted was not available because your RFIs did not make the cut for sat-

ellite collection. Your intelligence section could not get up-to-date imagery because of increased SATCOM interference over the past few days. The UAVs that were feeding you footage from the objective area and avenues of approach have either gone offline or cannot penetrate the jamming environment. You have nevertheless decided to move forward with the operation because higher headquarters has already started planning the next series of actions, and they are expecting a positive outcome from your attack very soon. You try to call home, but none of the phones are working and the internet is down. You begin to wonder why, but it is time to start getting everyone assembled to do

final coordination and then mount up, get accountability, and cross the line of departure. As you walk to your command and control (C2) vehicle, you hear the comm guys yelling back and forth at each other, “We can’t get anyone beyond line-of-sight!” You attempt to use your Iridium satellite phone to contact higher—no joy. Your nav man tells you that there is something wrong with everyone’s GPSs. They are either jammed or giving current position grids hundreds of miles away. Your OpsO tells you that the first flights running your shaping actions are returning and some of them bombed the wrong locations because of GPS issues. The flights that were able to make it to the objective are returning battle damage assessments (BDA), indicating that almost all the targets were missed. You realize that the only other option is FAC-A self-lasing and dumb ordnance, which will put your aircraft at greater risk of enemy air defenses. Now you send the word to get your staff together because it time to make a decision—go forward with the attack or hunker down and hold position until the fog of war lifts? Before you can assemble everyone, explosions begin hammering your position. There is total chaos unfolding in your assembly area. Enemy ordnance is precise and deadly accurate. They seem to be hitting everything that is essential as if they are running down a target list. Your unit is decisively engaged. The sergeant of

***>Capt Fountain enlisted in the Marine Corps as an Infantryman in 2003 and commissioned in 2011 as an Intelligence Officer. He is now an Information Operations Planner and Space Operations Staff Officer for II MEF Information Group, FMF, Atlantic.***

the guard runs over to you and tells you that the watch officer reports two large formations of enemy vehicles closing in on your position. One from the East and one from the North. You and your OpsO both realize you are the victim of a spoiling attack. What now, commander?

hind when you moved your command post two days ago are under attack, but the fires are mostly ineffective, and the air defense systems are engaging enemy aircraft with success—they have taken the bait. You are spearheading the main effort. Satellite imagery, less than four hours old, enabled very precise

day and night for the next ten days. As you button up your C2 vehicle for the close-in fight, you think to yourself, “War has changed a lot since I was a lieutenant. I’m glad I didn’t kick the space guy out.”

***“And the fog of war will not easily clear in that fight, because future adversaries will employ new tools as well, exploiting any cyber and space vulnerabilities they can find and try to negate our advantages in those domains.”***

***—ADM James A. Winnefeld, Jr. Vice Chairman, Joint Chiefs of Staff, October 2013***

Now, imagine this scenario reversed. It is the enemy that is experiencing these effects, and meanwhile, you are ruthlessly exploiting the initiative and maneuvering on their forces. Days ago, your amphibious landing went fairly well, having fought through relatively light shoreline defenses to take your first objective. You established a beachhead and strong foothold from which to fight from. You and your staff evaluated the enemy and determined that their critical vulnerability was their over-extended communications infrastructure and reliance on SATCOM. You planned early for your own space support and the space planner was able to get space support requests through in time for this operation. Through good prior planning and nesting of your actions with operational and strategic-level, space-based collections and targeting actions, you were able to get the timing for this operation perfect for enabling space support. As your staff was finalizing planning, intelligence, surveillance, and reconnaissance (ISR) indicated that the enemy was preparing to go on the attack. Last minute adjustments are made to the shaping series, and you give the order to execute. Shortly after crossing the LD, your rear area gives reports that the fake C2 nodes, tents, and inflatable aircraft and vehicles that you left be-

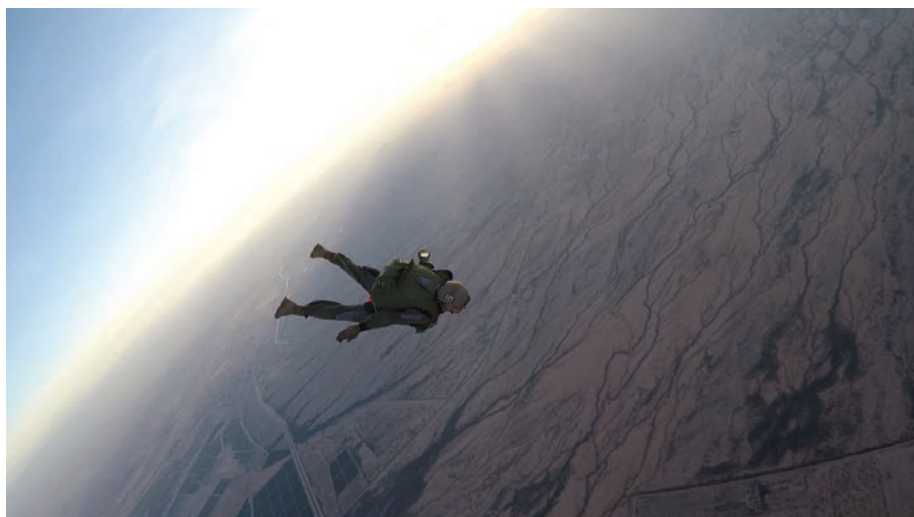
hind when you moved your command post two days ago are under attack, but the fires are mostly ineffective, and the air defense systems are engaging enemy aircraft with success—they have taken the bait. You are spearheading the main effort. Satellite imagery, less than four hours old, enabled very precise final coordination and confirmed exact locations of enemy C2 nodes, aircraft, anti-aircraft, and artillery positions showed the enemy beginning to build up forces in their assembly area. UAVs are returning live feeds of the destruction unfolding on enemy positions, and the BDAs are coming back with great effects and no targets requiring reattack at this time. Communications with your units, adjacent units, and higher are seamless and unfettered. Space-based METOC assessments show optimum weather for continued operations both

***“Maneuver warfare is 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.”***

***—MCDP 1, Warfighting***

**New Vectors for Warfare**

During the past two decades fighting wars in Iraq and Afghanistan, we have enjoyed a vast technological edge against our enemies. We have enjoyed air supremacy, unfettered communications, precision strike capabilities, and



***Capt Fountain navigates to the drop zone while in freefall during Multi-Mission Parachute Course in Coolidge, AZ, 2018. (Photo by author.)***

live ISR feeds showing us in realtime what our ill-equipped adversaries have been up to. The freedom of action we have had for so long is quickly going away. The tides of war are shifting and while our focus has been elsewhere, adversary nation-states have been scheming against us and developing capabilities to contest our interests and threaten our security at home and abroad. They have been working diligently to develop ways to avoid our strengths and exploit our weaknesses—to avoid our surfaces and target our gaps. Now that we are shifting our focus from the counter-insurgency fight and taking a serious look at our peer and near-peer adversaries, we have begun to realize that we are vulnerable in ways that we had not anticipated—particularly in the information environment (IE). It is important to understand that in this new fight, warfare is being waged in realms beyond the physical. These new vectors for waging conflict span from space to the electromagnetic spectrum, to cyberspace, and even to the minds of individual human beings. If we continue to think and plan only in the physical realm and try to solve all of our problems with ordnance, we are ceding this maneuver space to our enemies and providing them opportunities to outflank us. We must adjust our way of thinking, include these attack vectors in our planning, and evolve how we fight in this new age of warfare.

### Our Dependency on Space

In modern warfare, space-based support is critical to tactical success. It enables us to detect the enemy first, understand them first, take action first, and permits quick and decisive targeting to finish them. It provides redundancy in communications, ISR, and early warning in support of force protection. If we were to only rely on organic Marine Corps assets (the Marine Corps does not own any satellites), we would be allowing an enemy with space support capability to quickly out-pace our decision-making cycle, giving them a position from which to plan and execute against us first. So far, we have not allowed for that to happen. We depend on space support in several ways.



**Marines with Alpha Battery, Battalion Landing Team 3/5, 11th MEU, bivouac at Colonel Ernesto Ravina Air Base, Philippines, during Exercise KAMANDAG 3, 16 October 2019. (Photo by SSgt Donald Holbert.)**

### ISR

For tactical-level planning, one of the greatest capabilities that we bring to bear is space-based ISR. We have the means to pull high-resolution targeting-quality products for any location in the world for use in time-sensitive mission planning, positive identification, dynamic re-tasking of assets, and BDA. Intelligence collection efforts can be prioritized and sequenced to incorporate space-based assets which provides both redundancy and allows for the cueing of other collection assets in order to gain “multi-INT” correlation for targeting purposes. This works much the same way as would a HUMINT team that receives information about a new enemy communications node that is confirmed both by SIGINT and EO sensor collection. This enables a much faster targeting cycle because of the information having been confirmed and correlated across multiple collection platforms.

### Position, Navigation, and Timing (PNT)

Commonly referred to as GPS, PNT provides us with everything from current locations, to precision weapons guidance, and the timing that allows our communications systems to work. Location and timing data are derived

from information transmitted via the GPS satellite constellation from a minimum of four different satellites—three or more satellites for position triangulation and one satellite to synchronize timing. This constellation provides two position services. One is a standard positioning service that is broadcast over an unencrypted signal to any user with a GPS receiver. The other is a precise position service that is broadcast over two encrypted frequencies—used primarily by the DOD.<sup>2</sup> The modern operational environment demands that we enforce discipline when it comes to the types of navigation tools that we use. Many of the commercial navigation tools on the market today can easily compromise or disrupt our operations and can ultimately lead to entire units being killed if we are not careful and disciplined. The unencrypted standard positioning frequency used by these devices is a low-power signal that is more vulnerable to environmental conditions and can easily be jammed or spoofed by our adversaries. This can create additional friction that could easily be avoided by using the encrypted precise position frequencies, which are both harder for our adversaries to target and more reliable in adverse weather conditions. In terms of precision-guided mu-

nitions, high accuracy in PNT equates to highly effective kinetic strikes, minimal collateral damage, and reduces the need for reattack—which makes us more decisive, saves ammunition, and enables us to strike more targets faster. Considering that we are now bringing new HIMARS, ATACMS, and GMLRS capabilities online in support of expeditionary advanced base operations (EABO), accurate PNT will be essential in those long-range engagements where some of our targets may be on the move.<sup>3</sup> The timing part of this equation, which is essential for navigation and driving our precision-guided munitions, is also vital for establishing and maintaining communications. Without precise timing, our ability to use frequency-hopping is degraded or denied, and we are forced to off-ramp onto other more easily intercepted and jammed means of communication.

### SATCOM

SATCOM is essential for maintaining C2 on the modern battlefield. Far beyond just using a radio to talk voice to another unit or providing worldwide connectivity from remote locations, SATCOM provides a communications infrastructure that is not dependent on groundbased line-of-sight relays and is the go-to means of communications when organic communication range capabilities have been reached. As opposed to standard tactical UHF and VHF antennas, some SATCOM antennas can be focused directionally to provide the user a much lower probability of detection. This can increase the survivability of the user by denying the enemy the ability to direction find our forces. This is crucial in today's battlefield, where to be detected is to be killed.<sup>4</sup> SATCOM also provides the conduit for the Common Operational Picture, which is the primary tool used by command elements to keep track of friendly and enemy units and maintain a shared situational awareness of the battlefield. This tool significantly shortens the decision cycles of commanders and enables the swift actions of their subordinates.

### Missile Warning

Missile warning is done by Overhead

Persistent Infrared satellites that use infrared sensors to detect heat. Though it is primarily discussed at the strategic level in regard to intercontinental ballistic missiles, it can inform tactical-level defensive measures in the event of an enemy missile launch. Missile warning proves helpful in force protection discussions concerning freedom of navigation operations and EABO and can drive communications planning in regard to the lines of communications required to receive timely warning. Missile warning can also inform the targeting process by assisting in BDA and determining reattack options if necessary.

### Environmental Monitoring

In the Marine Corps, we like to say that no matter what our plan is, the enemy gets a vote. If this is true, I would venture to say that no matter who is voting, the weather holds veto authority. I can recall numerous times where our sniper missions were scrapped as a result of dust storms shutting down our

weather in any clime and place is absolutely essential for us as a Navy/Marine Corps team. In the middle of the open ocean or in remote areas of the world where no ground weather stations exist, environmental monitoring satellites are the primary observers. With the effects that weather has on both friendly and enemy operations, and many of the systems that we use, our weather satellites are crucial to mission success.

### Space Domain Awareness

For the tactical fight, space domain awareness is simply knowing when our satellites are overhead to support us and knowing when the adversary's satellites are overhead to detect us. Using this knowledge can greatly inform planning, specifically in regard to operational security (OPSEC) and military deception (MILDEC). Knowing when enemy satellites are overhead allows us to decide what we want them to see or not to see. We can prioritize actions that involve our essential elements of friendly

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***There are no national borders in space. There are no rules stopping our adversaries from flying satellites over our country as there is none to stop ours ...***

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ability to run CASEVAC aircraft, training exercises were cancelled because of hurricanes, and one particular occasion where, after a successful mission, our entire raid force (having only packed for a quick in and out trip) was stranded on the beach for several days in sub-zero conditions and high winds after our amphibious ships had to pull away due to high seas. Weather affects every aspect of our mission planning. For example, in terms of conducting amphibious operations in support of EABO, it can significantly change the underwater topography of the offshore staging areas and beach landing zones that we intend to use. It can affect the timing of our logistical support and change avenues of approach for maneuver. It can ground aircraft and render ships incapable of launching or receiving shore connectors. Having the capability to forecast

information to occur during windows when there are no enemy satellites able to detect us, which is fundamental to OPSEC, or conversely, we can purposely conduct actions designed to fool the enemy and project false intentions as part of a MILDEC plan. Knowing when enemy satellites are overhead can allow us to take such precautions as concealing our positions, changing or halting force movements, or establishing a state of emissions control in order to avoid or mitigate detection by enemy satellites.

### The Wild West

There are no national borders in space. There are no rules stopping our adversaries from flying satellites over our country as there are none to stop ours from flying over theirs. The days of spy planes and the political ramifications of them being shot down over enemy

territory have all but disappeared. The satellite flying in space can be likened to a ship travelling in the international waters of the open ocean. There are no borders, and all nations hold the right to traverse it freely. This makes space-based ISR, SATCOM, and PNT more responsive and accessible to adversary territory than via airborne or ground-based means. With this in mind, nations have begun to realize that a large portion of their national security relies upon access to or denial of space capabilities. To this end, there is an ongoing race to develop both ground and on-orbit space infrastructure as well as the means to counter these abilities.

### Adversary Counterspace Capabilities

While we have been occupied with the counterinsurgency fight, our peer and near-peer adversaries have watched very closely how we rely upon and use space capabilities to support our operations. They have analyzed our methods and identified numerous ways to deny, disrupt, deceive, degrade, or destroy our space capabilities. They have devised their plans and have been working diligently to develop the means to mitigate or remove our dominance in the space domain. Here are a few ways that they are planning to do this:

1. *Direct-Ascent Anti-Satellite Weapons (ASATs)*: Direct Ascent ASATs are groundbased, sub-launched, ship-launched, or air-launched missiles that are designed to target satellites. They are not designed to reach and maintain a particular orbit, but rather to intercept and kill a satellite much the same way a surface-to-air missile would be used against an aircraft. At this time, both Russia and China have the capability to use Direct Ascent ASATs to engage U.S. imagery and weather satellites in low-earth orbit. Iran and North Korea currently have the missile technology to pursue this course of action if they choose to do so.<sup>5</sup>

2. *Co-Orbital ASATs*: Co-Orbital ASATs are satellite weapon systems that are put into orbit with the intent to engage other satellites at the time and place of their choosing. Once in orbit, these systems can identify target satellites and then move to a firing

position to launch kinetic kill vehicles (think “bullets”) and destroy them. This is essentially armed reconnaissance in space. Currently, both Russia and China have these types of satellites on orbit with the intent to put more in orbit in the near future. Iran and North Korea currently have the launch vehicles to pursue this course of action but do not appear to actively be doing so at this time.<sup>6</sup>

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***If you have a clear view of the sky, its best to assume that adversary ISR has a clear view of you ...***

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3. *Electronic Warfare*: Electronic warfare in this context refers to the ability to deny, degrade, or disrupt either the signal uplink (target the satellite) or the signal downlink (target the user). This affects both SATCOM and GPS. Currently, all our adversaries possess, at the very least, the ability to jam commercial grade GPS downlink signals. China and Russia both maintain significant capabilities to deny, degrade, and disrupt our use of space support within the electromagnetic spectrum to target both uplink and downlink.<sup>7</sup>

4. *Directed Energy Weapons (DEW)*: DEWs are systems that use laser energy, high-power microwaves, and other types of radiofrequencies at various power levels to achieve effects on target satellites that can range from temporary disruption of the sensor to destruction of the satellite itself. Currently, China and Russia have ground-based DEW capability that can affect our satellites in low-earth orbit.<sup>8</sup>

5. *Cyberspace*: The use of satellites inherently involves the use of both cyberspace and the electromagnetic spectrum. In this context, cyberspace refers to software programs that are weaponized to attack a computer system within a part of the satellite

infrastructure—either the satellite, the ground station that controls it, or the link between them. Cyberspace weapons can be used to deny, degrade, deceive, disrupt, and destroy any satellite or ground station that can be communicated with and hacked into. Currently, China and Russia are developing anti-satellite cyberspace capabilities.<sup>9</sup>

### For Sale: Military-Grade Space Support

Though it would be ideal to our national security if the United States and our allies held a monopoly on space capabilities, it is important to note that the same capabilities addressed in this article are available for purchase through commercial satellite constellations. This implies that, with a bit of funding, any adversary nation, criminal organization, or terror group could potentially enjoy the same cutting-edge spacebased technological capabilities as the world's finest military force.

### Recommendations from the Space Planner

1. Use the Space Planner to assist with fires planning with regard to PNT accuracy assessments (also referred to as Dilution of Precision) and coordination for PNT signal power increase requests to make GPS-guided munitions more accurate during times when kinetic strikes are to take place.

2. Use the Space Planner to assist in OPSEC, SIGMAN, and MILDEC planning, specifically in regard to adversary ISR overflight schedules.

3. Be aware of your signature both physically and in the electromagnetic spectrum. Our adversaries have their own ISR satellites or have access to high quality ISR products from commercial satellites. Do your best to blend into the natural environment. Do not disturb the baseline if at all possible. If you have a clear view of the sky, its best to assume that adversary ISR has a clear view of you and can sense whatever EM spectrum emissions are emanating from your position. Make their job of finding you and tracking you as hard as possible. Do not present target indicators to them. Here are a few tips to help with this:

- a. Do not set up tents and COCs in the open.
  - b. Hide your forces in the tree line where there is no clear view of the sky. Where there are no tree lines or overhead cover to conceal your position, use cammie netting and other materials that resist/deny hyperspectral imaging and SAR collection.
  - c. Do not set up your tents or park your vehicles in rows or any other type of pattern. When it comes to tactical operations, establishing a pattern creates a target indicator. Patterns rarely occur in nature and can easily be identified by an enemy imagery analyst.
  - d. Use directional SATCOM antennas whenever possible. If directional SATCOM is not an option, the next best thing is a directional HF antenna because of how it is focused on one on particular azimuth and has to bounce off of the ionosphere to reach over the horizon. Our adversaries have the ability to direction find our transmissions, so using something that only emits in one direction makes sense.
4. Do not let Marines to use commercial GPS devices (Garmin, Magellan, etc). Only use military issued devices using military encrypted frequencies. They are harder to spoof and harder to jam.
  5. If you experience jamming or spoofing, report it immediately. User feedback often serves as the first indication of space assets being targeted. Use the reporting criteria located in CJCSM 3320.02, Joint Spectrum Interference Resolution (JSIR) Procedures.
  6. Whether conducting training or deployed in real-world operations, do not allow Marines to use personal electronic devices or wear smart watches or fitness trackers that talk to the internet or to satellites. Its best to consider all commercial electronics that emit signals compromised. The enemy has the ability to sense and target these users through the electromagnetic spectrum or cyberspace. Marines never travel alone, so if they can sense and locate one or two of our devices, they can easily assume other key elements to enable them to effectively target us.<sup>10</sup>
  7. Include the Space Planners, and other Operations in the Information Environment Planners, early on and make sure

that they stay integrated throughout the planning process. Don't put them in a room down the hall to plan in a vacuum while the "real" planning is going on elsewhere. There should be no such thing as separate OPTs for Information Warfare and Fires. All capabilities should be considered for input to achieve an all-inclusive whole-of-effects approach to fires.

***"If you can't explain it simply, you don't understand it well enough."***  
**—Albert Einstein**

**Conclusion**

No matter what MOS you hold in the Marine Corps, we all either directly or indirectly support the infantry. Until a new main effort is designated, the tip of the spear will continue to be those young hard-charging 0311s, and we must do everything within our power as supporting units to ensure that they are crossing the line of departure with the absolute best support that we can provide. The infantry values simplicity and directness, and has little patience for things that seem outside of the scope of the mission. Unfortunately, many of the new concepts and capabilities coming online for the Marine Corps fall outside the realm of kinetic capabilities and can come across as somewhat irrelevant to someone whose mission is to locate, close with, and destroy the enemy by fire and maneuver.<sup>11</sup> To be fair, this can be said for most other MOS's that are not inoculated to working with and through the IE. The other side of this coin is that some of us as information warfare professionals do not know how to effectively communicate—sometimes very technical IE planning considerations—to someone that has been trained to solve problems with ordnance. This language barrier is one of the major obstacles that we must overcome if we are to fully integrate our lethal and non-lethal capabilities and

remain relevant in a world where the means by which we conduct warfare is quickly changing. We share a responsibility to try and bridge this gap in understanding. We must think through the lens of the infantryman, decide how our particular skillset can best support them, and develop the language skills necessary to clearly and concisely convey to everyone at the planning table what can seem like new and strange concepts. If and when we finally achieve this planning synergy, we will be ready to fight and win the wars of today and tomorrow. Though the nature of war is unchanging, the character of war is not; thus, it is existential imperative that we adjust to the changing character by which we wage war.

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# Yes, They Can Hear Us Now

Private companies can now sense Marines from space

by Maj Robert Manuel, LTC Jeremy Glauber & LtCol Christopher Jones

The commercial satellite market is rapidly expanding worldwide, giving non-space faring nations—and even private citizens—capabilities that only advanced space-faring nations possessed ten years ago. U.S. policy makers and military leaders have recognized this trend and have wisely begun to capitalize on it. The decision has already begun shaping competition and conflict at the strategic level. The military may capitalize on this expansion at the tactical level as well. This article makes a case study of commercial remote sensing corporation Hawkeye 360's radio direction finding (RDF) satellites to demonstrate strategic and tactical implications of commercial satellites on the military. The authors then employ a strengths, weaknesses, opportunities, and threats (SWOT) matrix to identify several implications of the growth of the commercial space intelligence, surveillance, and reconnaissance (ISR) market on high tactical-level units, such as a MEF, in order to make recommendations for how senior leaders should adapt their organizations to benefit from it.

## Case Study

The total number of active satellites on orbit increased over two-fold between 2015 and 2020 to approximately 3000 satellites.<sup>1</sup> Commercial satellites contributed to the lion's share of this increase. Moreover, this upward trajectory in the number of active commercial satellites has quickened going into 2021, with the launch of hundreds of SpaceX Starlink broadband internet satellites per month this year. Not only

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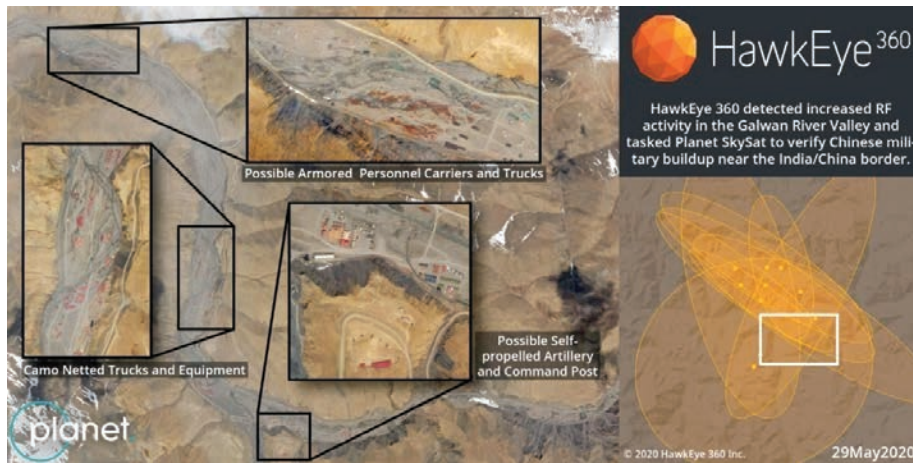
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are the number of commercial satellites increasing but so are their capabilities. RDF has shaped conflict for a hundred years, but RDF from space was the sole province of governments until the last six years.

For instance, British Army Capt H. J. Round installed RDF stations along the east coast of Britain while working for the highly classified Room 40 at the beginning of the First World War.<sup>2</sup> In May 1916, these RDF stations detected a 1.5 degree movement of the SMS Bayern across the English Channel, signaling the potential movement of the German High Seas Fleet. Based on this information and supporting intelligence, ADM Sir Henry Jackson committed the British fleet to the Battle of Jutland, the largest sea battle of World War I. While the results of the battle were not decisively in favor of the British, the concept of RDF was proven to be a valuable capability.

Over a century later, a U.S. commercial interest used RDF equipment installed on satellites flying in low-earth orbit to capture signals over greater distances and much rougher terrain.

In May 2020, a cluster of Hawkeye 360 satellites recorded an increase in radio frequency activity while flying above the Galwan River Valley along the border between India and China. Analysis later revealed the presence of Chinese military units, along with road and bridge construction equipment, signaling preparations for the potential ingress of Chinese forces into the area.<sup>3</sup> Two weeks later, hand-to-hand combat ensued between the Indian and Chinese militaries over disputed territory in the valley, taking the lives of up to 25 Indian and Chinese combatants. Although the Indian government did not own any RDF satellites at the time, unclassified Hawkeye 360 data and commercial satellite imagery made it into newspapers, such as *India Today*, helping India to shape the narrative for the conflict. Figure 1 is a storyboard that shows how the Hawkeye 360 satellites initially detected increased radio frequency activity along the border and then requested imagery by a commercial imagery satellite for additional intelligence on the clash between the two countries.



**Figure 1. Commercial satellite information showing Chinese forces in the Galwan River Valley ahead of conflict of 15/16 June 2020.<sup>4</sup> (Figure provided by author.)**

Although India benefited from the information it derived from U.S.-based satellite companies last year, the United States has not necessarily cornered the market for commercial RDF satellites. Hawkeye 360’s current competitors in the market for commercial spacebased RDF hail from Luxembourg, France, and China.<sup>5</sup> Fortunately, for U.S. commercial and military interests, Hawkeye 360 appears to be the current leader on the world market. This is the result of both U.S. entrepreneurship and government policy allowing for the development of this sensitive technology.

Hawkeye 360 was founded in 2015 with the purpose “to become the world’s leader of spectrum-based geoanalytics,” and they are doing just this out of their headquarters in Herndon, VA. Two years ago, they launched their first cluster of three satellites and in January 2021—their second. Each cluster of satellites flies in a formation in low-earth orbit, completing an orbit around the earth in approximately 90 minutes, while downlinking data to ground stations located in Antarctica and Norway when the satellites pass those locations overhead. Hawkeye 360 uses each three-satellite cluster and two techniques, called frequency difference of arrival and time difference of arrival, to geo-locate radio frequency transmissions.

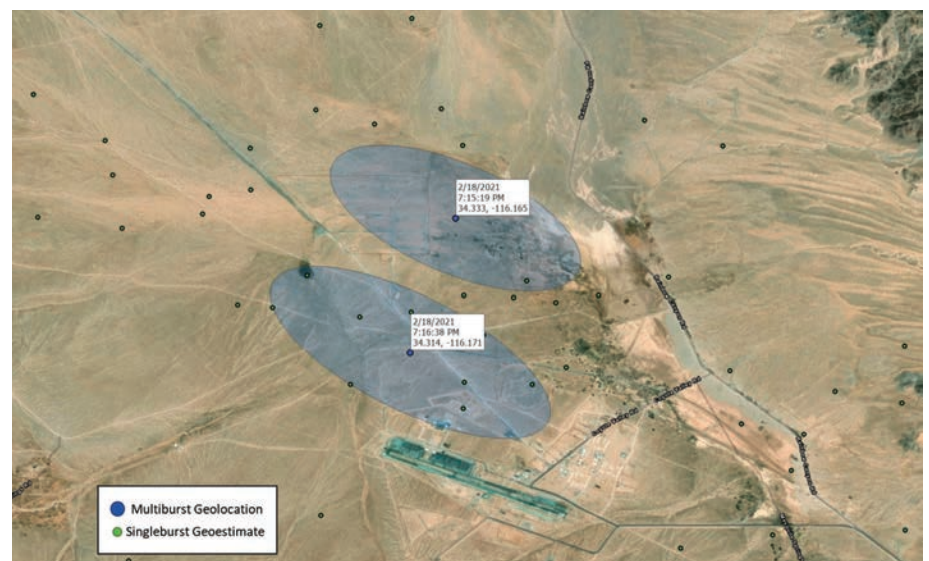
Signing a data integration study contract with the company in December 2019 and making it a trusted partner, the National Reconnaissance Office (NRO) was one of Hawkeye 360’s

early customers for emissions data that could be combined with imagery from commercial satellites.<sup>6</sup> As part of the research for this article, the authors reached out to Hawkeye 360 directly, rather than requesting information from the secretive government agency: NRO. The idea behind contacting the company was to see whether it would provide data that Hawkeye 360’s satellites could pull while flying over an exercise that included II MEF units. In February 2021, MAGTF Warfare Training Exercise (MWX) 2-21 was held at Marine Corps Air Ground Combat Center, also known as Twentynine Palms, CA. MWX 2-21 pitted 6th Marine Regiment against a seasoned adversary force

well versed in using signals intelligence against its targets. The groundbased signals intelligence capability of the adversary force was well honed but it did have limitations, such as terrain masking of radio frequency signals and the significant distances that have to be monitored in the training area.

Hawkeye 360 was very accommodating in responding to the authors’ request, helping us to understand how Marine units might appear to Chinese or other adversary collections satellites in the radio-frequency spectrum. On the second to last day of MWX, Hawkeye 360’s satellites silently flew over the training area and captured Marine radio frequency transmissions. The warfighters of 6th Marine Regiment had no idea the systems they were using to enhance C2 would betray their locations. The emissions captured by the formation-flying Hawkeye 360 satellites were digitized, stored, and later downlinked for analysis.

The results were both fascinating and sobering: a commercial entity captured and geo-located military signals transmitted under simulated operational conditions. Indeed, results like this from a startup company should give our leadership pause when countries like China most likely have similar or better technologies to geo-locate our radio frequency emissions. One portion of the overall data-set is shown in Figure 2,



**Figure 2. Hawkeye 360 Collection over Marine Corps Air Ground Combat Center, Twentynine Palms, CA, February 2021. (Figure provided by author.)**

which reveals the locations of suspected operations centers (center of blue ellipse) and patrolling units. This information gives II MEF a better idea of what its units might look like to foreign satellites collecting in the same frequency range over the United States, and it helps to push the threat discussions at exercises such as MWX beyond groundbased RDF.

Readers might also consider the following. Although the blue geo-location ellipse showing the most probable (95 percent likelihood) locations of multi-burst emitters is large, even in comparison to the green expeditionary airfield at the bottom of the image, additional passes from RDF satellites may refine this result. The data from the RDF satellites can also be used to refine requests from imagery satellites, such as in the Galwan River Valley example, or to cue groundbased sensors for further location refinement. Moreover, the cueing of imagery satellites can lead to the positive association of a radio emission emanating from material to its image. Such two-factor identification can aid adversary targeting efforts or hinder friendly efforts at concealment and deception.

Congress has seen the benefit that commercial satellite companies such as Hawkeye 360 have to offer. In fact, Congress went so far in the 2021 National Defense Authorization Act as to legislate that:

The Secretary of Defense, in coordination with the Director of the National Reconnaissance Office and the Director of the National Geospatial-Intelligence Agency, shall leverage, to the maximum extent practicable, the capabilities of United States industry, including through the use of commercial geospatial-intelligence services and acquisition of commercial satellite imagery.<sup>7</sup>

Despite the military's increased reliance on commercial ISR, a November 2020 study by Aerospace Corporation points to the potential for the government to purchase even more commercial space-related products and services.<sup>8</sup> Other commercial products and services not discussed here include spacebased weather information; satellite imag-

ery; position, navigation, and timing; space-situational awareness; and communications. If the commercial sector is able to provide suitable commercial off-the-shelf or licensed products at a cost savings to the government, this can free up government resources to meet other military and space-related requirements.

Other military benefits exist at the strategic level as well. An author of several books on the subject of space security policy, Dr. Clay Moltz, recently opined in *Strategic Studies Quarterly* that the growth of the U.S. commercial-space sector is helping to establish the condi-

strategic actions that high-tactical-level units, such as a MEF, can take to achieve the greatest benefit from commercial ISR satellites writ large. A SWOT analysis is typically depicted by a 2 x 2 matrix as shown in Figure 3. This analysis can be used to identify and categorize the internal, external, helpful, and harmful factors in a unit's strategic environment that it can mitigate or capitalize upon to achieve operational success.

Five strengths to high-tactical level military units of the increased availability of commercial satellite-based ISR are shown in Figure 3. These strengths include the fact that NRO has awarded

<b>SWOT Analysis: Commercial ISR Growth and Military Units at the High-Tactical Level</b>		
<b>I n t e r n a l</b>	<b>Strengths</b> <ul style="list-style-type: none"> <li>• Existing NRO contracts</li> <li>• Data analysis tools</li> <li>• Fewer restrictions</li> <li>• Easy to share internally</li> <li>• Own-force monitoring</li> </ul>	<b>Weaknesses</b> <ul style="list-style-type: none"> <li>• Aids adversary targeting</li> <li>• Pervasive</li> </ul>
<b>E x t e r n a l</b>	<b>Opportunities</b> <ul style="list-style-type: none"> <li>• Easy to share externally</li> <li>• Multinational architectures</li> <li>• Unclassified data fusion</li> <li>• Small-scale development</li> </ul>	<b>Threats</b> <ul style="list-style-type: none"> <li>• Security concerns</li> <li>• Social and market conditions</li> </ul>

Figure 3. SWOT analysis. (Figure provided by author.)

tions for the United States to pursue a new strategy of spacebased deterrence, arguing: "A state may, over time, create a resilient constellation of hundreds of networked satellites (national, commercial, and allied) that may be able to convince an adversary that its forces will not be able to accomplish their objective of denying space-derived information."<sup>9</sup> In other words, U.S. commercial satellites may help to preserve U.S. military access to space-enabled capabilities in a future high-intensity conflict.

### SWOT Analysis

This article has alluded to several of the advantages and potential disadvantages of the growing commercial satellite sector on tactical operations during the preceding discussion of Hawkeye 360. In the following section, we employ a tried and true analysis tool to identify

study or data integration contracts to a handful of companies in the last several years, including Maxar, Planet, Blacksky, Capella, and Hawkeye 360. If it is not already doing so, NRO will make the data from these companies' satellites available to military users, augmenting data from existing national capabilities. Set in opposition to the first strength, another strength is that units do not need to rely solely on the NRO or National Geospatial Intelligence Agency (NGA) to get this data. For example, a unit could purchase the tool that it needs to ingest, visualize, and analyze Hawkeye 360 data as an add-in to ArcGIS software that it currently available for download.<sup>10</sup> Other tools, such as Maxar's Global Enhanced GEOINT Delivery platform, are also available for military users to access for free using their common access cards.

Yet another benefit of commercial ISR systems is that fewer restrictions are associated with their use than for national intelligence satellites. Federal law prohibits the use of national intelligence satellites to collect information on U.S. citizens, and as a result, it is relatively difficult to collect data on units conducting exercises and other activities within the United States. Since commercial systems are not subject to the same restrictions, their data can be obtained more easily to, for example, show friendly units how they might look to foreign intelligence satellites.<sup>11</sup> Since the data is not classified, U.S. forces can share it on unclassified computer networks, and with allied and partner forces, making it simpler to use information from commercial ISR satellites to shape operational decisions than if similar products were derived from national systems and marked at a higher security classification level.

Hawkeye 360 has assured the authors that it never sells data to any country subject to sanctions by the U.S. Treasury Department's Office of Foreign Assets Control, and that it has an iron-clad company policy not to do business with any Chinese or Russian government agency, company, or individuals. Nevertheless, other companies are less scrupulous, and this results in the risk of U.S. adversaries using increasingly available commercial ISR to track U.S. troop movements. In fact, *60 Minutes* reported in March 2021 that Iran had used commercial satellite data to monitor al-Asad Air Base leading up to the January 2020 missile attack that caused over 100 people at the base to be treated for traumatic brain injuries.<sup>12</sup> It is also increasingly difficult for military units to escape notice around the globe. For instance, Planet satellites alone can provide .5 meter resolution satellite images over certain portions of the Earth up to twelve times per day, with the average revisit rate of any point on the globe reported to be seven times per day currently.

Moving from strengths and weaknesses to opportunities and threats, the reader might reflect on how the Indian government or newspapers employed publicly available data from Hawkeye

360 satellites to shape the narrative after fighting occurred between Indian and China in June 2020. It would be very rare that the information or communications strategy sections of a high-tactical-level military unit could ever achieve such a feat in regard to shaping the narrative as the Hawkeye 360 and Planet data did by shedding light on Chinese intentions leading up to the conflict.

Unlike when dealing with exquisite capabilities controlled by the national government, where a three-star operational command might not hold much sway, there is sufficient commercial capacity, bandwidth, and responsiveness for commands to pursue one-off experiments and initiatives. For example, in March 2021, *Breaking Defense* wrote an article on the 18th Airborne Corps'

involved can pose security risks, something that operational units must guard against in their effort to push the ball forward. Units may also find support for their efforts linked to market or social conditions, such as when Google stopped working on AI development with the DOD two years ago amid pressure from its own employees.<sup>15</sup>

### Recommendations

First off, the authors want to acknowledge that this article was written as a completion requirement for the Academic Year 21 Barrow Fellowship Program. Although the military has paid for each of the authors to attend educational institutions to receive instruction at the master's level, none of us is currently enrolled in an academic program. Encouraging Marines to

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***Since the data is not classified, U.S. forces can share it on unclassified computer networks, and with allied and partner forces, making it simpler to use information from commercial ISR satellites to shape operational decisions ...***

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efforts to pioneer artificial intelligence (AI) for the Army while working with Project Maven and other initiatives, noting that it was unusual for a three-star command to lead such an effort.<sup>13</sup> Yet another article cites big technology's recent support for this and other efforts related to AI and Joint All-Domain C2.<sup>14</sup> Arguably, the capacity of commercial companies to develop and share AI and other technologies that can be applied to spacebased ISR is outpacing the ability of institutional entities charged with research and development to keep pace, and this creates the opportunity for commands such as 18th Airborne to pursue semi-independently projects that are important to them.

Compared to the opportunities, the list of threats posed by the explosion of the market for commercial spacebased ISR is short but still worthy of reflection. The fast pace of commercial integration and the number of actors

participate in fellowship programs and similar initiatives is a means to draw on a Service's intellectual capital to study broad issues of importance to a Service and to a particular unit.

Second, as a recommendation specific to the preceding SWOT analysis, units can use existing resources or make modest investments to gain access to products and services offered by commercial spacebased ISR service providers. Intelligence sections can provide commanders with practically any imagery they need for training, own force monitoring, and adversary familiarization upon request. Once collected, the commercial imagery can be viewed via Maxar's Global Enhanced GEOINT [geospatial intelligence] delivery platform or NGA's iSpy.<sup>16</sup> In some instances, as when new software is required for use on the network, the communications staff section may need to be involved to address any network

security issues or concerns, as discussed below.

Third, units ought to employ information from military and commercial spacebased ISR systems to regularly assess their own and the opposing force's radio-frequency signatures during training and exercises. This provides an opportunity for units to learn to operate in a manner that allows them to decisively target an opposing force before they themselves can be targeted and to avoid signaling intent in a way that would compromise an operation. Ideally, collections from any given exercise would be readily available to pull from an online database, such as iSPY.

Fourth, units with members in space-related billets should hold military educational events to inform their staff on what space-related tools are at their disposal. Within the Marine Corps, the Marine NGA Support Teams at each MEF specialize in exactly these briefings for GEOINT tools. Possessing just such a tool, those charged with marketing at Hawkeye 360 may have seen the conflict in the Galwan River Valley as an opportunity to develop a market for their products and services. It is unlikely that the communications strategy section of a staff would think to push out similar information, nor is it clear that it would have the authority to do so without having previously worked through the problem with the responsible parties.

Fifth, units must look for opportunities to experiment with space-related technologies once they have informed themselves on space-related tools and architectures. Each Service's science and technology division may already be working on similar initiatives to the one that an individual unit wants to pursue, but the division may lack the detailed operational knowledge of a unit's plans or lack the bandwidth to lead these efforts. Units can lead innovation from the ground up in a manner that ties into institutional initiatives, while effectively advocating on their own behalf.

Sixth, commanders need to balance the risk of incorporating new technologies with accepting security and supply-chain vulnerabilities. Proper advocacy requires regular leadership engagement

with logisticians, communicators, intelligence personnel, and ultimately systems commands to prioritize space-related initiatives and clear obstacles as initiatives work their way through institutional checks and balances. Units should not rely on the heroic efforts of one or a few individuals to gain a pyrrhic victory or, conversely, to allow institutional inertia to cause initiatives to stall before coming to fruition.

## Conclusion

The rapid commercialization of space is and will continue to strongly impact military operations at the strategic and tactical levels. The authors took the approach of using a case study of one provider of ISR—Hawkeye 360—to inform a wider analysis of the implications of the increase of commercial spacebased ISR on high-tactical units, such as a Marine Expeditionary Force or an Army Airborne Corps. Finally, we recommended six actions that commanders and subordinate leaders should take to gain more benefit in their organizations from the rapid commercialization of space that is taking place. Managing the integration and implications of the rapid growth of the commercial spacebased ISR is both possible and doable by following, among other things, these six actions.

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# Maritime Space Operations

The Marine Corps' role in the space domain

by Maj Nathan Stokes, Capt Michael Garcia,  
Capt Frederick Haden & GySgt Christopher Wilson

The 2016 *Marine Corps Operating Concept* stated, “The Marine Corps is currently not organized, trained, and equipped to meet the demands of a future operating environment characterized by complex terrain, technology proliferation, information warfare, the need to shield and exploit signatures, and an increasingly non-permissive maritime domain.”<sup>1</sup> Nowhere within the Marine Corps is this problem statement more apparent than within Marine Corps Space Operations and associated capabilities. What the *Marine Corps Operating Concept* previously defined as the future operating environment was, in retrospect, an acknowledgement of the current operating environment against peer-level competitors, distinguished by increasing threats to the space domain as it becomes more congested, contested, and competitive. Peer-level competitors have identified space as one of the United States' critical vulnerabilities and have developed counterspace capabilities to degrade the Nation's technological advantages.

To meet the aims of the Commandant of the Marine Corps' (CMC) *Force Design 2030*, the Marine Corps must examine its capabilities and revise its methods to function effectively on the battlefield of the future.<sup>2</sup> To this end, the institution must address the competing interests between the Marine Corps Concept for Space Operations and the needs of the naval force. The 2030 Marine Corps must utilize space to enable maritime maneuver in contested environments against adversaries that will have regional domain superiority.

>Author's biographic information not provided.

The goal of operating from within the weapons engagement zone (WEZ) of our most capable adversaries offers significant challenges to the current force, but it also offers unique opportunities should the institution address current shortfalls in space-related equipment, organization, and training. To fulfill its mandate to support the fleet, the Marine Corps must be prepared to integrate into space.

## Space Domain and Force Design

The 2019 *Commandant's Planning Guidance (CPG)* establishes the end state that, “The Marine Corps will be trained and equipped as a naval expeditionary force-in-readiness and prepared to operate inside actively contested maritime spaces in support of fleet operations.”<sup>3</sup> To accomplish this, the institution must take an honest assessment of resource shortfalls across the warfighting functions and establish recommended courses of action to address critical vulnerabilities to enable the force of the future. Specific to the space domain, the Marine Corps must develop concepts for high-leverage space technologies and systems that will best support forces operating forward within the enemy's WEZ, in austere conditions, and distributed across large distances. The Marine Corps must take full advantage of space solutions and

be prepared to operate in a denied, degraded, and disrupted space operational environment (D3SOE).

The vision of the Marine Corps' future force, as outlined by the CMC, is one of Marines operating forward as an inside force armed with advanced sensors and strike capabilities distributed within the threat ring of the Nation's most capable adversaries. From the inside, Marines will fight, persist, and set conditions for follow-on forces to strike decisive blows against an opponent. The force is being tailored to such a vision, particularly as the Marine Corps divests itself from legacy systems, explores the possibility of restructuring the force for austere and distributed operations, and develops a C2 construct alongside the fires capabilities necessary to conduct and coordinate sea denial.<sup>4</sup> Now, as the organization looks to move back to its naval roots, it is imperative to analyze the efficacy of the *CPG* in the context of a future battlefield reliant on resilient space-enabled capabilities. His stance on the future of Marine capabilities in maritime environments should be a driving force in bolstering research and support of space-enabled operational capabilities.

The institution needs innovative proposals that are responsive, feasible, and achievable to transform space-enabled operational capabilities and address critical gaps. A threat-based approach to building Marine Corps space-enabled operations and associated capabilities that support the composite warfare commander will provide evolutionary concepts that can drive operational requirements across the combined naval

force. This will introduce and field capabilities that can provide a mutually beneficial competitive advantage for the future fight. As identified in a recent national intelligence study, “The most powerful actors of the future will be [those] who can leverage material capabilities, relationships, and information in a more rapid, integrated, and adaptive mode than in generations past.”<sup>5</sup> The Marine Corps must seek new and creative solutions to build a force capable of integrating space capabilities for use within composite warfare to increase naval force lethality and resiliency within the enemy’s WEZ.

### Operations inside the Enemy’s WEZ

The Marine Corps of the future will aggressively consume the services offered by the space domain, despite current limitations, to compete against adversary counterspace threats. To conduct expeditionary advanced base operations, the Marine Corps will be reliant on space-based capabilities to sense, communicate, and coordinate maneuver and fires. Although it has been asserted that the Marine Corps does not own a single space asset, it must be clarified that this applies to on-orbit assets and does not reflect the space-enabled capabilities of command and control, communications, computers, cyber, intelligence, surveillance, reconnaissance, and targeting resident within the force. Marine Corps space operations and associated capabilities span across the warfighting functions. They are a critical enabler of not only traditional command and control, communications, computers, intelligence, surveillance, and reconnaissance solutions within the communications and intelligence communities but also facilitate distributed and disaggregated movement, maneuver, fires, sustainment, and protection—all essential to operating within an anti-access/area denial (A2/AD) environment and critical to winning the counter-C2, communications, computers, cyber, intelligence, surveillance, reconnaissance, and targeting challenge.

A2/AD is more than just denial in two dimensions. Marines are working to solve the challenges associated with

long-range precision fires and maneuver, but few are addressing A2/AD in other domains. If Marines only solve the terrestrial kinetic threats to maritime maneuver but fail to address the threat in space, they will find themselves effectively isolated while operating inside the WEZ of the United States’ most capable adversaries. Isolation through space denial will render forces operating as an inside force ineffective. Intentional jamming degrades satellite communication; degrades positioning, navigation, and timing; and disrupts command and control of forces in distributed austere environments.

The 2017 *Marine Corps Concept for Space Operations* identified numerous enabling capabilities Marines may one day have to source in order to increase the resiliency and operability of the U.S. space enterprise architecture; however, many of those programs have not yet materialized. The joint force will be fighting to maintain superiority in the space domain, but the unique placement of Marines fighting inside the denied environment requires educated space professionals forward. This will increase the Marine Corps’ ability to leverage space solutions in the conduct of naval and joint force operations. The institution is diligently striving to address the problems that immediately threaten U.S. warships, but it must also assist in the battle for space primacy to truly succeed as an inside force. Specifically, the Marine Corps must invest more heavily in high-leverage space technologies and systems that will best support forces operating forward. These systems include high-altitude platforms capable of relaying critical information in the event of localized space denial and leveraging proliferated low earth orbit commercial assets to maintain satellite communication in a D3SOE environment. However, investments in these technologies will be moot if the institution does not continue to organize to support them.

### Future Fight Organization

Two years after the publication of the *CPG*, the Marine Corps is making strides to organize, train, and equip its force for the future fight against adversary counterspace threats. Effective 1

October 2020, the CMC established Marine Corps Forces Space Command (MARFORSPACE), creating a Marine Corps Service component command to U.S. Space Command (USSPACECOM), focused on providing space operational support to the FMF “while building a convergence capability to increase warfighter lethality.”<sup>6</sup> MARFORSPACE enables USSPACECOM to deliver timely space capabilities to the FMF in the conduct of naval and joint force operations. Additionally, MARFORSPACE will support space-based command and control systems; space-based intelligence, surveillance, and reconnaissance; positioning, navigation, and timing; space-control operations; and space intelligence and targeting operations in support of USSPACECOM. This strategic adaptation will streamline and stimulate organizational changes while providing the Marine Corps a command concentrated on the space domain. Further, the command will focus on which concepts and technologies offer the greatest promise of increasing Marine Corps operational effectiveness ensuring resiliency and lethality of its systems.

Additionally, the Marine Corps has created the Marine Space Support Team (MSST) to plan, integrate, and coordinate space-based capabilities and mission areas, across all warfighting functions, in support of the FMF commander’s requirements. The task organized MSSTs have reachback capability to MARFORSPACE and other space support organizations to provide the Marine Corps with critical space-enabled capabilities in support of mission requirements. Further, MSSTs provide the force organic and scalable space support operations across the FMF in support of training and operations for a D3SOE peer-level, advanced-threat operating environment.<sup>7</sup>

Although the recent establishment of MARFORSPACE and the MSSTs are critically important steps in addressing organizational change, the Marine Corps must adjust its approach to space occupational specialties. The Corps is developing a professional space cadre, but it requires a reevaluation of current talent management models to realize an

effective return on investment for these critical personnel. The current model for training, retaining, and utilizing these key enablers is failing. The future operating environment is increasing the demands for space professionals, and existing personnel models are not able to meet that demand by producing the right kind of professionals at the scale needed.

The Corps is currently producing two space-focused MOSs: 8866 Space Operations Officer and 0540 Space Operations Staff Officer, which have a vast disparity in formal training. 8866s undergo two years of graduate-level education at the Naval Postgraduate School, while 0540s receive their MOS after only two weeks of training. Experts have previously argued that this structure is not conducive to building an effective space cadre. The primary issue with the 0540 MOS is that their two weeks of training is insufficient to create space advisors capable of supporting operations of an inside force. Conversely, given the length of time they take to produce, the institution must employ 8866s almost exclusively at the strategic level, building concepts, doctrine, and policy for acquisition and integration of space systems while 0540s serve as space integration advisors at the tactical and operational level.

Therefore, the solution is to incorporate force design changes to introduce an additional MOS that fills the current training gap between the current 0540 and 8866 MOSs, utilizing an existent framework within the joint force consistent with the Army's FA-40, which requires eleven weeks of training. Evolving the current talent management model to generate a competitive force structure will increase the competence of the Marine Corps' tactical and operational space professionals. It will also allow for the best possible utilization of the 8866 cadre and will bridge the current capability gap between the two space-related MOSs. This new MOS and the 8866 MOS would become primary MOSs while the 0540s would stay a secondary MOS, creating space professionalization and retaining critical personnel within the occupational field. Further, the Marine Corps must

also reassess the way it addresses space integration and education across the force, advancing space fundamental-level training and the general

### Future Training Focus

As the Marine Corps grapples with the challenges associated with distributed operations against a peer-level adversary, it is imperative that the force embraces emerging technologies critical to success on the battlefield. The focus has traditionally been on training in "the basics," requiring even general officers to test on squad tactics and radio programming until the institution

Corps has not aligned its training and readiness manuals to the current threat. Master scenario event lists within exercises do not provide the realistic threat environment that the Nation's peer-level competitors pose to the Marine Corps' current tactics, techniques, and procedures. If it is to provide a ready, relevant, and responsive force that meets tomorrow's challenges in the contested maritime domain, the Marine Corps must acknowledge shortfalls, adjust its approach, and reinvigorate innovation within not only the space cadre but also the institution at large. It must adjust training and readiness manuals across

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***The institution's future employment as the inside force demands an understanding and effective utilization of space to be successful.***

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finally dropped basic skills test requirements in 2020.<sup>8</sup> While fundamentals should always have their place in the Marine Corps, the current operating environment demands a reevaluation of what it is the force deems essential.

The institution's future employment as the inside force demands an understanding and effective utilization of space to be successful. By itself, a distributed Marine Corps operating within the enemy's WEZ will not have sufficient intelligence, fires, or C2 capacity to conduct sea denial against a peer-level adversary. Instead, the inside force will be most effective as an enabler and integrator of the joint force. Therefore, as an inside force it will have to utilize space-enabled capabilities, or it will have significant challenges performing its role. The naval application of space power must become fundamental knowledge for any force operating inside the WEZ.

The Marine Corps has not yet optimized its current training and readiness to operate and win in a D3SOE environment. The *CPG* emphasizes that, "If we will be required to persist inside an adversary's WEZ, then we must train to do so."<sup>9</sup> However, the Marine

force to incorporate and effectively integrate space capabilities into mission planning, training, and mitigation strategies for operations in a D3SOE.

The *2018 National Defense Strategy* challenges the Marine Corps to deliver performance at the speed of relevance.<sup>10</sup> Further, it describes a "more lethal and disruptive battlefield, combined across domains, and conducted at increasing speed and reach—from close combat, throughout overseas theaters, and reaching to our homeland." The Marine Corps must move beyond foundational-level training into space threat-based core competency-level training, understanding enemy capabilities and developing tactics, techniques, and procedures to maintain resiliency in a high threat environment. Space operations and associated capabilities are a critical enabler of maritime operations and an essential element for achieving the CMC's end state. Integrating space solutions into operational concepts, planning and training will best enable the FMF to operate successfully in a D3SOE while effectively understanding and countering adversary capabilities and threats.

## Conclusion

As the character of war changes and the domains in which the Nation fights expand, the requirement for U.S. forces to successfully deter and defeat peer and near-peer level enemies will persist. The *CPG* and *Force Design 2030* have provided a framework for the retooling of the Marine Corps with a renewed emphasis on expeditionary operations, but the reality of distributed operations is one of space reliance. To meet the needs of the future fight, the organization must address current shortfalls in equipment, organization, and training related to the space domain. As the Marine Corps continues to refine its position within the joint force, it must expand beyond its historic consumption-only approach to space and be prepared to fight and win in a D3SOE environment in order to enable naval and joint force operations.

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# Fighting From the Ultimate High Ground

Bottom-up refinement for developing Navy and Marine Corps space capability in the modern operational environment

by LCDR Timothy Polyard, Capt Adam Fountain, CAPT Andrew Foltermann & Capt Edwin Latrell

*“More than any other nation, the United States relies on space-based capabilities to project and employ power on a global scale. Today, U.S. reliance on space has increased to the point where space capabilities not only enhance, but enable our way of life and way of war.”*

—Defense Space Strategy, 2020

The purpose of this article is to address our dependence on space-enabled capabilities and to outline a way forward for Navy and Marine Corps space planning and integration. Our national and military leaderships recognize that maintaining the advantage in the space domain is vital to our success in any future conflict; however, we continue to struggle to develop, resource, and integrate the capabilities necessary to maintain dominance in this domain. The target audiences for this article are key decision makers throughout

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the Navy and Marine Corps and the warfighters who provide tactical and operational space support to our maritime Services.

## Our Dependence on Space

The days of sextants, spy glasses, and semaphore are far behind us. To maintain our position as the world’s premier fighting force, we have developed the science and technology necessary to collect far more accurate intelligence, make our kill chains far shorter and faster, our weapons far more precise, and our command and control (C2) far more efficient. Because of this drive for speed and precision, we have become completely dependent on space capabilities in several key areas:

*Intelligence, Surveillance, and Reconnaissance (ISR).* The boundary that separates our atmosphere from space is an ongoing physics debate; however,

for the sake of international treaties, this boundary (also known as the Karman Line) is generally accepted to be one hundred kilometers above sea level. Above this altitude, national boundaries cease to exist, and rules governing the movement of satellites tend to mirror those we see in international waters—where all ships, regardless of the flags they sail under, are free to move about wherever they please on the global commons. This freedom to traverse any country’s territory above one hundred kilometers has made space-based ISR the primary source of intelligence collection for ourselves as well as our adversaries. *It is important for our commanders to understand that, even when we are conducting training in our own backyards, we are under observation.*

*Positioning, Navigation, and Timing.* The precise and accurate positioning, navigation, and timing services pro-

vided by the global positioning system (GPS) enables a vast array of our most actionable warfighting capabilities. It enables the ability to navigate quickly from one place to another and to track and coordinate our forces' movement in realtime. It provides the guidance data necessary for our precision-guided munitions as well as the precise timing required to operate our communications systems.

*Satellite Communications (SATCOM).* SATCOM has become our go-to medium for beyond line of sight communications and information transfer. It is far more efficient and can provide a lower probability of detection when compared to other traditional forms of long-range over-the-horizon communications. SATCOM also provides the conduit for the common operational picture, which offers our commanders near realtime battlespace awareness.

*Missile Warning.* Missile warning is provided by overhead persistent infrared (OPIR) satellites that can detect objects emitting high thermal signatures, including missile launches. This capability provides our forces the advance notice necessary to cue immediate defensive actions. OPIR satellites also feed the targeting process and can assist in battle damage assessment and assessing reattack criteria.

*Environmental Monitoring.* The physical environment affects all aspects of military operations. It can be detrimental to our operations or used to our advantage. Our organic weather sensing capabilities are extremely limited in the data-sparse maritime domain; therefore, we rely almost exclusively on spacebased environmental monitoring satellites to inform our planning.

*Space Domain Awareness (SDA).* For the tactical fight, SDA provides an understanding of when friendly satellites are overhead to support operations and when adversary satellites are overhead to detect our forces and cue their kill chains. Knowing these overflight schedules can contribute significantly to counter-ISR measures, planning operational security (OPSEC), conducting tactical deception or deception in support of OPSEC, and knowing when we are able to employ offensive and de-



**1stLt Adam Fountain sets up a SATCOM antenna to communicate with his sniper teams at ITX.**  
(Photo by author.)

fensive space weapons and capabilities. Moreover, having adequate SDA, with respect to the sensor capabilities overhead, can inform a wide range of actions that we can take to shape the adversary and give us the advantage.

### **Tactical Space Support and Space Control**

For the sake of keeping commonly used space terminology understood, we must break out the differences between space support and space control. Space control is defined as offensive and defensive space capability employment. These are the platforms and tools that we use to target adversary space capabilities. These operations deny, degrade, disrupt, or destroy adversary space capabilities while protecting our own. Jamming an enemy SATCOM satellite is one example of space control.

Naturally, much of the authority to approve the employment of space control capabilities resides at the highest echelons of our government because of its strategic nature. This significantly hinders the training and operational employment of these systems, especially in operations where dynamic targeting of enemy capabilities is essential to mission success.

For organic on-call space integration at the tactical level, that does not

require approval from the Secretary of Defense, we have space support. Space support is simply pulling data from our space architecture, pushing it through our space support software tools, conducting the analysis, and providing the products to our tactical units to support their planning efforts. These space support products provide new insights and planning considerations vital to facilitating independent and distributed tactical actions such as expeditionary advanced base operations. Integrating space support into planning at the lowest tactical level is vital to ensuring that our tactical maneuver units inside the weapons engagement zone can operate independently without relying on operational-level space support entities far removed from the front lines.

*What Right Looks Like.* To quickly develop a new capability, it helps to consider those already employing it. The Army has provided tactical space support to their forces for years through Army Space Support Teams (ARSSTs). The ARSSTs provide basic space support products that enhance tactical and operational planning such as adversary overhead collection windows, GPS jammer modeling, GPS accuracy predictions, OPIR monitoring, electronic intelligence monitoring, and space weather effects. For space support that

falls beyond their organic capabilities, the ARSSTs simply submit a space support request through the joint force commander's Director of Space Forces to the Combined Space Operations Center for the needed products or effects. These functions are at the core of how tactical space support is provided to the force.

*Building the Space Support Capability Within the Marine Corps.* Until the Marine Corps implements its own space training pipeline, we can gain the functional expertise by attending just two schools. The school that trains Army space professionals to create space support planning products is the three-week Tactical Space Operators Course (TSOC). This course requires students to have a foundational understanding of military space applications before attending. To meet this prerequisite, TSOC accepts graduation certificates from numerous courses that teach the foundations of space, such as the two-week Army Space Cadre Basic Course. On the shortest possible timeline, this can potentially have Marines trained to provide most of the same space support capabilities as an ARSST with as little as five weeks of training. These courses have already graduated several Marines who are now capable of providing the same space support capability that the ARSSTs provide. This ARSST-like training is currently spread across the Marine Corps in small numbers, with II MEF Information Group taking the lead in standing up the first functional Marine Space Support Team (MSST).

*The Marine Space Support Team.* The II MIG MSST successfully integrates space planning at the tactical level to support OPSEC and deception planning and to inform signature management and EMCON procedures. When II MEF units deploy to conduct training at home and abroad, the II MIG MSST supports these units with real-world products that not only provide all of the information needed for planning but also make recommendations for detection mitigation techniques as well as shaping opportunities that can manipulate our adversary's perception of the tactical situation. They also outline the most opportune times for maneuver

and communications windows based on adversary ISR capabilities, giving our forces the ability to *conceal and reveal* when it is most advantageous. These same products also offer timelines for offensive opportunities, giving our units the exact time frames with respect to location (along with much more detailed information that can be used for targeting) to employ offensive and defensive space capabilities when adversary assets are vulnerable.

When necessary, the MSST is also able to coordinate space control in support of the MEF. As referenced earlier, space control is leveraging active measures for offensive and defensive space capability employment. Though the Marine Corps currently has not fully fielded organic space control assets, the MSST can coordinate the use of space-control assets owned by the other Services and entities within the DOD through space support request. As we begin to field future space-control capabilities across the force, it will become necessary to create Marine Space Control Planning Teams (MSCPTs) to deconflict and coordinate these capabilities and integrate them into our fires planning.

The MSST also monitors national OPIR and ELINT feeds to provide near realtime targeting support and early warning. This task is essential in gaining and maintaining battlespace awareness and facilitating dynamic targeting and maneuver.

The challenge that the II MIG MSST is facing now is that supported units are beginning to understand the importance of integrating space considerations into planning and the demand signal for space support is beginning to outpace our ability to align space-trained Marines to fill these requests.

### The Way Forward

Organic space support at the tactical level within the Marine Corps is easily attainable and should become fully realized through the MSSTs. To bring the Commandant's guidance to fruition, changes need to be made in a few key areas, and although some of these issues are already being addressed at higher levels, we argue that it is essential to highlight all of the issues as we see them from the perspective of the warfighters engaged in this domain.

*The "Revolving Door" of Officers Trained in Operations in the Information Environment (OIE).* Currently, there is no primary MOS for space officers. The 0540 Space Operations Staff Officer is a Free MOS, but this non-primary MOS is not a feasible solution for the skills and expertise needed to do the job full-time in a way that truly enables the force. Officers from all primary MOSs arrive at the MIGs on two- to three-year orders, conduct the necessary training to do space support (which can take several weeks to several months depending on school



Concept of Marine space integration at the operational level. (Photo by author.)

timelines and limited seat availability), then after a relatively short time doing the job, the monitors cut them orders to a unit where they fall back in on roles and responsibilities mandated by their primary MOSs. Returning to the force in a non-space support capacity, their skills atrophy and the space training and experience gained, and the funding used to build the capability, is lost. The *Commandant's Planning Guidance* has directed that the Marine Corps must conduct OIE. The MIGs were created to conduct this specific mission, but we do not yet have the primary MOS needed to retain subject matter expertise and fulfill our Commandant's task and purpose. As long as we are attempting to do OIE with free MOSs, we will continue to flounder in the place we are now, not having adequate experience and subject matter expertise to align well-trained Marines to our seventh warfighting function. We must change this if we expect to sustain meaningful OIE within the Marine Corps. By building a primary career path for Marines tasked with the OIE mission, these Marines can begin to intelligently develop a way forward for Marine Corps multi-domain operations.

*Enlisted Space Marines.* There are currently no enlisted space MOSs. This is a significant shortfall considering that if we plan to have organic space support capabilities, we will do so with no space support personnel allocated for the mission. The ARSSTs consist of two space officers (a major and a captain) and four enlisted soldiers specialized in intelligence, SATCOM, signals intelligence, and geospatial intelligence, respectively. Though the II MIG MSST is currently providing space support equivalent to a fully manned ARSST, it is doing so with only a handful of TSOC-trained Marines.

*MIG Table of Organization and Equipment (TO&E).* The MIG TO&E does not currently support aligning Marines to MSST functions as there are no space billet identification codes on the TO&E beyond two 0540s. To properly man a MSST, we would have to pull Marines from other duties allocated within the TO&E and align them to duties that do not currently exist. If



**Marines under the Milky Way Galaxy during Exercise TALISMAN SABER 2017. (Photo by LCpl Breanna Weisenberger.)**

the Marine Corps plans to have space support capability, a TO&E Change Request must be submitted to create MSSTs and MSCPTs at the MIGs. The initial manning requirements should consist of four MSSTs and two MSCPTs per MIG. This allows the flexibility to maintain a standing team at the MIG for reachback support and CONUS operations as well as the capability to deploy teams to theater in support of MEF units abroad. These teams can plug into the information operations cells at the MEU, maneuver unit's fire coordination nodes, and the maritime operations centers (MOCs) to coordinate the employment of space-control capabilities at the theater level. The capability to forward deploy MSSTs and MSCPTs is essential when operating in a denied, degraded, and disrupted space operations environment, as the ability to "reachback" is held at significant risk in modern conflict.

*Competing Now and In the Future.* Until the Marine Corps fully realizes and fields its new space-control programs of record, we must focus on what we can do *now* to support our tactical units. With a couple of organizational changes and a small amount of hardware and software, we can begin providing space support capability across the entire Marine Corps through MSSTs

who are organized and deployed from the MIGs. This will facilitate the full integration of space planning down to the lowest tactical levels. At the operational level, the MSCPTs will coordinate the space control aspects of the multi-domain approach to fires. As our new space programs of records come online and employment concepts are confirmed and implemented, we will see these organic capabilities become fully integrated and responsive within our fire support plans.

### **How the Navy is Addressing the Problem**

As a critical component in integrating Navy and Marine space capabilities, it is helpful to look at how the Navy faces these same challenges. With the re-commissioning of U.S. Space Command came the re-commissioning of Naval Space Command, now the "third hat" of the Commander, Tenth Fleet, who also serves as Commander, Fleet Cyber Command. Under his guidance and direction, both cyber and space's instrumental roles in fleet operations are beginning to be recognized. Navy Warfare Development Command has concurrently taken steps toward evolving the integration of space capabilities in fleet operations beginning with the Fleet Experiment

2017 Exercise. This effort has grown substantially with increasing inclusion of space elements into fleet battle problems and naval representation at joint globally integrated exercises. Through exercises like these, the recognition of the need for a broader understanding of the space domain as an integral part of the battlespace has become commonly shared with the Marine Corps, which is now refocusing its force design toward amphibious operations and the full integration of the Navy-Marine Corps team. To take full advantage of the opportunities and to confront the challenges of today's multi-domain combat environment, the Navy and Marine Corps will both need to continue to develop and integrate the necessary skills and capabilities for fighting from the space domain. Highlighted here are some ways that the Navy is approaching these common challenges—with them come opportunities for the Navy-Marine Corps team to evolve together to improve space integration in all aspects of warfare from the sea.

*Formalizing a Path for a Space Cadre:- Addressing the "Revolving Door."* Like the Marine Corps, the Navy has not had the structure to retain its subject matter expertise in space operations. The Navy's approach to developing space professionals has been its Space Cadre force structure. The Space Cadre—officers holding the additional qualification

designators VS5-VS8—do not belong to a single designator or community but are made up of professional career officers from numerous communities who have cultivated some familiarity and proficiency with space capabilities. From this massing of diverse experiences, they gain the benefit of the creative sourcing of ideas. However, the principal disadvantage is that most of these officers, once qualified, will never work in a space-related billet again. For almost every one of these communities, a specifically space-focused tour is viewed as a dissociated tour or a tour outside of what they should be doing to stay on track for promotion within their communities. One tour is an advantage; two or more is anathema. This situation is a direct parallel to the situation facing the Marine Corps. To address this challenge, in the May issue of *Proceedings*, VADM Brown discussed the development of a new Navy Maritime Space Officer designator—providing a permanent career path for officers to develop the level of operational space expertise needed now and in the future. The Marine Corps will likewise need to develop a Service-appropriate solution for the challenges they face in retaining space experience and expertise.

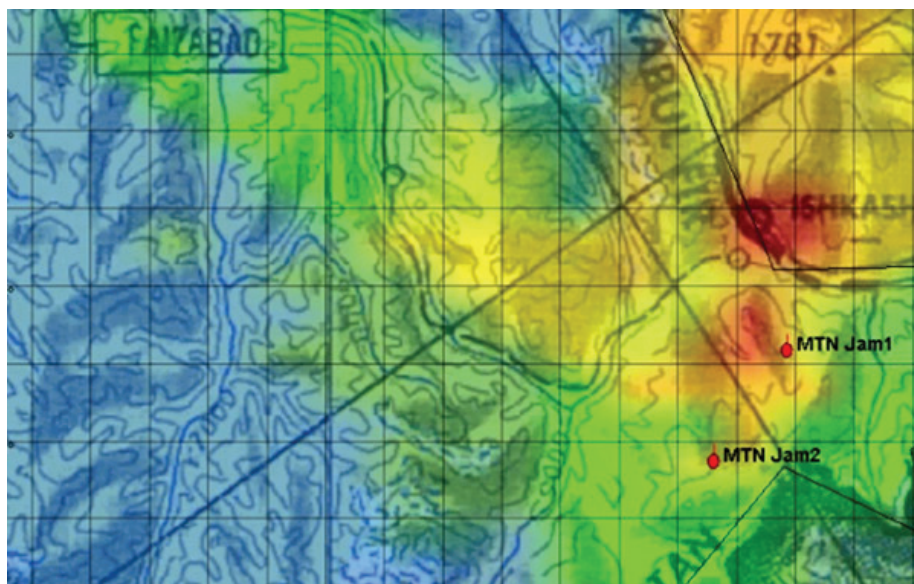
*Space Integration at the Operational Level.* Evolutionary stasis has been a barrier to effective changes in the integration of space capabilities in naval and

naval-supported operations in theater. Initial efforts at integration were oriented around an officer assigned to space operations only as a collateral duty and frequently without formal training or prior experience. This is changing. The expansion of space training for deploying units and the integration of primary-duty space officers at the MOC, and into the organization of the Information Warfare Commander, is the beginning of a positive change in expanding space-enabled lethality from the sea. This brings us one step forward in addressing the difficult challenge of tactical situation management. Further, by establishing space integration capabilities at the MOCs, there is a real opportunity to create a focal point capable of facilitating the requirements and reachback for all afloat operational units in theater. Everything from deconfliction of satellite broadcast requirements to prioritizing imagery collection requirements supporting independent ballistic missile defense deployers can be facilitated through a common flowpoint.

### Navy and Marine Space Integration at Echelon

The fight in the space domain is primarily going to be at the combatant command theater-strategic level of war. The timing and tempo of operations involving military space capabilities along with the many compartmented capabilities, which need to be coordinated and sequenced at this higher level of war, represent as much as 80 percent of the space fight. Planning and development of the processes and procedures for that segment are well understood and mature. What is less developed is the twenty percent of the fight that exists below the theater-strategic level. The Marine Corps is principally a force for the theater-operational to high-to-low tactical levels of war and will be a crucial facet of the twenty percent fight. Developing Marines with the skills to provide tactical-level support and grow them to integrate Marine space requirements at the MOC needs to be the key focus of any developing organic space capability in the Marine Corps.

The evolutionary development of organic Marine Corps space forces



Heat map depicting GPS jamming effects in the battlespace. (Photo by author.)

will be best served if that development is focused on growing the capability through the assignment of space-skilled Marines to tours requiring increasing technical proficiency. A starting point for space-skilled Marines is the MSST providing support at the tactical level of war. While the tactical level is where space capabilities will be brought directly to the fight, it is not the only place where Marines need to have a voice in space operations. We propose a struc-

*Space Tactics*. However, no authoritative/directive publication defining what the uniform space organization of a MOC looks like or how it is to be implemented has yet been released. This need is evidenced by the conspicuous absence of organization standards for the required manning and training to support the MOC Space Cell in the Navy's 2018 *Maritime Operation Center Standardization Manual*, despite space being identified as one

success looks like—quickly drive the changes that we need to make, regardless of administrative challenges or difficulty. What is needed is an adaptive solution that can be implemented *now* and retains the ability to evolve in the future. What has always distinguished our Naval Services has been our adaptability and boldness in pressing forward in new directions, with new capabilities, and our ability to evolve faster and with more agility than our adversaries. We must look to those traditions, now more than any time in the past 30 years, and once again dynamically adapt our force to rise to these new challenges. This is how we will win a future war from the sea—by employing all of our combat capabilities and maritime operational art through every domain and by fighting first from the ultimate high ground.

>Authors' Note: This article is the culmination of this year's Marine Corps University Brute Krulak Center Barrow Fellowship, and its authors are Barrow Fellows.



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## ***What has always distinguished our Naval Services has been our adaptability and boldness in pressing forward in new directions, with new capabilities ...***

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ture for developing space proficiency from the tactical level to the operational level where the Marine Corps can integrate its need for space capabilities as part of the Navy-Marine Corps team.

*Marine Space Support Within the Amphibious Ready Group (ARG)*. Space-skilled Marines assigned to the MEU/MEB will simultaneously provide real-time space support to the vanguard of Marine Corps expeditionary operations and develop the necessary skills to assess the space control needs of Marine forces as part of more extensive operations. Those skills—reflecting operational experience to determine needs of the force—are fundamental to integrating Marine space capabilities at the operational level. Organic Marine Space Officers/Elements at the MEU/MEB could integrate into a common Navy-Marine Corps Space Operation Element for ARG/MEU or Expeditionary Strike Group deployment to consolidate unit-level requests, reduce duplication of effort, and further refine a common understanding of the amphibious operational environment.

*Navy/Marine Corps Integration at the Operational Level*. The integration of space capabilities at the MOC in support of maritime forces has been in development since 2015, with new doctrine being published as recently as late 2020 in the form of *Navy Tactics, Techniques, and Procedures 3-14.1, Navy*

of the key emerging Navy capability initiatives. The nascent organizational structure integrating maritime space requirements is maturing, but the absence of guidance is delaying what could be a dynamic force-multiplying evolution of capability.

Now is the time for continuous and dynamic experimentation in finding what works best for standardizing the organization. These experiments should explore and evaluate multiple constructs to rapidly mature the doctrine, organization, training, materiel, leadership, personnel, and facilities of space operations. A space operations cell at the MOC is a natural place for theater/operational-level integration between Navy and Marine Corps space planners. It could serve as an instrumental interface point to prevent unnecessary duplication of effort, confusion, and conflict between competing requirements. One of the most significant things that the Marine Corps can do, in addition to fielding organic MSST capability at the tactical level, is to field and integrate an MSCPT at the MOC.

### **Conclusion**

We cannot let bureaucratic hurdles delay developing, resourcing, implementing, and integrating the capabilities necessary to establish resilience and maintain superiority in the space domain. We must let the end state—what

***“Investments will prioritize ground, air, sea, and space forces that can deploy, survive, operate, maneuver, and regenerate in all domains while under attack. Transitioning from large, centralized, unhardened infrastructure to smaller, dispersed, resilient, adaptive basing that include active and passive defenses will also be prioritized.”***

**—National Defense Strategy**

# Marines in the Space Domain

To what extent should the Corps use and affect space assets?

by Maj Jared A. Cooper

While outer space has been militarized since the days of Sputnik and spy satellites, the 1967 Outer Space Treaty attempted to limit its weaponization.<sup>1</sup> Nations have largely adhered to its articles with a few exceptions, such as China's testing direct-ascent anti-satellite (ASAT) weapons on orbiting satellites. While some would argue that the weaponization of space was unlikely, it is now a reality. The executive and legislative branches of the U.S. government have recognized this fact and established both the Space Force, an independent Service branch of the armed forces, and U.S. Space Command, a geographic combatant command focused solely on operations, doctrine, and plans in the space domain. Further illustrating the point is the publication of a *U.S. Space Strategy* in 2020.<sup>2</sup> These recent developments demonstrate the space domain's importance to American national interests and the significance of space to U.S. military operations.

The *2018 National Defense Strategy* directs the Military Services and Combatant Commands to conduct globally integrated operations as described in the Joint Concept for Integrated Campaigning. During his term as the Chairman of the Joint Chiefs of Staff, Gen Joseph Dunford highlighted the importance of making decisions at the speed of relevance. Space is unique when compared to the land, air, and maritime warfighting domains; special consideration must be made for the operational factors of time, space, and force when planning and executing operations that leverage outer space. The Marine Corps must better integrate across all domains to

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fight and win in today's modern strategic environment. Future competitors, be they superpower or not, already have a presence in the commercial and military space industries. They possess enhanced communications, situational awareness, and an increasing ability to blind and deafen the space-based assets that the U.S. intelligence enterprise relies on most. Operations in outer space impact those at every geographic location on earth and in multiple regions simul-

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**... the Marine Corps has done little more than consume imagery and space-based communications ...**

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taneously and without warning. Yet, the Marine Corps has done little more than consume imagery and space-based communications.

*The force composition and disposition of Marine Corps formations must enable it to affect adversary space assets, enable USSPACECOM, and ensure access for follow-on joint forces.*<sup>3</sup> Certainly, resources are limited. This factor alone has led to the divestment of several

antiquated Marine Corps capabilities. However, those divestments were made with new operating concepts in mind that do not require the same capabilities. All future Marine Corps missions will continue to leverage outer space. As the Marine Corps strives to develop and implement the Expeditionary Advanced Base Operations and Littoral Operations in a Contested Environment operating concepts, it shows little interest in the challenges that a space competitor can bring to bear. To meet these challenges, it must contribute to the development of emerging concepts like Joint All Domain Command and Control—which will require reliable, secure, and survivable space-based sensors and communications infrastructure to reach its full potential. It must also field emerging technologies that can disrupt adversaries from effectively employing space-based platforms and ground-based enablers. Undoubtedly, space will be a domain critical to naval expeditionary operations for the foreseeable future; accordingly, the Marine Corps should strive to integrate with the Space Force and leverage space-based capabilities across the range of military operations. The below vignette provides examples of future challenges facing space competitors and to what extent the Marine Corps should affect space in both competition and conflict. It is an account of how operations in one area of the world will impact operations happening simultaneously in another area of the world.

## Vignette

*The Problem at Hand.* The year is 2035. Since the 2010s, China has poured investments into the Horn of

Africa to reinforce its economic “Belt and Road” initiative. Ethiopia’s civil war in 2021 resolved itself, but ethnic and geopolitical tensions remained, despite U.N. peacekeeping operations. Ethiopia continued to pit Western powers against China for monetary support, causing the United States to have a confused policy in the region. China is now the strategic partner of choice for Eritrea and Djibouti.

On top of its struggle for soft geopolitical power, China has leveraged its massive production enterprise to bolster several space programs. China overtook the United States in space launches in 2018.<sup>4</sup> It now dominates several nations’ economies throughout the Belt and Road, with several choosing it over GPS for market transactions. China also provides global imagery coverage with its Gaofen satellite constellation, though it leaves some gaps. Several Chinese Communist Party agents have started non-profit 501(c)(3) organizations in the United States to access commercial imagery constellations such as Planet to fill these gaps. The Tiantong constellation provides consistent all-weather satellite communications to forces throughout the eastern hemisphere and with very high bandwidth for data transmissions.

BeiDou, its positioning, navigation, and timing satellite constellation, became fully operational in 2020.<sup>5</sup> By 2030, it included a covert constellation of 30 X-band synthetic aperture radar satellites. Each of the satellites in this “Assassin’s Mace”<sup>6</sup> constellation was designed to provide weapons quality data on targets within the Andaman-Banda-Philippine-Japan Sea Arc.

China’s developments in artificial intelligence (AI) and investment in space have paid dividends in the commercial sector for years, but this would be the first test of China’s assumed omniscience along the first island chain.

Violent protests once again erupted in the Tigray region in 2024, this time with significant and overt support from Eritrea. Egypt and Sudan have experienced significant drought and have demanded that Ethiopia increase the output of the Grand Ethiopian Renaissance Dam built in 2020. Ethiopia has



**The “Horn of Africa.”** (Map provided by author.)

threatened to fill its reservoir even further if Sudan involves itself in Ethiopia’s internal affairs.

In July 2025, Eritrea threatens to invade Ethiopia’s Tigray region with liberation as a *casus belli*. China pressures Djibouti to remove all U.S. and European forces within a month, promises to forgive Djibouti’s debt in return, and calls on Djibouti and Eritrea to shut off the Bab-el Mandeb strait after having provided the necessary means to do so over the past decade. Chinese reasoning is to “prevent outside influence” in the Horn of Africa. Sudan’s drought has crippled its agricultural and food production, so it invades Ethiopia to secure the Grand Ethiopian Renaissance Dam. China withdraws its peacekeepers from the UN mission in Ethiopia, leaving the UN with only enough forces to defend a few small stations.

**U.S. Response.** The United States issues warnings to Djibouti and Eritrea to allow trade to flow through the straits. During a freedom of navigation operation, U.S. naval convoys report an “unsafe and unprofessional” interaction with small Djiboutian maritime vessels. The U.S. Seventh Fleet has a similar engagement with Chinese vessels as it transits the South China Sea. The U.S. President authorizes limited strikes on Djibouti. Still, the outcome of those strikes proves indecisive. The

United States begins air-dropping aid to Ethiopia in an effort to gain the favor of Africa’s largest economy in the aftermath of the conflict.

Meanwhile, III MEF finishes an exercise in the first island chain and keeps Remotely Operated Ground Unit Expeditionary missile launchers with Ground/Air Task-Oriented Radars in the area. The United States extends warnings to China to include the South China Sea. China sets a red line on Djibouti. The United States interprets that red line to mean they will not interfere with U.S. intervention in Eritrea.

III MEF prepares to conduct forcible entry operations into Eritrea. III MEF increases forces in the first island chain at the request of regional allies and partners, as China has increased threatening naval activity in light of the growing tensions.

### **The Marines**

**III MEF: The Staff.** “John, do you understand this whole TACSIT thing? G-3 wanted me to talk to you.” John is a major at III MEF G-2. The man talking to him was Dave, a Navy Liaison to the MEF G-3.

“No, man, I don’t have a clue. I thought TACSIT was just a Navy thing,” John said, frustrated.

Dave responded, “It is, but now it looks like we’re doing it for those bases

you've got." The concept that the G-3 came up with was fairly straightforward. It was a way of applying the Navy's Tactical Situation concept to Expeditionary Advanced Bases (EABs). The G-3 wanted to know when adversarial satellites were overhead, where their persistent sensors could see and hear, and from there inform the Marines on the EAB when they could leave their overhead cover or move small watercraft to and from the base. In fact, it was a wholly necessary concept. Chinese media published a propaganda video a few years back that showed every movement the Marines made during an exercise. The narrative was essentially, *we are watching you*.

"But they already know we've got forces on that island," John said a bit cynically.

The G-2 jumped in: "That's not the point. For one, we're planning to move assets across EABs within the next few weeks. It'll get them to think we're in multiple locations, but first, I have to know what they can and cannot see and when." The assets in question were Remotely Operated Ground Unit Expeditionary missile launchers. They did not have enough in theater to cover a large swath of the massive South China Sea, so the G-3 was essentially trying to deceive Chinese intelligence and make Beijing think III MEF had several in the area.

"Before I go, John, I MEF needs some help installing their SPACECOM cueing software. Details are in your email." It took the Pentagon years to get a contract for AI cloud computing that could integrate with its imagery satellites. In the old days, imagery intelligence analysts would have to scan every satellite image that came in and decide whether it was useful for further analysis. The process itself relied heavily on knowing where to look in the first place, especially on naval shipping, where communications systems operate in a delayed/disconnected, intermittently connected, low-bandwidth environment. The new software acquired by SPACECOM uses AI across all forms of satellite intelligence to locate an adversary's assets and cue those locations to the units that needed to know for further analysis.

This construct had just one problem. The United States relied increasingly more on commercial imagery, and the companies responsible for creating it did not always agree/align with U.S. foreign policy. Consequently, one company completely shut off government access to imagery surrounding East Africa. This was a severe shortfall because the software provided locations of anti-air and anti-ship missile systems that the United States needed to strike before I MEF forcible entry operations. Luckily, the space economy thrived in the United States, and several other companies were eager for the contract. They would launch another constellation just weeks before the operation and need to integrate with the AI software.

China was wary of targeting commercial satellites, which was the main reason the U.S. intel community was more accepting of OSINT integration. However, China benefited somewhat from the commercial imagery by setting up front companies in the United States. The companies were set up as 501(c)(3) organizations, typically using the tracking of maritime trade effects on whale migration patterns as a cover. While the FBI had to deal with the problem, the Marine Corps just had to know it was being watched.

As the staff prepared for escalation and deterrence measures, III MEF already had forces in the South China Sea. 3rd Littoral Combat Team (LCT), 12th Marine Littoral Regiment (MLR)

(3/12) arrived in the Philippines two weeks before Sudan invaded Ethiopia. The LCT was meant to support Exercise GREAT AUGUR 2035, and the entire LCT expected to be home before family separation allowance kicked in. The Marines' deprecating joke was that GREAT AUGUR was named after the Iranian Strait of Hormuz closure exercises because it was just as pointless. They had no idea how pivotal they would be in the weeks to come.

*From the Chinese perspective, this iteration of the Philippine-American exercise was nothing special. In fact, the electromagnetic signature management of the American units was suboptimal compared to their previous baseline. Radio waves in particular were easy to see from monitoring satellites. Now that the exercise was over, the Chinese analysts were more focused on their post drill leave than their data feed updates.*

The Chinese South Sea Fleet command center watched Exercise GREAT AUGUR 2035 intently. Suddenly, the steady hum of the watch floor was interrupted by an outburst from a senior Chinese Communist Party member as the briefing room door slammed shut. The AI flash update stunned the Analysts; "(3) American unit locations UNKNOWN."

Increased tensions between the United States and China meant 3/12 needed to disperse across the Philippines.<sup>7</sup> They employed a combination of anti-ship missiles and jamming capability to pro-



**Marines employ numerous systems that are dependent on space assets. (Photo by Sgt Isaac Lamberth.)**

vide a deterrent for Chinese involvement in the Horn of Africa and, if necessary, to buy the Navy time and space. Using their integrated Space Effects Company, 3/12 monitored Chinese satellites and their ground-based spoofers and jammers disrupted the Beidou constellation. At the order of USSPACECOM, 3/12 used truck-mounted lasers to

first time it became a problem. Since it was starting to look like the MEU would take part in the forcible entry of Eritrea, another colonel would replace him two days later.

As time went on, the strikes grew more difficult. China still managed to push materiel to the Eritrean forces via Sudan almost weekly. U.S. forces

The MRF commander briefed the 11th MEU staff: “We’ve got to buy the fleet maneuver space. Think of it as a game of leapfrog. Air is clearing the way for our air assault. We will then move in, destroy the anti-ship missiles and their control centers. That sets conditions for the Navy to push north of the strait. The Navy’s new laser weapon system is strong enough to burn-out the optics on any satellite that happens to be looking our way. The problem is they have to be close enough to us to ‘see’ any satellite peaking at us.<sup>8</sup> If they can’t blind it, they’ll have to resort to physical destruction. And that can’t happen.”

“Wait, why?” The new MEU commander jumped in, looking at the SPACECOM liaison officer.

She responded, “That space debris can destroy all of our satellites. We can’t control where it goes. Satellites are fragile and space debris can move fast enough to rip through anything.<sup>9</sup> Plus we couldn’t replace them. All launches are grounded because China called the nuclear card after III MEF blinded the first satellite.”

“So be it,” The MEU commander replied. “Alright, so the VMFA jams the satellites, Recon targets the ground stations and ASAT sites.” He got a nod of approval from the SPACECOM liaison.

D-Day would be messy but dealing with space threats gave the joint force back its technological advantage. Ultimately, the Marines of I MEF took this mission because they were the most forward force and had the most practice at operating without large-scale foreign basing. In dealing with threats to the Navy and joint force from land and space, they set conditions for the joint force to establish a foothold and defeat Eritrean aggression. Not only did this mission roll back Chinese influence in the area but the limited attacks on space-based assets set a new precedent for modern warfare without compromising U.S. or commercial satellites.

### Analysis

The rapid destruction of the Iraqi military in the 1991 Gulf War revealed the vast technological advantage of

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***“That space debris can destroy all of our satellites. We can’t control where it goes. Satellites are fragile and space debris can move fast enough to rip through anything.”***

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blind China’s observation satellites. The UN declared such actions a violation of China’s right to access space but did little to enforce the rhetoric. Since China also determined this a threat to its nuclear indications and warning, it escalated further. The PLA Navy sent FC-31 fighter aircraft to locate and do a low fly-over of the Space Effects Company. It found nothing, as the company departed a day prior. Without satellites, China’s targeting systems were severely degraded.

*I MEF.* While III MEF managed escalation in the South China Sea, I MEF prepared to support the joint force’s forcible entry of Eritrea. 11th MEU was the most forward force, and its commander had to answer to the JFMCC after a strike in Djibouti missed.

“What do you mean, you didn’t check the space weather, Colonel? It’s on the internet. It’s a part of the strike package I’m looking at right now. Why on earth would you not use a laser-guided bomb instead of a GPS-guided bomb when GPS is this degraded?” The MEU Commander never liked modern technology. He thought the space command liaison officer was just there to give the communications officer an excuse when networks were not fully functional. He preferred to do things the way they taught at Marine Corps University: with maps and map pens. Unfortunately for him, this was not the

kept to their mission timeline. While the force amassed, I MEF prepared to support D-Day. Aviation assets would jam satellite communications and data links.

“Listen up, folks. Today we are going to be covering the landing force in a new way.” LtCol Michael “Light Year” Zheng looked around the *USS Doris Miller*’s ready room at the collected F-35 pilots of VMFA-232. “Your electronic attack pods have all been filled with the needed frequencies to jam Chinese ... er ... ‘Eritrean’ satellite links. Our job today is to conduct electronic attack deep behind LZs Sparrow and Cardinal.” Light Year paused to point to the electronic map illuminated behind him.

“Eritrean targeting relies on Chinese SATCOM and data links. Their bombs rely on the Beidou constellation to make the shots count. We’re here to fly ahead of the main force and prevent all of that. We’re not taking them offline permanently, but we are buying our maneuver elements time to get on the deck, disperse, and take cover before the Chinese can either reroute to emergency frequencies or figure out a way around our jamming. We’re also buying our Fleet some maneuver space so they can get into a better position to support the landing force.”

Meanwhile, the Maritime Raid Force would locate and target ground stations and anti-satellite weaponry.

the United States over foreign powers. Heavily reliant on space-based intelligence, communications, and positioning assets, the lethality of America's precision strike regime stunned China in particular. Determined not to fall victim to U.S. hegemony, China entered the space race.<sup>10</sup> In the vignette above, several challenges reflect China's very real developments and aspirations in both space and the geopolitical sphere. Further, the challenges will not be limited only to China. If the military space industry continues on current patterns, less-developed nations will be heavily reliant on superpower space launches and satellites in the future. These challenges are inevitable developments that cannot be ignored. As a result, the Marine Corps must focus on three lines of effort.

The first regards the intelligence, C2, force protection fires, and information warfighting functions, which will perhaps be the most heavily impacted by space. These factors will endure regardless of force restructuring or changes in the Marine Corps mission. Intelligence collection will be impacted by space weather while satellites will continue to support collection efforts and battle-tracking. There are even potential cost savings related to leveraging commercial satellites in low earth orbit for intelligence collection in place of manned and UAS. The command, control, communications, and computers community will continue to leverage narrow and wideband single and multi-channel satellite radio connectivity to establish the C2 system backbone required at every level of command. The Marine Corps will also rely upon the unique early warning capability of the Space Force's space-based infrared system and hedge against adversaries by taking advantage of commercial satellites to improve the force protection warfighting function.<sup>11</sup> Space operations and the space domain will also continue to play an integral role in supporting the fires and information warfighting functions. For example, ASATs could be used as conventional deterrents at Marine Corps expeditionary advanced bases and future Marine Corps expeditionary assets could be employed to



**UHF Satellite Communications and GPS navigation and timing are wholly reliant on access to functioning satellite arrays.** (Photo: courtesy Marine Corps Base Camp Pendleton.)

blind and deafen the enemy by jamming and dazzling adversary satellites.

Second, the Marine Corps must fully leverage space to create operational tempo. To do so, it must take advantage of what space integration can provide. Satellite movements are predictable, as they follow a certain orbit. Accordingly, Marines can know exactly when they are being watched. AI systems are growing exponentially and the DOD has done little to integrate them outside of limited projects available to only a small portion of the force. Existing systems could save thousands of hours of work and cue tactical intelligence assets. Space weather is a highly underestimated factor in communications and precision guidance, but the information is readily available to all. The problem is less one of resources and more of education.

Third, the Marine Corps' expeditionary posture in the "contact layer" of competition means that it will likely have forces forward prior to escalation of geopolitical conflict. These forces will be highly vulnerable to observation and targeting from space. Further, if the Marine Corps is to enable joint forcible entry operations, it must assist in dealing with threats from space. This may take the form of subversion (such as the example using TACSIT for EABs),

EM action (such as the F-35 example), or even the threat of ASAT weapons as a form of deterrence. Any of these can be achieved through organic capabilities, such as Marine Corps acquisition of ASAT weapons, or through attachment relationships with the Space Force. Either path requires some change to Marine Corps force design. The former would certainly require greater resource allocations throughout DOTMLPF-P, and this may be too much to ask. Both, however, require significant training and education of Marine Corps leaders on space operations and emerging Space Force capabilities. The nature of outer space and the world's current interactions with it mean that every action taken to affect space will have political, strategic, economic, informational, and even nuclear implications.

### Conclusion

This vignette illuminates how future geopolitical conflicts might unfold and how intertwined with space they will undoubtedly be. Operations in one combined joint operating area (CJOA) might very well happen simultaneously with operations in another CJOA. Furthermore, operations in domains such as cyberspace and outer space that have global geographic reach will likely impact operations in every

physical domain. As such, the Marine Corps must be prepared to deter our adversaries or fight and win in every clime and place, as has been the Corps' historical moniker, and in all warfighting domains.

The 2017 *National Security Strategy* is primarily focused on great power competition and this has necessitated change throughout the DOD.<sup>12</sup> In July 2019, the Commandant of the Marine Corps published his planning guidance—challenging the efficacy of the MAGTF, maneuver warfare doctrine, and the force composition of Marine formations required to fight and win in a contested littoral battlespace.<sup>13</sup> At least one major historical planning assumption has been invalidated—no longer is it safe to assume that U.S. naval expeditionary forces will move unimpeded from ports of embarkation to assigned amphibious operating areas.<sup>14</sup> Significant improvements in adversary warfighting capabilities and the nascent threat they pose to friendly maritime formations have triggered a paradigm shift in the Marine Corps. Integrated planning teams are refining new operational concepts and tactics that will affect every warfighting function, material solution, element of the joint capabilities integration development system (JCIDS) describing non-material solutions and be the impetus for revolutionary change in the Marine Corps.<sup>15</sup> Accordingly, there will be major implications on operations in space and operations that leverage the space domain.

The Marine Corps plays a key role in the joint force. It is a fully integrated, combined arms formation designed to set conditions for the joint force to flow into a theater of operations. Given that space operations have become so prominent, the Marine Corps must adapt its force to be able to incorporate space warfighters, as this will allow it to affect the enemy's space operations. By gaining this capability, the Marine Corps will be able to more effectively shape the battlespace to temporarily blind the enemy and to gain unobserved maneuver space for the joint force. It must either internally grow and maintain these organic capabilities or fully pre-

pare to integrate Space Force capabilities into Marine Corps force elements. Positioning assets that can affect space within Marine Corps formations will allow the service to ensure space operations are incorporated into all aspects of joint operations, in much the same way that maintaining organic Marine Corps aviation has enabled a fully integrated MAGTF. Failing to do so risks allowing the Marine Corps to become irrelevant through its inability to enable the joint force to maneuver in both competition and warfare.

#### Notes

1. "Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies (General Assembly resolution 2222 [XXI], annex), adopted on 19 December 1966, opened for signature on 27 January 1967, entered into force on 10 October 1967, 18 UST 2410; 610 UNTS 205; 6 ILM 386 (1967): 10, available at <https://www.unoosa.org>.
2. Department of Defense, *Defense Space Strategy of the United States of America*, (Washington, DC: June 2020).
3. To affect space assets in this case means to disrupt, destroy, or neutralize spacebased platforms and ground-based enablers.
4. Haihan, Xu, "China Launched More Rockets into Orbit In 2018 Than Any Other Country," *Technology Review*, (December 2018), available at <https://www.technologyreview.com>.
5. Ramsey Fargher, "China's Homegrown GPS Is Now Fully Operational," *Forbes*, (August 2020), <https://www.forbes.com>.
6. Michael Pillsbury, *The Hundred-Year Marathon: China's Secret Strategy to Replace America as the Global Superpower*, 1st Edition, (New York, NY: St. Martin's Press, 2015).
7. Mallory Shelbourne, "Marines Considering 3 Littoral Regiments for the Indo-Pacific," *USNI News*, (February 2021), available at <https://news.usni.org>.
8. Staff, "Concert Lasers Damage Image Sensors," *Image Sensors World*, June 2013), available at <http://image-sensors-world.blogspot.com>; and Kyle Mizokami, "Anti-Satellite Weapons Are Becoming a Very Real Threat," *Popular*

*Mechanics*, (April 2020), available at <https://www.popularmechanics.com>.

9. Carin Zissis, "China's Anti-Satellite Test," Council on Foreign Relations, (February 2007), available at <https://www.cfr.org>.

10. David Kilcullen, *The Dragons and the Snakes: How the Rest Learned to Fight the West*, 1st Edition, (New York, NY: Oxford University Press, 2020).

11. Nathan Strout, "How the Space Force Foiled an Iranian Missile Attack with a Critical Early Warning," *C4ISRNet*, (January 2021), available at <https://www.c4isrnet.com>.

12. Office of the Presidency, *National Security Strategy of the United States of America*, (Washington, DC: December 2017).

13. Gen David H. Berger, *38th Commandant's Planning Guidance*, (Washington, DC: July 2019).

14. The term move here refers to the movement phase of amphibious operations.

15. The Chairman of the Joint Chiefs of Staff, *Charter of the Joint Requirements Oversight Council (JROC) and Implementation of the Joint Capabilities Integration and development System (JCIDS)*, *Chairman of the Joint Chiefs of Staff Instruction (CJCSI) 5123.01H*, (Washington, DC: 2018). Revolution connotes a sudden, extreme, or complete change in the force composition of the Marine Corps and the disposition of its formation.

>Author's Note: The geopolitical scenario used as a vignette in this article is entirely fictional. It uses real places and discusses an on-going conflict in the Horn of Africa to add gravity to the scenario, but it is not in any way a prediction. Nor does it depict the opinions of any of the writers on current affairs.



# The Age of Convergence

The contrast between information and knowledge

by Maj John E. Kivelin

Many scholars believe society is in the throes of the Age of Information. A critical thinker might respond, “For millennia, there has been more information available to readers than any one man could possibly hope to read in a lifetime—what makes this age different?” The answer is that society is witnessing the convergence of endosomatic and exosomatic information.<sup>1</sup> In layman’s terms, technology is allowing people to rapidly access information and ideas, which they previously had to spend time learning or travel extended distances to research. The convergence of these two forms of information is what makes this a unique age in history—an age of *convergence* of information. *In the Age of Convergence, commercial industry and governmental organizations influence large populations through the rapid and inexpensive transmission of messages; moreover, the public can access information on just about any topic within seconds.* This article will explore the contrast between information and knowledge, factors in the tipping point of convergence, and the future of convergence and implications.

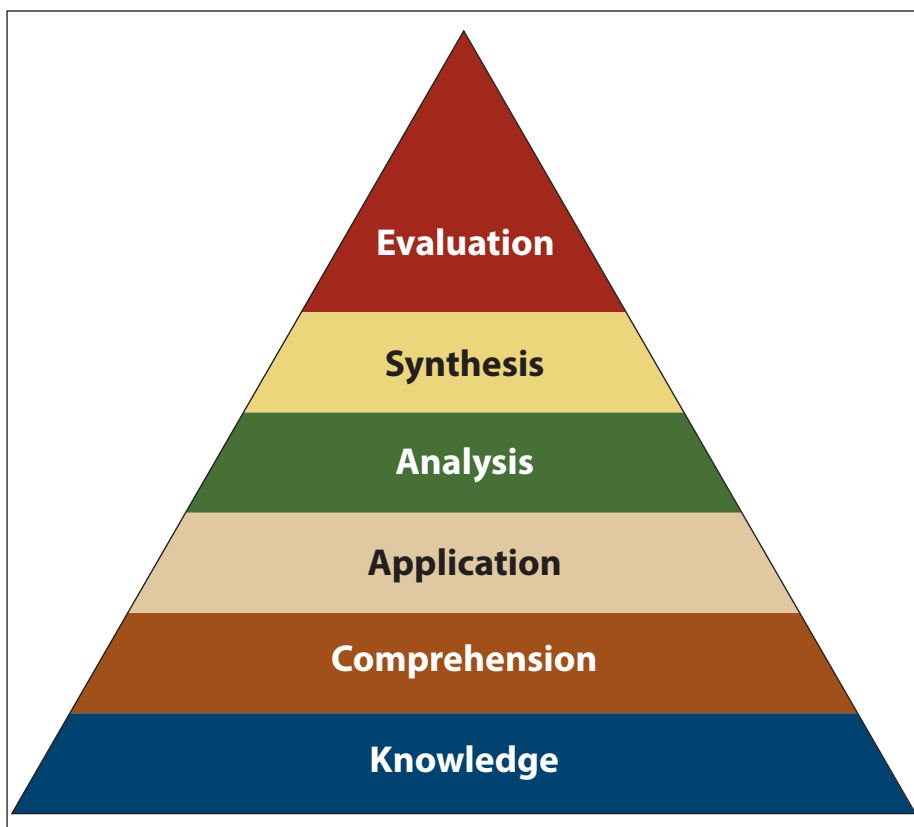
## Contrast between Information and Knowledge

*Information vs. Knowledge.* Plato and Socrates shared a discourse on what constitutes actual knowledge. Does exosomatic information, such as books, count as knowledge or should an individual be required to recollect ideas from memory? In the parable of Theuth and Thamus, Plato writes about Socrates’ perspective on exosomatic information and its impact on memory. Theuth said, “[Written words] will

>Maj Kivelin is an Infantry Officer.

make the Egyptians wiser and give them better memories.”<sup>2</sup> Thamus responded, “[Written words] will create forgetfulness in the learners’ souls, because they will not use their memories; they will trust to external written characters and not remember of themselves ... They will be hearers of many things and will have learned nothing.” In contrast, Ben-

jamin Bloom argues in *Taxonomy of Educational Objectives* that exosomatic information—such as books and internet searches—is considered knowledge; however, he categorizes it as the lowest form of knowledge. Plato and Socrates are concerned with Bloom’s higher forms of learning in action—analysis, synthesis, and evaluation. Plato further condemns the written word, arguing that words “cannot defend themselves by argument and cannot teach the truth effectually.”<sup>3</sup> In this, Plato means that a reader cannot directly question a writer’s logic, nor is a writer required to know



*Bloom’s Taxonomy.*

enough about his subject to defend his idea against a critical thinking reader that challenges the ideas.<sup>4</sup> Plato states, “They will appear to be omniscient and will generally know nothing; they will be tiresome company, having the show of wisdom without the reality.” Plato prophetically describes the interactions of nearly every inebriated group of friends in America 2,300 years prior to the smart phone, which enabled his greatest fear.

*Endosomatic Advantage.* Plato and Socrates viewed knowledge as the critical analysis of ideas and the ability to logically argue viewpoints, usually through directed questions that led to logical conclusions. Scholars must master topics before they can persuasively argue, yet some academics argue against the requirement to memorize mind-numbing facts such as the date of the Magna Carta. Modern philosophers and psychologists believe that knowledge must be endosomatic to be of use. David Hume believed that individuals were intellectually limited by the sum of their observations. He reasoned that humans are unable to predict effects from causes without having first observed similar cause and effect relationships. As an example, Hume argues that no scientist could possibly expect to reason the laws of physics and mathematics involved in the interaction between billiard balls until he first observes the interaction of objects striking each other.<sup>5</sup> If scientists cannot logically predict the cause and effect relationship in the simplest of interactions, they cannot possibly understand cause and effect in complex interactions. Gary Klein argues that an individual bins similar experiences together and the subconscious mind draws parallels to the environment in which he or she is currently experiencing, drawing satisfactory solutions to problems.<sup>6</sup> What holds true for leading philosophers and psychologists is that individuals must have endosomatic knowledge of a subject to reliably draw credible solutions. Accordingly, individuals may leverage immediate access to new information, allowing for further and possibly deeper/more complex connections between endosomatic ideas.



**Still of value today, libraries were the primary repositories of knowledge prior to the advent of modern information technology. (Photo by Petty Officer 2nd Class Magen Reed.)**

### Factors in the Tipping Point of Convergence

*Critical Factors.* The critical factors that sparked the tipping point of the Age of Convergence are: cost in time and money to create and diffuse information, proximity to information, and fidelity of information. As an example, within 30 seconds Katy Perry and Justin Bieber, who possess one high school degree and zero college credits between the two artists, each have the capability to message over 100 million people with free Twitter accounts. In a bizarre twist, each of their followers can also exit out of Twitter and search the internet for information about quantum cascade lasers, although most are much more likely to Google funny cat videos. Information and ideas have never flowed so quickly between sources and enquirers, resulting in a population that has access to all the knowledge of the world with no common epistemological foundations. Moreover, commercial industry and political candidates use social and traditional media to deliberately target citizens with messages at opportune times to leverage cognitive biases.<sup>7</sup>

*Barriers to Entry.* The single most important character of the Age of Convergence is the proximity to information. The tipping point occurred in 2007 with the rise of the smart phone. The

smart phone marked the moment when exosomatic information became virtually collocated with individuals. The average American is within an arm's reach of their smart phone during the majority of the day. In the era of the classical libraries, scholars may have had to travel hundreds of miles to access a robust depository of knowledge, such as the Library of Alexandria. The information in each scroll was generally of high integrity and reputability because average scholars could not afford to pay scribes to produce mediocre literature, which other scholars would not read. Moreover, a relatively limited number of people could read a single scroll, exponentially increasing the barrier between authors and large audiences. In the mid 1400s, Johannes Gutenberg destroyed this barrier with his invention of the printing press. As printing technology evolved, more scholars could afford to publish ideas. Likewise, information increasingly filled regional and local libraries, providing scholars with better access to exosomatic information. However, as ideas became increasingly easier to publish, the integrity and reputability of the information decreased at an inversely proportional rate.

*The Transition from Hard to Soft Copies.* Presently, both laymen and scholars have access to computers and the inter-

Year	Technology	Interface Location	Example	Average Distance to Access	Man-hours to Print Bible	Publishing Reputability
300 B.C.	Hand Written Scrolls and Books	Classical Era Libraries	Library of Alexandria or Library of Celsus	1,000 km	600 hrs	High
1600	Gutenberg Printing Press	Enlightenment Era Libraries	Oxford University	100 km	4 hrs	Moderate
1850	Koenig Printing Press	Modern Public Library	Local Town Libraries	10 km	20 min	Moderate
1960's	Offset Lithography	Home, Work, Book Store (Single copy of book)	Book Ownership	1 km	Seconds	Moderate
1990's	Desktop Computer w/Internet	Work, School, or Home (Any workstation can access data)	Apple Macintosh Desktop Series	100 m	Instant on Screen	Low
2000's	Laptop Computer w/Internet	Near-Collocated	Dell Latitude Laptop	10 m	Instant on Screen	Low
2010	Smart Phone/Smart Watch	Carried in Pocket/Wrist	iPhone	1 m	Instant on Screen	Low
2020?	Augmented Reality	Worn on Face	Google Glass	1 cm	Instant on lens	Low
2025?	Cybernetic Enhancement	Brain-Computer Interface	Neuralink (Elon Musk)	Merged	Instant Memory	Low

**Table 1. Access to information over time. Similar to Wright's Law or Moore's Law, the distance to access information, speed to distribute information, and reputability of information trend towards zero at consistent rates.**

net. Search engines such as Google and neatly organized *Wikipedia* pages allow laymen to reference information that previously took years of research. Even scholars reference these pages to locate cited ideas and sources, allowing them to skip painstaking dead-end research material. As with every other advance in exosomatic knowledge distribution, ideas became increasingly affordable to publish, while the accountability for integrity and reputability of information dropped to nearly zero. Currently, anyone can publish ideas available to over a billion users for free in near real-time. Unfortunately, the proliferation of a message does not correspond to the idea's academic or moral merit. At the time of writing this article Katy Perry's most recent message on Twitter referenced throwback Thursdays when the artist "put the ho in holidays @ North Pole, Alaska."

**Future of Convergence and Implications**

*Public Influence.* Politicians and commercial industry will increasingly leverage technologies such as smart phones, augmented reality, and cyber-

netic enhancement combined with artificial intelligence (AI) to gain votes or increase market share. Devices such as smartwatches will collect pulse rates and blood pressure increases, while other devices simultaneously collect audio, video, and position location data. AI will determine individual preferences and biases by cross-referencing physiological and biometric data with media playing on other smart devices, such as movies, e-books, articles, and even other users.<sup>8</sup> Once preferences and biases are determined, organizations will pay to use the information to specifically target users with customized messages when they are most receptive to messaging.<sup>9</sup> For example, AI will detect that a voter is experiencing stress while stuck in Washington, DC, beltway traffic through the sensors in her smartwatch combined with the GPS data and mapping software in her smartphone. The AI also confirms that the voter is late for a meeting from an e-mail and calendar invite. This triggers the algorithm to transmit smear political advertisement from Candidate A, concerning Candidate B's lack of support for road infrastructure. While the voter attends

her son's little league game later that evening, the algorithm triggers a second message, showing Candidate A's enhancement of city parks—eerily similar to the park that the voter is sitting in while watching the political advertisement. Moreover, neither candidate took part in the filming of either advertisement. In seconds, the advertisements were computer generated based on a hundred possible scenarios using previous images and videos from the candidates combined with customized data from the voter's individual preferences dossier. Political candidates will use the data to determine areas where enough swayable voters exist in swing regions. Political advertisement campaigns will target swayable voters with these customized messages, giving an advantage to any organization that can afford access to the data. Diplomatic and military organizations will use these same techniques to target both combatants and populations in hostile areas with customized messaging.

*Further Convergence.* The persistent collocation of individuals and access to exosomatic information was the critical tipping point of the Age of Con-

vergence. Additional convergence will occur as augmented reality and, eventually, cybernetic enhancement such as Google Glass and Neuralink, respectively, become mainstream. Further convergence is important but will not have the revolutionary effects generated by the smart phone as some futurists forecast. Humans are only able to process information in conscious thought at limited rates. Individuals may read from a screen, listen to audio recordings, or even beam information into the brain using cybernetic enhancement technologies; however, the bottleneck will continue to be human limitations on the ability to process and synthesize signals into conscious thoughts and ideas. The next revolution will be achieved only when the higher level of Bloom's learning in action, *analysis, synthesis, and evaluation*, occur without the requirement to process ideas in conscious thought. Although fascinating science fiction, the human limitations to process signals into conscious thought will restrict our ability to process information for the foreseeable future; nevertheless, augmented reality and cybernetic enhancement will have profound impacts on society.

*Implications.* Augmented reality and cybernetic enhancement will drastically change social dynamics. Using the data infrastructure to detect friends and acquaintances nearby, Google Glass will ensure users never forget a name or birthday again. Friendly wagers about trivia between friends and even high school testing will become problematic as wealthier individuals receive answers via cybernetic enhancements. Engineers will utilize these same principles to redesign this technology to support military applications. Squad leaders will easily command and control individuals in a fire fight without being drowned out by rifle fire and explosives. In counter-insurgency operations, soldiers and Marines will use Google Glass technology to identify and flag individuals on high value target lists. Sailors working on complex engines in ships and aircraft will use augmented reality to assist rebuilds, while expert engineers watch and provide guidance from other parts of the globe. Watch officers and

ship captains will receive commander's critical information requirements tied to relevant decision points via cybernetic enhanced neurological links during combat operations. AI will process combat reporting and provide platoon commanders with map data and recommended routes that provide defilade to maneuver. As hardware detects gaps in security coverage towards known enemy locations, neurological links will transmit feelings of anxiety to the fire team leaders responsible for the sector. The military applications are endless.

The Age of Information is a misnomer. Instead, society is witnessing the convergence between access to exosomatic information and individual users. Moreover, individuals can easily publish ideas with the cost in time and money dropping to nearly zero; consequently, the integrity and relevance of the information has also decreased. The public will continue to wrestle with the usefulness of taught endosomatic knowledge versus referenced exosomatic knowledge. Policy makers must eventually draw lines and decide on how educational institutions will proceed. Considerable risks of convergence can already be seen in the manipulation of large groups of people through social and traditional media. This problem will only compound as AI uses personalized data and algorithms to rapidly produce more customized messages. Conversely, substantial opportunities have also arisen with the convergence of exosomatic knowledge in both diplomatic and military areas of interest. Augmented reality and cybernetic enhancement are more than niche technologies. They are the next logical step in the trend towards convergence of exosomatic knowledge and individuals. Political and military leadership must work to take advantage of opportunities while guarding against strategic risk caused by the Age of Convergence.

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#### Notes

1. Exosomatic: From outside the body. Endosomatic: From inside the body. These words are not well-defined but are useful for the discussion.

2. Plato, *Phaedrus*, (New York, NY: Penguin, 2005).

3. Ibid. Plato again argues this point in his Seventh Letter.

4. The irony is not lost on the author that Plato's ideas are only known based on access to exosomatic information, nor are readers able to challenge the author to argue the points in this article.

5. For further reading on this topic, see David Hume, *An Enquiry Concerning Human Understanding*, (Indianapolis, IN: Hackett Publishing Company, 1993).

6. Gary Klein discusses this topic in several of his works including *Sources of Power*. Daniel Kahneman also supports the argument throughout his book, *Think Fast and Slow*. Kahneman and Klein also co-wrote an article on the topic of human cognition, titled "Conditions for intuitive expertise: a failure to disagree," in which they compared the models of "heuristics and biases" and "naturalistic decision making."

7. For further reading on human cognitive biases, see Daniel Kahneman, *Thinking Fast and Slow*, (New York, NY: Farrar, Straus, and Giroux, 2013).

8. For an excellent discussion on the combination and synthesis of massive amounts of data—also known as the internet of things/big data—see Yuval Harari, *Homo Deus*, (New York, NY: Harper, 2017). Peter Lucas discusses the infrastructure and management of vast quantities of information in: Peter Lucas, *Trillions*, (Hoboken, NJ: Wiley, 2012).

9. If this concept seems like a distant future, users with Apples OS 11 software authorized Siri to make "suggestions based on your usage of Safari, News, Mail, and Messages." Android users are transmitting positioning data to *Google Maps* to gauge road conditions even with "location services" turned off, using cell tower signal triangulation.



# Why Attack Weakness?

A reconsideration of maneuver and attrition  
by LtCol Nate Lauterbach & Dr. Heather Venable

The irony of recent debate over the Marine Corps' capstone doctrine, *MCDP 1, Warfighting*, is that it resembles an attritional fight, not a maneuver one. In one recent bout, for example, Marinus allowed for the late naval tactician CAPT Wayne Hughes' contention that naval warfare is attritionist but also asserted that other naval theorists, such as Raoul Castex, Sergei Gorshkov, and Julian Corbett, argue that naval warfare is maneuverist. But these three are naval *strategists*, not tacticians, who are mainly concerned with the purpose and utility of maritime power writ large, not the actual conduct of naval battle.<sup>1</sup> It appears that Marinus (and likely others) are unconvinced that naval warfare is attritionist. However, attacking the issue of whether naval battle is attritionist leads to the reconsideration of a key issue: whether there is utility in attacking adversary strength instead of weakness.

Commanders and planners need a framework to determine which part of the adversary should be attacked, and this framework must be connected to the relative strengths of the offensive and the defensive forms of combat in each domain. Simply put, in land combat, where the defense is the stronger form of combat, attacking weakness is preferred; this is the maneuverist approach. By contrast, maritime and air combat broadly favors the offense, or the attacker, and consequently an attritionist approach of attacking the adversary's strength has the better chance of success. This approach addresses the central flaw in *Warfighting*, where the biases of land operations color the entire conception of warfare in all other domains. This is a serious matter as the

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**A fundamental flaw of *Warfighting* is that it describes war from a tactical, ground-centric point of view and then extrapolates those characteristics to describe warfare in general.**  
(Photo by LCpl Samuel Brusseau.)

Marine Corps seeks naval integration, partnering with the Navy and supporting the fleet's maritime theory of success.<sup>2</sup>

## The Flaw of *Warfighting*

The central flaw of *Warfighting* is that it describes war primarily from the view

of a Marine fighting on the ground and then extrapolates those characteristics to describe warfare generally.<sup>3</sup> It is in a ground-centric context that the Marine Corps' ideas of maneuver warfare are realized. *Warfighting* also describes, but never fully resolves, a tension between maneuver and attrition; *Warfighting*

concedes that maneuver warfare, properly executed, requires acts of attrition. But it asserts that attrition, as a “style of warfare,” is a flawed approach, defining it as destruction of the enemy’s material assets by superior firepower, resulting in the physical destruction of the enemy’s arsenal with the expectation that total destruction will not be necessary, provided the enemy surrenders or disengages first.<sup>4</sup> It describes maneuver warfare, by comparison, as springing from a desire to “circumvent the problem and attack it from a position of advantage.” It contends that rather than “attacking enemy strength, the goal is application of our strength against selected enemy weakness in order to maximize advantage.”<sup>5</sup>

Neither approach is singularly correct; both attacking strength and attacking weaknesses are viable *theories of success* at the tactical level. We still, however, must decide where and how to attack. What should guide this critical decision? What does this have to do with the land domain, or other domains, of combat? Does attacking weakness, at the tactical level, provide a viable theory of success for the maritime or air campaign? Do the fundamentals of ground combat directly translate to maritime and air combat? To answer these questions, the commander must begin with a mental framework, based on the physical characteristics of the domain or domains in which he is fighting; these characteristics drive which form of combat has the relative advantage—the offense or the defense—and thus drive the decision to attack the adversary’s strength or weakness, respectively.

### **The Strongest Form of Combat**

Many Marines and soldiers might reflexively answer that fighting defensively is the strongest form of combat. After all, it is proverbial that one needs a three-to-one advantage in offensive power to overcome a defensive position. That the attacker generally requires a superiority is true in land warfare; this is largely because of the effects of terrain, which provide cover and concealment.<sup>6</sup> Noncombatants also increase tactical difficulties. These challenging

qualities of land combat explain why the defense is the stronger form of combat, and thus we desire to attack from a *position of advantage* against an adversary’s weakness. To achieve the best chance of success against a determined enemy, one must analyze the enemy systemically for weaknesses (critical vulnerabilities) and only then make the attack with violence of action. Feints, demonstrations, ruses, and other deceptions can also yield promising results because an adversary may present a weakness to attack.

These attributes do not apply in maritime combat for the simple reason that the fleet’s ships are always moving. Position at the tactical level is only relative between the combatants; generally, there are no conferred advantages of terrain. As fleets move, they detect the movements of other fleets and coun-

only attempt to gain a relative firepower advantage over time, and, consequently, one must *attack effectively first*.<sup>9</sup> With each effective salvo destroying adversary offensive power, the relative firepower advantage increases, resulting in increasingly rapid destruction of the adversary fleet.<sup>10</sup> Because attacking with the initiative further improves relative firepower advantage, maintaining awareness of the maritime space is crucial.<sup>11</sup> The key problems in maritime combat thus center on scouting for the enemy strength, and then bringing all available firepower to bear against that strength, eschewing tactical reserves.<sup>12</sup> Thus, the advantage lies with the attacker; the offensive is the stronger form of combat in the maritime battle, and tactical victory lies in winning the progressive firepower and salvo competition to knock out the adversary’s offensive power first. Attrition

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***Neither approach is singularly correct; both attacking strength and attacking weaknesses are viable theories of success at the tactical level. We still, however, must decide where and how to attack.***

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termove. Since the advent of steam power, rotating turrets, and later, with vertically-launched missiles, the firepower of the fleet is generally omnidirectional. Consequently, it is incredibly difficult to “flank” a fleet or conduct a naval turning movement as there is no true position of advantage.<sup>7</sup> CAPT Hughes states, “Forces at sea are not broken by encirclement; they are broken by destruction.”<sup>8</sup> While occasional advantage may be conferred by hiding in the subsurface or by attacking from a superior altitude, such advantages are fleeting, lasting only seconds once the initial attack is joined, for once the engagement begins, sensors rapidly cue shooters to counterattack. Since there is no position of advantage to attack from in naval combat, then the objective must be to destroy the offensive power of the adversary as fast as possible. As no positional advantage can be gained in physical space, one can

tion is the key to tactical victory in the maritime battle. That is not to say that one should not take every possible advantage. Rather, one must not fixate on seeking the position of advantage, nor focus on the weakness of the adversary. Instead, we should focus on the strength of the enemy.

Advantage also lies with the offensive in the air domain, though less so than compared with the maritime battle. The effects of terrain have some influence on its operations, as groundbased air defenses can present significant barriers to some air actions, and the endurance of aircraft is much more limited than that of fleets, necessitating bases.<sup>13</sup> Additionally, advantage is conferred on aircraft at higher altitude in an air-to-air engagement. Advantages can be offset by relative skill of the aircrew and the effectiveness of the tactical air C2 agencies in maintaining situational awareness and skillfully directing aircraft and



**Today's Marines may find themselves operating on the seams between warfighting domains.**  
(Photo by Kyra Helwick.)

weapons so that engagements may be consummated.<sup>14</sup> If the attacker does not immediately win the engagement, the turning dogfight is joined, with the air battle won by the combatants with the accumulation of first effective killing shots. As with maritime combat, all combatants are mutually maneuvering and counter-maneuvering, cancelling any position of advantage.<sup>15</sup> Advantage can only be conferred by relative firepower advantage over time, which is, by definition, attrition. As with maritime combat, cumulative minor victories increase that relative firepower advantage over time. Each adversary aircraft knocked out of the sky, or destroyed on the ground, adds to the relative advantage of the attacker. In air battles, it is best to locate the adversary strength and attack it with all available power. The ideal state is to destroy all of the adversary aircraft while they are on the ground, but still, that is a direct attack at the offensive adversary's strength; this is an extreme form of taking the fleeting advantage of superior altitude. Thus, air combat is best thought of as attrition at the tactical level. Then, once having established local or general air superiority, the adversary is prostrate for a time and subject to exploitation by other air means.

Given that there are domain-specific and technology-derived situations where

attacking enemy strength is advantageous over attacking enemy weakness, it is clear that *Warfighting* is problematic to apply outside of the land domain.<sup>16</sup> That is not to say that *Warfighting* is entirely wrong; there are elements of truth in it. There *are* times when attacking an adversary's weakness from a position of advantage should be generally sought, especially in the land domain.

The Marine Corps is the sole Service in the joint force without an assigned domain; it is therefore incumbent on the Corps to develop a doctrine flexible in the style of warfare.<sup>17</sup> Commanders and planners ought to develop a *theory of success* that engages a *defeat mechanism*. *Warfighting* posits a single theory of success with a single defeat mechanism: *attacking from a position of advantage* to cause *systemic disruption*. This is not always suitable in other domains where Marines will fight and compete in the future.<sup>18</sup> In naval and air operations, Marines must embrace attrition as a tactical means.

The question of whether one should attack a strength or attack a weakness is not an academic or esoteric question; it cuts to the very core of why Marines fight. Namely, how do we compete, fight, and win our Nation's battles? If we fail to understand the *why* of our doctrine, we may succeed for a time, but the moment our doctrine becomes

unsuitable in other domains, we may flounder. Simply, to understand the why and the how of where we attack is to understand the logic of the theory of success.

### Beyond Air, Land, and Sea ... Applying Attrition and Maneuver

There are a multitude of theories of success in various domains. Land theories of success tend to involve battles, capitulation by a combatant, and subsequent occupation.<sup>19</sup> Maritime theories tend to involve sea control, sea denial, controlling commerce, and striking the adversary ashore.<sup>20</sup> Air power theories tend to bypass combat in the other military forces and instead strike at critical infrastructure directly, attacking industry, cities, or leadership targets.<sup>21</sup> These theories of success are tied to domains because they are the medium of conflict.

It would be a mistake, however, to assume that forces operating in each domain are automatically applied to that domain's theory of success. In other words, it is possible to use aviation in support of a land theory of success; indeed, this has been the purpose of much of Marine aviation since its founding. Similarly, it is possible to use land forces to support a maritime or air theory of success, as the Marines of the 1st MarDiv did when they seized Henderson Field at Guadalcanal, allowing the Cactus Air Force to extend sea denial and air superiority throughout the Solomon Islands.

There are cases today where Marines may find themselves operating on the seam between domains and may be required to apply alternate theories of success almost simultaneously. An F-35B pilot may conduct offensive air support in support of a ground combat unit. In this case, it would be advisable to strike at the adversary's weakness, since the defense is the stronger form of combat on land. Later in the flight, the pilot may be diverted to assist with a maritime strike in support of the sea combat commander; in this case it is appropriate to strike the adversary's strength since the strongest form of combat at sea is the offense.

Another case is the Marine commanding an expeditionary advanced

base (EAB) responsible for furnishing fires to the fleet. The anti-ship missiles at the EAB ought to strike at the adversary's strength for the maritime theory of success. Should an enemy ground force attempt to attack the EAB from the land, it would be advisable to defeat this ground force through maneuverist methods by attacking the adversary's weakness.

Marines, because of their ability to work in many domains, often simultaneously, must remain flexible when applying force against the adversary. The requirement to be mentally agile, depending on the theory of success, will only increase now that Marines have cyber, space, and special operations components. Commanders and planners will need a deeper understanding of what constitutes success in a given domain, and how to apply forces to achieve the aim.

### Addressing the Flaws of Warfighting

The relative strength of the offense or defense in each domain and tactical scenario ought to dictate the style of warfare. In differing circumstances, maneuver or attrition are favored. As the Marine Corps is called on to fight in all domains, all theories of success may be viable. Marine Corps tactical doctrine ought to reflect that reality. *Warfighting* does not address this; instead, it explicitly favors attacking weakness regardless of domain or relative strengths.

As Kipling once said, Marines are "soldiers and sailors, too."<sup>22</sup> A re-write of the Marine Corps' capstone doctrine ought to not favor any particular style of warfare. Marines are a naval force, consisting principally of ground and air elements. Special operations, space, and cyber force component commands have also been established. Marines may be called to battle in any domain, under either an attritional style, or a maneuver style of warfare supporting different theories of success and triggering any of several adversary defeat mechanisms. Our doctrine should reflect that, rather than prime the Marine to think warfare always favors the maneuverist style. This requires the study of warfare, both historically and in contemporary context, the study of technology and weapons

as well as the use of heuristics, models, and defeat mechanism. With a sound theoretical understanding of warfare in all domains that Marines fight, commanders will be able to arrange battles and operations that trigger success.

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#### Notes

1. CAPT Hughes differentiated tactics from strategy: "Tactics are ... the very actions of warriors in battle. Thus strategists plan, while tacticians do." Wayne Hughes, *Fleet Tactics and Naval Operations*, (Annapolis, MD: Naval Institute Press, 2018).

2. Gen David H. Berger, *38th Commandant's Planning Guidance*, (Washington, DC: July 2019); and Joseph C. Wyle, *Military Strategy: A General Theory of Power Control*, (Annapolis, MD: Naval Institute Press, 2014; reprint, Rutgers University Press, 1967).

3. Heather Venable and LtCol Nate Lauterbach, "Between a Rocket and a Hard Place," *Marine Corps Gazette*, (Quantico, VA: January 2021). Indeed, *Warfighting* relies on a great deal of military knowledge from classical military thinkers, but exclusively soldiers and Marines who fought on land. The exception that proves the rule is COL John Boyd, USAF, an airman, who theories were used to address land warfare. There are no naval or air warfare thinkers in all of *Warfighting*; it is a land warfare manual which discounts attrition. The context of the writing *MCDP 1* was also oriented on land warfare in Norway, as detailed by Maj Ian Brown in *A New Conception of War*, not oriented toward maritime or air warfare.

4. Headquarters Marine Corps, *MCDP 1, Warfighting*, (Washington, DC: 1997).

5. Ibid.

6. *Military Strategy*.

7. Roger W. Barnett, *Navy Strategic Culture: Why the Navy Thinks Differently*, (Annapolis, MD: Naval Institute Press, 2009).

8. *Fleet Tactics and Naval Operations*.

9. Ibid.

10. In attritional combat, advantages are increase with the square of the difference in firepower. An opponent with a 100 percent advantage in shooters will have a 200 percent advantage when targeting the adversary; twice as many shooters are attacking half as many

targets. These advantages increase with each subsequent successful salvo.

11. It is noteworthy that the Commandant stated that reconnaissance and counter-reconnaissance, analogous to "scouting," as key areas for development in Force Design. See Gen David H. Berger, "Force Design 2030 Annual Update," (Washington, DC: April 2021).

12. Reconnaissance-pull, can apply to attritional combat, too. In attritional combat, the task of scouts is to locate the main enemy strength, not find his weakness. Recon-pull can be used with either style of warfare. See *Navy Strategic Culture*.

13. One may additionally counter that fleets require ports, but underway replenishment keeps fleets well supplied between engagements. Nuclear propulsion also reduces the reliance on ports in the tactical fight.

14. Examples of such air battles include engagements during the Evacuation of Dunkirk, the air battles over Guadalcanal, the aerial portion of the Battle of the Philippine Sea, and countless engagements during the Battle of Britain.

15. It is true that, in a dogfight, superior maneuverability of individual aircraft does matter. Such dogfights are rare in recent decades, owing to technological changes in sensors, C2 systems, and missiles.

16. Air and maritime combat are inherently technological. CAPT Hughes goes so far as to say, "To know tactics, you must know weapons." See *Fleet Tactics and Naval Operations*.

17. The Marines are the only service which may be assigned joint force functional component command in the land, air, and maritime domains as the JFLCC, JFACC, and JFMCC.

18. LtCol Thaddeus Drake, Jr., "The Fantasy of *MCDP 1*," *Marine Corps Gazette*, (Quantico, VA: October 2020).

19. *Military Strategy*. Wylie refers to land power theories of success as the Continental Theory.

20. Ibid.

21. Ibid.

22. Rudyard Kipling, "Soldier an' Sailor Too," (n.d.), available at <https://www.poetrylover-spape.com>.



# Mike Force

Tactical/strategic tradeoffs

by Mr. Joseph Miranda

One of the major factors in conducting a military campaign is the tradeoff between strategic and tactical factors. This is especially so when conducting an unconventional warfare campaign where military factors have to be balanced against political considerations. I addressed this issue in *Mike Force: Special Operations in Vietnam's I Corps, 1961-70* (published in *Modern War* magazine).

I Corps covered the northern part of the Republic of Vietnam (RVN), the scene of major Marine Corps operations during the war, to include the 1968 battle of Khe Sanh. It was also a major operational zone for the U.S. 5th Special Forces Group (Airborne), which operated against the major Communist infiltration routes running from North Vietnam and Laos into the RVN. The game models unconventional warfare operations from the perspective of the I Corps Special Forces (SF) command, abstracting out big unit conventional operations. The player control various SF units: A-Teams, Mobile Strike (Mike) Forces, Civilian Irregular Defense Group companies, special operations helicopters, and so forth. The game system controls the Communist Viet Cong (VC) regulars and North Vietnamese Army (NVA) regulars.

An Infiltration Index runs Communist forces. The higher the index, the more likely VC/NVA units will march along various infiltration routes, sweeping up Allied bases and heading toward the U.S. headquarters at Da

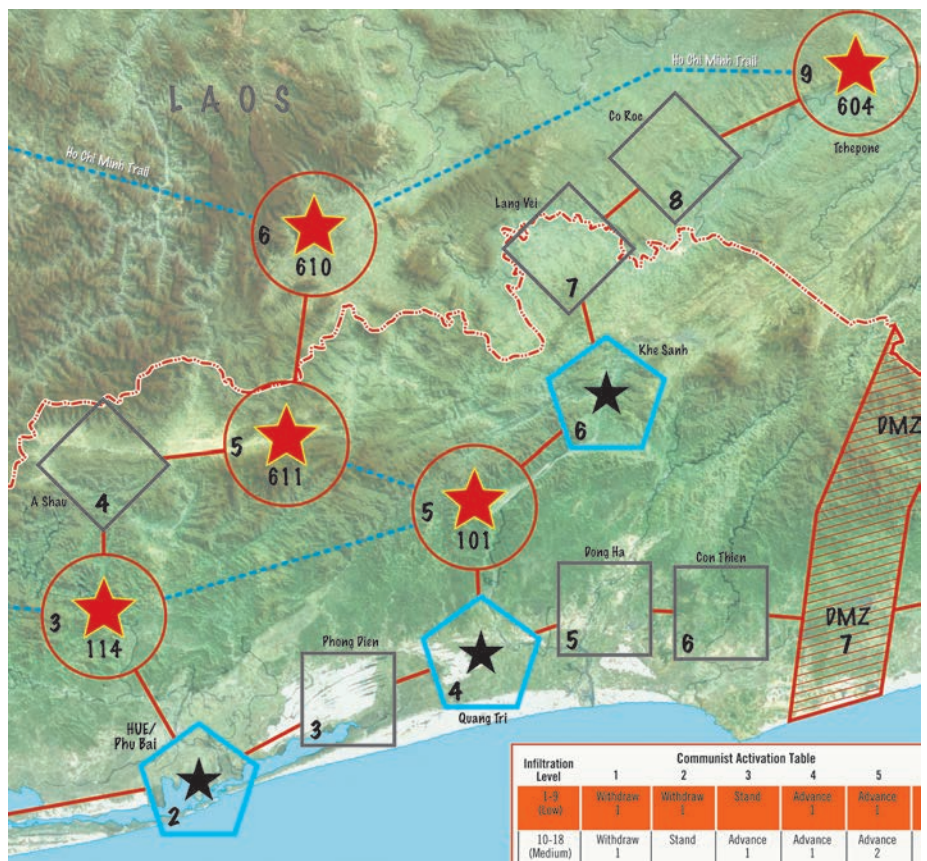
>Mr. Miranda is a prolific board wargame designer. He is a former Army Officer and has been a featured speaker at numerous modeling and simulations conferences.

Nang. When the Index is in the lower range, Communist units will throw in the towel and fall back to their bases outside of the RVN. The dilemma for the U.S. player is in the tradeoff between the short run tactical end (stopping Communist forces before they overrun various U.S. and RVN



bases) against the long-term strategic goal of knocking down the Infiltration Index and thus forcing the Communists out of the country.

Central to the player's operations are Body Count Points (BCP, borrowing a term from the Vietnam era for enemy casualties). BCP are the player currency which you can expend to either recruit more units or reduce the Infiltration



Index. This makes for some tough decisions.

Recruiting more units makes sense from the tactical perspective. You can add units to your SF command and call-in higher echelon reinforcements from MACV (Military Assistance Command, Vietnam). The latter units include everything from B-52 *Arc Light* airstrikes to a Marine Corps regiment for added combat power on the ground. These reinforcements are useful in eliminating VC/NVA units, but that is only holding the line.



From a strategic perspective, it makes sense to reduce the Infiltration Index. In the long run, this will reduce the threat to your home bases. Of course, if you have a NVA sapper regiment besieging one of your CIDG bases out in the boonies it is another thing!

These units would form the Khe Sahn garrison.		

Waiting in the wings is the Communist Big Offensive. This is a country-wide attack along the lines of 1968's Tet Offensive. Additional NVA units appear out of the jungle and execute a special attack phase. Various intelligence indicators (modeled as randomly drawn markers) allow you to anticipate when the offensive is going to occur, so you can establish reserves to counter it and hopefully inflict a major defeat on enemy forces when they come out into the open. Again, it is a tradeoff.

*Mike Force* has four scenarios, each dealing with a different phase of the Vietnam War. As noted, it is a solitaire game but can be played by a team with each player controlling a different sub-command. Team play leads to negotiations, with players determining the tactics and strategies needed to win against an elusive and deadly foe.



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# Combatting Suicide within the Marine Corps

Marines have problems and Marines can be the solution

by SSgt Gianni A. Capasso

The Marine Corps has shown every intent to understand and prevent suicide through means of investigations, counseling services, and contracted employees to intervene when Marines need it most. Although the efforts are strong, the effect of these actions appear minimal as suicide rates continue to climb. Recent data indicates suicide and suicidal attempts are at their highest in ten years according to a Cable News Network (CNN) press release on 25 January 2019.<sup>1</sup> The *Marine Corps Times* press release regarding a 2019 study named the Defense Suicide Prevention Office Suicide Death Review Pilot outlines the intent to increase training initiatives and provide more resources to Marines who have thoughts of suicide or attempted suicide in the past.<sup>2</sup> In that press release, Maj Craig Thomas stated, “The majority of Marines who die by suicide have no known history of seeking behavioral health care.” This article will attempt address the stigmas associated with receiving help, potentially saving lives. The Marine Corps will continue to successfully combat suicide through intervening services such as behavioral health counselors; however, such resources remain ineffective to the Marines do not seek help. I propose there is a pivotal addition to the Marine Corps Suicide Prevention Program that has the potential to save those Marines afraid of coming forward with their mental health concerns. I propose reconstructing the Suicide Prevention Program Officer’s (SPPPO) billet as an

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intermediary position for Marines with mental health issues such as major depression, PTSD, and suicidal ideations, thus ensuring Marines receive the help they need and deserve.

## Why Is the Rate of Suicide Higher for Marines?

In 2017, the reported suicide rate for the United States of America was 1.4 per 10,000.<sup>3</sup> In 2018, suicide rates within the Marine Corps were 3.2 per 10,000, over twice as high.<sup>4</sup> The Journalism of the American Medical Association Network study on Suicide Associated Risk Factors for U.S. Military Personnel states there is no known correlation between deployment stressors and suicide. Mental stressors are not limited to the extremes of warfare.<sup>5</sup> A Marine’s daily stressors or possible traumas experienced throughout their lifetime can implicitly be capable of bringing about suicidal ideations.

To understand the increased rate by suicide, logically we will start with the earlier years which lead an individual into joining the Marine Corps. A study by the U.S. National Library of Medicine’s National Institute of Health indicates children of military members often suffer a series of psychiatric issues

because of the deployment of their active duty parent(s).<sup>6</sup> These effects include “sleeping problems, higher stress levels and anxiety, declining grades, an increase in maladaptive child behaviors, and increased rates of child maltreatment.” According to a study by the Naval Health Research Center, 52 percent of recruits involved in the study reported at least one parent as a veteran, much higher than the 36 percent for civilians.<sup>7</sup> One could then reasonably assume that if one of your parents were in the military, you have a higher likelihood to join the military and simultaneously have a higher risk for behavioral health problems. The Research and Development (RAND) Corporation released a 2015 study revealing 17.9 percent of active duty service members screened had depression, generalized anxiety disorder, or post-traumatic stress disorder.<sup>8</sup> The same RAND Corporation study determined the Marine Corps to have the highest rates for depression and generalized anxiety disorder across the Services. Marines, statistically speaking, have a pre-disposition for behavioral health problems, such as depression, that could end in one of the worse way imaginable: suicide.



**The involvement of fellow Marines is one of the best methods to intervene and deter suicide.**  
(Photo by Keith Hayes.)

### Why Don't Marines Seek Help Before It Gets Too Late?

According to the Association for Psychological Science in Public Interest, stigma connected to receiving mental health care is a significant barrier.<sup>9</sup> Psychological scientist Patrick W. Coorigan of Illinois Institute of Technology stated, “The Prejudice and discrimination of mental illness is as disabling as the illness itself. It undermines people attaining their personal goals and dissuades them from pursuing effective treatments.”<sup>10</sup> People tend to avoid receiving care or discontinue their care because of the negative stereotypes they become associated with such as being dangerous, unpredictable, or weak. Arguably, this stigma is exacerbated by the rugged mentality connected to being a Marine, where weakness is not acceptable. The bravado of the Marine Corps warfighter, detailed in its rich history of war heroes and battles won, has the effect of creating a mental barrier for Marines to accept that they are anything less than a warrior prepared for battle. Mental health concerns can be seen as a weakness, intolerable on the battlefield where the Marines to your left and right rely upon your strength. The Marine Corps’ annual training clearly attempts to remove this stigma by outlining how the Marines at your

side are there to support you as well through all endeavors, physical and mental. However, the avenue to receiving mental care is not always as openly facilitated within the unit. Marines are expected to contact their chain of command or make medical appointments independently to request help, but this concept can be counter-intuitive. Fear of being considered ineffective by their superiors may cause a Marine or Sailor to avoid seeking support or care, repressing their problems. There is no intermediary uniformed Marine within the unit to find unbiased support, where stigmatic fear of retaliation or negative perception are not present.

### What is the Current Status for Mental Health Care in the Marine Corps?

The Marine Corps’ response to increased suicide rates is outlined by unit-level training, crisis response lines, and community counselor programs.<sup>11</sup> However, in its current state, the programs in place are either overwhelmed or unreachable. I am currently stationed aboard Marine Corps Air Station (MCAS) Yuma and will attempt to model the status of my current location. Counseling support for at-risk personnel, in accordance with *MCO 1720.2* (Marine Corps Suicide Prevention Program), is supported by

one psychiatrist at the MCAS Yuma Branch Medical Aid Station who diagnoses mental disorders and prescribes medication.<sup>12</sup> The current wait list to see the psychologist ranges from one to two months. For counselling services, one can receive support via the Marine Corps Community Service’s (MCCS) Behavioral Health Clinic’s two licensed counselors and one psychologist. The MCCS counselors provide support for active duty military, spouses, children, and retirees aboard MCAS Yuma on all issues to include post-traumatic stress disorder, suicidal ideations, depression, sexual assault, parental support, and substance abuse. The waitlist to see a MCCS counselor can be from two weeks to two months depending on your assessed condition; however, in emergencies, such as a suicidal ideation or attempt, they will meet with individuals more immediately under the Marine Intervention Program. MCAS Yuma is fortunate to also have one Military and Family Life Counseling contracted counselor and two chaplains who have shown to provide support to all in need. The unclassified MCAS Yuma 2017 Statistical Summary indicates 4,460 active-duty military members stationed aboard MCAS Yuma and another 6,569 civilians and family members during 2017.<sup>13</sup> The Department of the Navy’s Command Suicide Prevention Statistics indicated 68 fatal suicides in 2018 across the Navy and Marine Corps, an approximate 25–30 percent increase from the previous year.<sup>14</sup> Based upon the number of personnel aboard MCAS Yuma, this would indicate that MCAS Yuma faced two suicides and potentially 50–60 attempts. Still the number of “at-risk” personnel would be much higher if referencing persons with suicidal ideations—being anyone who is thinking about or preoccupied with thoughts of suicide. In summary, MCAS Yuma has one psychiatrist, one psychologist, and four licensed counselors who are responsible for the mental health of over 11,000 Marines, Sailors, and family members—of which, 60 or more active duty members may attempt suicide this year. There are simply too few counselors and psychologists to effectively observe all the potential mental

health patients within MCAS Yuma and provide the necessary care.

The issues demonstrated are observable throughout various location in the Marine Corps. In some instances, the problem may be amplified due to the isolated locations of some Marine units and operational tempo's interference. In Camp Pendleton, the Marines of 1st and 5th Marine Regiments are limited to the chaplains located within their specific areas of the base. The nearest counselor is a minimum 30 minutes' drive away and operational tempo may limit a Marine's ability to receive help. The many separated units of Camp Smedley D. Butler, the Marines of Courthouse Bay in Camp Lejeune, and any Marine or Sailor deployed abroad may be in limited capacity to receive the much desired support of MCCS counseling services or psychiatric care. Marines and Sailors need and deserve an individual within their unit that they can turn to for help.

### The Suicide Prevention Program Officer

One of the Marine Corps' outlined plans to combat suicide is through the Operational Stress Control and Readiness training program.<sup>15</sup> I propose a supplementation to that program using an already present unit-level leader who can become the representative and intermediary for mental health in the Marine Corps: The Suicide Prevention Officer (SPPO). Per *MCO 1720.2*, the SPPO's duties are stated as "an administrative and/or coordinating resource for the commander."<sup>16</sup> Subsection 3.b.13.j of *MCO 1720.2* states the unit's commanding officer is required to ensure ongoing needs assessment and facilitate access to required care following a suicide.<sup>17</sup> The SPPO is already in position to provide regular follow-up with at-risk personnel and help with reintegration as outlined in Subsection 3.a.2.d.6, which states, "Thoughtful reintegration can reduce future suicide risk and encourage other Marines and Sailors to engage helping services when needed."<sup>18</sup> The SPPO, if granted proper training on speaking with at-risk personnel, can be the unit representative whom provides intermediary support and directs

a Marine to the necessary help as an extension of the Marine Intervention Program. The additions to the SPPO billet are simple: identify Marines of risk through the Force Protection Counsels (FPC), have an open door for Marines seeking mental health care, personally provide annual training to Marines on mental health and suicide awareness, and provide direction for Marines in need to the available resources. By providing a local support structure, the SPPO can be the key to minimizing the risk of suicide and removing the taboo associated with receiving mental health care.

### Who Is Your SPPO?

Ask any enlisted Marine aboard any unit in the Marine Corps who their SPPO is and they probably have no idea. Imagine having suicidal ideations based upon a myriad of personal and professional stressors: both family members and work associates have aggravated your stressors and you need help; however, turning to those who have eggsacerbated that stress level is not a likely course of action. You want to see a counselor, but you are still on the waitlist. In fact, creating such appointment may be cause for increased tension and unwanted attention from your superiors. If there was a third-party representative within the reach of your local unit whom you could reach out to for help, you have no idea who it is. Knowing there was a Marine whose secondary billet was to provide a helping hand in your time of distress might just save your life.

The SPPO photo and contact information should be made visible for all unit personnel to identify and approach when needed. SPPO's presence within the unit needs to be made distinct in order to remove the taboos surrounding mental health. All Marines and Sailors should feel capable of speaking with another service member regarding mental health without requiring a medical appointment. This model was proven effective in the implementation of the Uniformed Victim Advocate (UVA) program that caused reporting to skyrocket. The stigma was lifted and active duty military members knew who to

turn to for their problems. The same is possible for those with mental health concerns. The mission of the UVA was to have a Marine present at every unit to give the essential support and care to victims through the available resources and options. Marines became able to make informed decisions and begin resolving the problem and begin healing. The SPPO should be available to provide the same level of support to those suffering from depression and suicidal ideations.

Being reactive is never enough though. The SPPO should become responsible for contacting all persons identified as high risk during FPCs, identified tragic events, and when requested to ensure they are receiving all the care needed as early as possible. The FPC can provide a commander an opportunity to understand what Marines under his charge are at-risk; however, it does not necessarily mean the Marine will be directed to receive help when needed. The SPPO can be the action arm to give a Marine direction and support. A simple conversation by the SPPO to another Marines can be as simple as: "Good morning Marine, I was informed you may be going through some issues. If you ever need to talk, I'm here to listen. Here is my personal number and the number to the DSTRESS line. Know that I've got your back if you need anything." That conversation could be what tips the scale to save a Marine. The SPPO should be outlined as a third-party adviser who can direct the individual to the necessary help and provide an open ear when Marines just need someone who cares. I will state it again: it is imperative the SPPO not be reactive but proactive to Marines that need help.

### What Kind of Training Would the SPPO Need?

Current training for the SPPO is a one to two hour MarineNet course (Suicide Prevention Program Officer, Course Code: MFCSPPO001).<sup>19</sup> To meet the new requirements, training would need to be a resident one or two week course. Various organizations could provide development, support, and possibly host of such course cov-

ering the necessary topics to prepare SPPOs with their duties. These organizations include MCCS, U.S. Department of Health and Human Services, LivingWorks, and the various non-profit organizations. Training would need to cover the following topics: defining suicidal ideations and actions, purpose behind suicidal behaviors, how to address at-risk persons, typical medications used for mental health and their side effects, reintegration of persons receiving care, SPPO support requirements, reporting procedures, and legalities surround the amount of care they are capable of providing.

### Let's Fix This

This is a DOD and specifically a Marine problem. Suicide rates for the Marine Corps are higher than the civilian United States and all other military branches. The stigma associated with seeking help because of the bravado of the ideal Marine has caused Marines to not seek help when they need it most. Marines very often have a unique background and have a unique set of daily stressors. A Marine in many instances can only be understood by another Marine.

The Marine Corps has done an extraordinary amount of work to develop programs and enlist supporting agencies, counselors, and psychiatrists to provide mental health care to struggling active duty members. For all the effort provided there appears, at least to public perception, to be only partially effective. By all standards, mental health care is available for at-risk personnel; however, the extent of care and stigma attached to receiving care remain a barrier to those Marines and Sailors. Each year suicide rates continue to rise along with the negative ripple effect that detriments our Marines, Sailors, families, commands, and the public perception. It is evident that clear and direct change be implemented to prevent further tragedy and, like most matters, must take place at the lowest echelons to take true effect.

My proposal, in summary, allow unit SPPOs to provide support for all Marines within their command as a mental health representative of the unit's

commanding officer in the following manner:

- Train and prepare unit SPPOs to be a point of contact for all Marines and Sailors who seek mental health care within their command structure.
- Continue their current requirements of communicating and reporting to the commanding officer, with the addition of statistically summaries concerning Marines receiving and seeking mental health care.
- Placing the SPPO's photo and contact information on the command wall with the Equal Opportunity officer and UVA to eliminate the stigma of seeking help and help bring recognition to the available resources for all Marines and Sailors.

Creating an open forum for Marines might be all it takes for one Marine to openly state he/she needs help, advance into the light about their issues, and save their life. There are so many resources available that can help Marines in need, they just need the SPPO to lead them there. In response to the unique problem of Marines with behavioral health, the unique solution of Marines who care have the opportunity to save lives.

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# It Starts with Us

Leadership for suicide prevention

by SSgt Kayla Gaudin

It is 0100, and LCpl Smith tosses and turns in his bed as thoughts race through his mind at the speed of lightning: “Why doesn’t anyone care about me? Why don’t I have any friends? Why does everyone always pick on the things I do wrong? Why can’t I be back with my family? Most importantly, why am I all alone?” These questions flood LCpl Smith’s mind and will not leave. His mind will not let them leave. These thoughts and feelings of depression have been overwhelming him for weeks now. He has tried to talk, text, and use social media to talk about his feelings, but nothing is making him feel better. His command is aware of his depression, he is on medium risk, and they check on him from time-to-time. He sits with his senior non-commissioned officer, and LCpl Smith tells him that he is going to be okay and that things are getting better; however, as soon as LCpl Smith is alone, everything changes and his world shifts back into the deep state of depression from which he is so desperately trying to claw out. Mentally, he is worn. Physically, he is exhausted. He comes to the conclusion that the only way to end this terrible suffering is to take his own life. He feels all resources have been exhausted, and all his energy for trying is depleted. He has successfully convinced himself that the world is better off without LCpl Smith breathing someone else’s oxygen. Alone at 0100 in his barracks room, he has decided. No more pain, no more suffering, no more sleepless nights, no more feeling alone. No more. He texts his mother and father and tells them that he loves them and that he is sorry. That is it: “I’m sorry.” He shuts his phone off and slides it into a drawer. He takes a deep breath and thinks back to the way his life use to be when he was younger—when he was happy. Where had it changed? Why

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was it different? It did not matter now. He has made his mind up; this is the only way out.

Everyone gathers at the 0700 formation for roll call after the weekend. One by one names are called followed by the acknowledgement and confirmation of attendance, until LCpl Smith. LCpl Smith’s name is called once, twice, three times, and is followed by nothing but eerie silence. The platoon sergeant sends someone to check on LCpl Smith in his barracks room. Three knocks on the door, no answer. forcible entry is used, as attempts to make contact with

Her initial thoughts and feelings consume her, as she thought she was going to see her son again. She wondered why they were visiting and why he had not told her, but she did not care. All she cared about in that moment was that she was going to see her son again. She flings the door open and waits for her son to run into her open arms. Silence as thick as a morning fog engulfs the atmosphere, and her heart jumps into her throat as her eyes well up with tears. The Marine clarifies what the visit is truly about, and without hesitation, the Marine lunges to catch Mrs. Smith before she can hit the pavement.

LCpl Smith’s room is taped off and only those who wear a badge and gloves are allowed to enter. The room has gone from just a simple, everyday barracks room to a crime scene. The investigators

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***No words need to be spoken and no suspects to be looked at. Or was there? On the surface, it would appear not, but underneath lies a truth that if left unturned could result in more casualties ...***

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LCpl Smith elicit no response. The door flies open, a stench rings through the air, and what they find would change the morale of the unit indefinitely.

It is 0800 on a Monday, and Mrs. Smith slips on her heels and tosses her deep gray cardigan on as she is headed out the door for work. She was about to open to door and out of the corner of her eye she noticed something, someone, rather, approaching the door. She would have been concerned if not for the clearly distinct uniform that she remembered seeing her son wear so well. Mrs. Smith’s heart fills with excitement.

bring their equipment into the room and start to compile evidence. The first item to go into a plastic bag is the 550 cord. Untied from the shower rod and stuffed into a clear bag with a red seal. No words need to be spoken and no suspects to be looked at—or was there? On the surface, it would appear not, but underneath lies a truth that if left unturned could result in more casualties than just LCpl Smith.

Mr. and Mrs. Smith arrive at the airport to catch the first flight to Texas. Once they arrive, they take a cab to the hospital to properly identify the body

of their nineteen-year-old son, who just the other day was telling them he could not wait to see them in a few weeks. The Smiths do not know what to think or feel. So many questions—so numb. The cab finally arrives at the hospital after what seems like an eternity, and the couple gets out and starts the longest walk of their life. Their destination? The lowest level in the hospital: the morgue.

LCpl Smith's room is bare. The walls, blank. The bed, stripped. The bathroom, empty. The wall locker, raided. Gone, everything is just gone. The question is not how this tragedy could have happened, but *why*. Why did LCpl Smith take his own life?

Mrs. Smith covers her mouth and gasps as she falls into her husband's arms, as the confirmation of the body spreads through her like her pins and needles. Sobs ring out as the sheet is lifted from LCpl Smith's cold, stiff, color-drained body. How could this have

happened? What could have made this seemingly happy, positive boy take his own life and leave his family grasping for answers?

The investigation turns to those who knew LCpl Smith and his command. Those who knew him said that he was always laughing, joking, and a happy go lucky kid. His superiors said his work was stellar, and he hardly ever had any errors or needed corrections—up until about a month before he took his life. A month prior there were warning signs. LCpl Smith's work had started going downhill, his attitude a little less positive, he was arriving late to work, but nothing was said because LCpl Smith "was just having a rough time lately." After this news was revealed the question was asked, "What was going on in LCpl Smith's life to make him feel and behave this way?" Not one person in LCpl Smith's chain of command could answer the question. Not one person knew why LCpl Smith was heading

towards depression and slowly isolating himself. Why? When they asked LCpl Smith if he thought about hurting himself because of his behavior, he told them that he was not and that was the end of the conversation. It should not have been the end of the conversation.

After speaking with the command, it was apparent to Mr. and Mrs. Smith that their son's change in behavior and attitude was not taken as seriously as it should have been. The camaraderie of the unit was not where it should have been, and the Marines' welfare and happiness were, and are still not, a high priority. Mr. and Mrs. Smith ask many questions that the command cannot answer—why? It is because they did not know their son. They did not take action in being there for him when he needed it most. Just because he did not fit their idea of "someone who would commit suicide," he was not afforded the proper opportunity to receive treatment. With all of this confirmation,



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one thing could not be forgiven. The Smiths discovered that while their son was displaying this negative, call for help behavior at work, he was told to “leave it at the door, suck it up, and ensure the mission gets done because that is the number one priority in this unit.” The Smiths were appalled.

Every story is not the same when it comes to suicide. Every family is different, every coping mechanism, every sleepless night, every funeral—it is all different. However, one thing remains the same about suicide in the Marine Corps: it can be prevented. Commands need to be more involved in the Marine’s lives, create a healthy and positive work environment, and recognize if a problem is building up and growing from just a sadness to a deepening depression. There *is* something we can do. All of us, every single one of us can take an interest in our Marine’s lives. We do not have to all agree, have the same views, or even like each other, but we did all sign that line saying that we would protect and defend the citizens of the United States of America—which means defending the brother and sister to the left and the right of us. We cannot protect and defend an entire country of 327 million people if we cannot even protect our fellow Marines. Instead of looking so far beyond, start looking right beside you and take an interest in your Marines’ lives. Do not lose sight of our core values: honor, courage, commitment. We honor each other, we are committed to one another, and we *need* have the courage to help one another in moments of hardship. There does not need to be anymore LCpl Smiths, Mr. and Mrs. Smiths, or commands who do not take serious action when a Marine is silently calling out for help. We have the power to change this: there is a way.

We cannot focus solely on the bigger picture. What I mean by bigger picture is trying to change the Marine Corps in one fellow swoop. We must start the focus on the lower level: the foundation. Think about this, when you start building your dream house, do you just envision the bigger picture and throw a house together without your concrete, solid base? Of course not. You could never build your dream house without

foundation, so why are we trying to build a mansion on a one-story house foundation? We must first rebuild the foundation, starting at the lowest level, in order to have a strong structure. The lowest level leadership is responsible, as they are the future of this organization.

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### **Commands need to be more involved in the Marines’ lives ...**

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We cannot deny that while there are some great leaders in this organization, there are some that struggle to stay on the path to an honorable discharge. Therefore, I argue that a mentorship program would alleviate many issues we see, suicide being the main focus here. We have a buddy program in boot camp, where you enter the military with someone that you know to make that transition a little easier. So, why is it that when we enter the fleet, we are to fend for ourselves and hope we have someone to look out for us? Spotting out those individuals that are struggling with motivation, self-esteem, and leadership (the list goes on) and pairing them with a strong and motivating corporal or sergeant could change them indefinitely and give them someone who they can look up to and strive to become. Sergeants are said to “be the backbone of the Marine Corps,” so let us put that saying to use and start treating them as such by giving them the responsibility of molding young Marines and looking out for their welfare.

*MCO 1500.61* states,

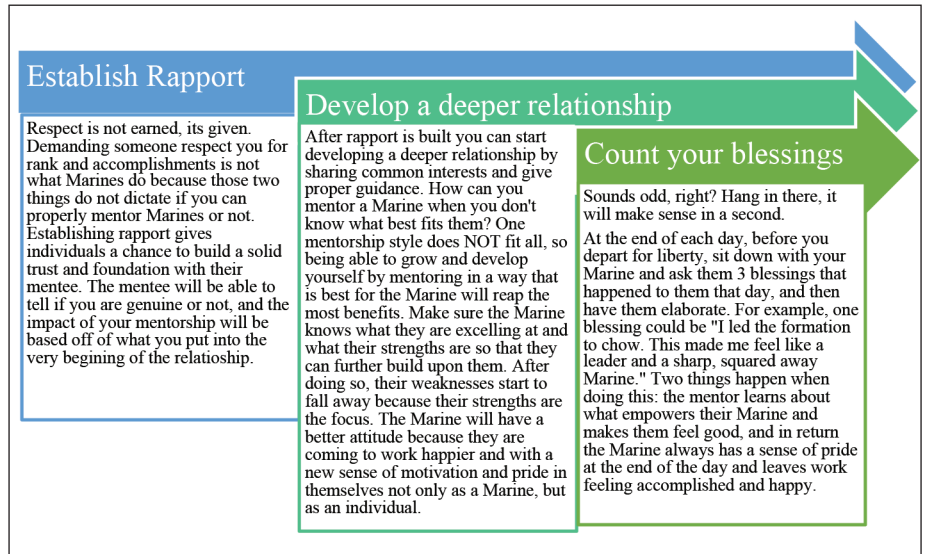
We cannot develop Marines to their fullest potential without truly knowing about them as individuals. We must know their past, their present situation, and their future goals.

This may seem all too obvious to us as Marines. Know your Marines on a personal level, right? This is right, but how many leaders are actually doing this? Not enough since the number of suicides in the Marine Corps was at an all-time high since 2009 at 75 deaths. *MCO 1500.61* extensively outlines the

proper techniques and ways to effectively mentor and lead Marines, but the issue is the fact that commands are not utilizing it. Therefore, a mandatory, tracked, mentorship program is needed. Before its cancellation, *MCO 1500.58* stated, “The facts are, however, that not every Marine is mentored, not every Marine is held accountable, and not every Marine is provided with exacting one-on-one leadership by his or her direct senior,” and this statement could not hold anymore truth. I propose that the newly implanted fourth phase of recruit training should incorporate not only the mentoring of drill instructors but of corporals and sergeants from various commands. Doing so will allow recruits to be in a more intimate environment with the individuals that we deem the backbone of the Corps. Mentoring and teaching mentorship does not need to start when the Marine reaches their first duty station. Gen Neller has implanted the fourth phase to increase mentorship, and I want to build upon that even further. Let us teach positive mindset, proper coping techniques to deal with negative emotions, and we should do so on an intimate level with small groups verse an entire platoon in which Marines do not receive that one-on-one personal mentorship. Having recruits provide feedback on what they gained from the experience along with suggestions will help grow and develop not only the program but the mentor. This feedback should not be negatively based but positively based as well. This is not just about things that can be improved upon but things that the mentors are doing well and excelling at. This should continue into the fleet.

Commands should be responsible for providing a report of the unit’s morale, suicide ideations, and pairings of non-commissioned officers (NCO) to Marines to Headquarters Marine Corps. Additionally, commands should conduct an in-depth survey to track how Marines are utilizing the program and how effective it is for mentees. Conducting an anonymous survey before the program and after a period of six months will ensure the Command is fulling aware if the mentorship is genuine and holds quality. Providing

guidance is only effective if individuals are utilizing it, and I argue this is not happening as much as it should be. Therefore, each NCO should be paired with at least one Marine, but no more than two, to ensure that the program is attainable and not overwhelming for the mentor. This also ensures that the mentee will get the most out of the program by being able to have the mentor's full attention and guidance. There is no excuse for commands to not take action and use this program. The program gives the entire unit responsibility for improving not only morale but mental health and welfare. Below, I break down this mentor program further so you can see how much of an impact it can have. It is not long or complex, but it is simple and attainable. Rather than starting at the top of the command structure, we must start with the lower level. Rebuild the foundation and once the foundation is strong again, then we can focus on the entire structure (i.e., higher ranks and the Marine Corps as a whole). Being an NCO is not just about making sure that everyone shows up to formation or



**Mentor program breakdown and guide. (Provided by author.)**

should not correct deficiencies or discrepancies, but what I am saying is that we can focus on the good too. Instead of solely longing and digging to find a Marines weakness and correct it, find their strength and amplify it. Constantly being beaten down and having your

second option is we can use our key to open the door and help that Marine see the light and what they can become in this life, thrive in sunshine, and let go of the darkness. To my fellow Marines, all of this starts with you, it starts with me, and it starts with *us*.

***We have to stop thinking we can take care of an entire institution when we are not taking care of our brother and sister to the left and right of us the way that we should.***

that everyone is staying out of trouble. Being an NCO is about knowing your Marines on a personal level and looking out for not only their physical welfare but also their mental welfare, and it starts with positivity.

As Marines, we strive for perfection. Perfection to the eighth of an inch to be exact, but this perfection only seems to be stemmed toward the negative. In drill, we are graded based on our perfection and only the movements missed, where points were deducted, and not our strengths displayed. Uniform inspections are for the sole purpose of finding a discrepancy and correcting it, not commenting on how sharp the Marine looks. I am not saying that we

flaws pointed out without ever knowing your strengths is a deadly concoction for wanting to take your own life and it needs to stop.

We have to stop thinking we can take care of an entire institution when we are not taking care of our brother and sister to the left and right of us the way that we should. We have to stop looking so far ahead into the future of our own careers and start looking to our left and right. We have the power to change lives. We hold the key, each and every one of us. The way I see it, we have two choices. We can either hold onto our key and never open the door to let that Marine see the light, and they will continue to suffer in darkness. The

### Mentor Program Breakdown and Guide

What this guide is meant to do is just that, guide and not dictate. This is not be a universal template or checklist for all to use to a T and simply get their check in the box. Everyone mentors differently, and that is welcomed and appreciated here. The process is easy; the results are monumental. These three things may not sound like much, but like I state previously, we have to start from the beginning and rebuild our foundation. Changing your mindset is not easy. It takes hard work, dedication, and open-mindedness. Therefore, I know it is not and impossible feat because I did it.



# Embedded Mental Health

## More Vital the Ever to Combat Readiness

by LCDR Christopher Udell, LCDR Miguel Alampay & LtCol Dana Demer

Throughout modern military history, the importance of embedded mental health (EMH) has been learned through the harsh realities of combat and unfortunately relearned following periods of relative peace. Combat is a dark and visceral engagement that stresses individuals and units well beyond normal expectations. Commanders hone their units for the known and unknown as well as through physical, emotional, and cognitive preparation. Both civilian and uniformed leaders, however, often neglect the importance of psychological preparation. Military history has repeatedly demonstrated that psychological health translates into combat readiness, effectiveness, and efficiency—which is facilitated by embedding mental health subject matter experts into units and command staff.

Common psychological and physiological reactions to war have taken on many names and interpretations over the past few centuries. As recently as the 19th century, commanders recognized the value of retaining physicians to help reduce the psychological impact of military operations. Napoleon's physicians ordered emotionally drained troops to remain within their units while dedicating time for rest, exercise, and musical entertainment.<sup>1</sup> The approach to combat stress reactions taken by those physicians was also practiced by American physicians during the Civil War and became a central foundation to the tenets of *forward psychiatry* established during World War I.

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### Central Tenets of Embedded Mental Health

Forward psychiatry refers to the allocation of psychiatrists close to the front lines. Its roots are traced to the neurologist Georges Guillain with the French Sixth Army, who constructed psychiatric posts near the battle front to quickly treat psychiatrically wounded soldiers and promptly return them to duty.<sup>2</sup> Other military physicians followed his lead, including British Army psychiatrist C.S. Myers and American physician Thomas Salmon. This model for providing brief treatments near the front lines with anticipated return to duty was later coined the "PIES (Proximity, Immediacy, Expectancy, and Simplicity) Model" by the Army psychiatrist Kenneth Artiss.

These early forward psychiatrists laid the foundations for EMH. The PIES model, with some modification from its initial development in World War I, has been applied by the U.S. military in conflicts ever since. As is the case today, EMH serves to accomplish four main functions:

1. Demystify mental health and the operational setting as providers and service members increasingly interact in daily life.

2. Destigmatize mental health as mutual familiarity and fostered trust in talking to mental health providers.
3. Deliberate focus by EMH providers on prevention and brief therapy to maximize member and unit combat readiness.
4. Discern suitability for combat through clear, immediate, and accurate assessment of service members informed by input from, and guidance to, commanders.

### Lessons Learned from EMH Over the Last 100 Years

There are mixed views on the effectiveness of forward psychiatry's efforts early on. On the one hand, these pioneers transformed our understanding of combat stress, conceptualizing it as a part of the range of "normal" experience and not the mental disease it had been for centuries. This shift was monumental in paving the way for evidence-based interventions for combat stress. Moreover, access to a mental health provider in familiar settings, closer to a service member's unit, reduced stigma related to seeking help.

On the other hand, mental health providers may at times have been overzealous in fulfilling the "expectancy and

simplicity” aspects of the PIES model. Though providers on the front lines of World War I and World War II commonly reported return to duty rates ranging from 6–80 percent, the actual rates were later revealed to be closer to 20 and 30 percent.<sup>3</sup> Many of those returned to duty required repeat evacuation or were limited to non-combat roles.

Given the relative lack of brief evidence-based treatments available at the time, these findings are not surprising. For instance, during World War II, psychoanalytic-based methods of persuasion and suggestibility were utilized in “repressing” anxiety and convincing troops that they would be “tempted to maintain” mental illness if they did not return to the battle front.<sup>4</sup> The effect of this could very well have been, without realizing it, to encourage a service member to falsely minimize symptoms and return to duty out of fear of being labeled a malingerer. It is quite possible that in trying to demonstrate their role and value to commanders in unsettling times, early embedded providers focused on returning troops to duty as quickly as possible, even if the troops were not ready to return.

***“There was only one catch and that was Catch-22, which specified that a concern for one’s safety in the face of dangers that were real and immediate was the process of a rational mind. Orr was crazy and could be grounded. All he had to do was ask; and as soon as he did, he would no longer be crazy and would have to fly more missions. Orr would be crazy to fly more missions and sane if he didn’t, but if he were sane he had to fly them. If he flew them he was crazy and didn’t have to, but if he didn’t want to he was sane and had to.”<sup>5</sup>***

Preparations for forward psychiatry were disorganized at the start of U.S. involvement in World War II. Arguing that “individuals who had been unable to adjust to the demands of American society would never adjust to the de-

mands of army life,”<sup>6</sup> the psychoanalyst Harry Stack Sullivan implemented screening programs that disqualified twelve percent (almost two million) of the total number of Americans (sixteen million) who served in World War II. The Navy did not commission clinical psychologists prior to World War II, but at repeated requests from Navy psychiatrists, 500 were brought in primarily to conduct screening evaluations on recruits.<sup>7</sup> However, acceptance of these screening programs by military leadership was contingent on the expectation that they would reduce loss of troops to combat stress. As psychiatric casualties mounted (accounting for up to 25 percent of all casualties in many conflicts) and the armed forces were pressed for troops, the screening programs were deemed a failure and eliminated in 1944.<sup>7</sup>

Lessons learned from the utilization of mental health practitioners were not lost heading into the Vietnam War. They were actively involved in the Vietnam War from the very beginning and no fewer than 200 psychiatrists served in the war, though a smaller percentage were ever stationed in Vietnam. However, military leadership was less

inclined to follow advice from practitioners regarding the matter of fitness for selection, after the perceived failings of such efforts in World War II. Screening procedures were largely neglected, and fitness standards were relaxed during

the Vietnam War. The rate of combat stress casualties was estimated at five percent—far lower than in previous wars.<sup>9</sup> However, combat stress casualties presented differently in Vietnam. In previous wars, psychiatric casualties were identified by internalized neurological and physical expressions of trembling, deafness, stupor, mental confusion, muteness, and hysteria. In Vietnam, practitioners saw an explosion of reactions that took the form of misconduct and drug use. Such externalizing behavioral manifestations of combat stress were not viewed as psychiatric casualties. At least one-third of junior enlisted soldiers were estimated to have been addicted to heroin; alcohol use was just as rampant. Perhaps reflecting overall societal changes in young people of the 1960s era, in which individual freedoms were cherished over sacrifice and obedience to authority, the Vietnam War featured unprecedented rates of indiscipline, disrespect, hostility among troops, and desertion.<sup>10</sup>

Overall, tremendous progress was made in military mental health throughout the intermittent large-scale conflicts from the 1940s to 1970s. However, many of these lessons were forgotten by the end of the Vietnam War. American aversion to large-scale combat coincided with an increasingly hospital-based military mental health doctrine. This reduced emphasis on unique military operational factors was evident during the First Gulf War. Navy medicine doctrine utilized for that conflict was not grounded in the PIES model. Resources were inadequately allocated to the Marine Corps, where a combat stress team of four providers and four technicians found themselves responsible for over 40,000 Marines and Sailors.<sup>11</sup>

### The Need for EMH

According to the *2018 National Defense Strategy*, the mission of the DOD is to “provide combat-credible military forces needed to deter war and protect the security of our nation.”<sup>12</sup> The Marine Corps, along with other military branches, is faced with the challenge of providing credible forces to defend national interests at a time when the

availability of qualified personnel is growing thinner.

The historian Alan Brinkley wrote about America in the modern age: “Where once society organized itself around a cluster of powerful and widely shared values, many of them emphasizing restraint, self-discipline, and personal responsibility, now it is dominated by a new and more permissive ethos that emphasizes personal fulfillment, desire, and identity.”<sup>13</sup> Across American society there is an increasing trend toward greater insecurity, self-victimization, self-entitlement, over-reliance on emotions in decision making, resistance to adversity, and chronic self-destructive behavior. The effects of these trends are disturbing. The U.S. saw a 33 percent increase in Major Depressive Disorder diagnosis from 2013 to 2018, but this was most pronounced for adolescent males (47 percent) and females (65 percent).<sup>14</sup> The 2017 Youth Risk Behavior Surveillance System found that 17.2 percent of high school students seriously considered suicide and 7.4 percent actually made attempts.<sup>15</sup> Sleep is essential to physical and mental restoration, but less than ten percent of adolescents are getting the required amount.<sup>16</sup> Furthermore, the impact is greatest on teens who spend several hours a day on social media.<sup>17</sup> With an estimated 71 percent of young Americans ineligible for service because of histories of psychological and medical conditions, inadequate physical fitness, educational deficiencies, and criminal records, U.S. military branches have been relaxing enlistment standards.<sup>18</sup> Perhaps unsurprisingly, a study by JAMA Psychiatry in 2014 found that: 25 percent of non-deployed service members met criteria for at least one mental disorder, over 60 percent of those members reported having a disqualifying mental disorder prior to enlistment, and more than 11 percent of military recruits endorsed having at least one disqualifying mental disorder.<sup>19</sup>

### Advent of the Oscar Model

Citing substantial deficiencies in combat stress management across the DOD, the Office of the Inspector General published a report in 1996 recom-

mending the development of “effective and efficient combat stress prevention, identification, and treatment programs” and comprehensive training for all ranks of service regardless of military rate or specialty.<sup>20</sup> The Naval Service’s response was two-fold.

First, CDR Jack Pierce led the design and integration of Operational Stress Control and Readiness (OSCAR) into the 2d MarDiv in 2000 where psychologists, psychiatrists, and technicians are embedded directly into specific units.<sup>21</sup> Pierce challenged the predominant hospital-centric approach to military mental health and recognized the importance of integrating these resources into the unit. He asserted that providers assigned to hospitals were in a less favorable position to know the Marines they were treating and understand their duties, their chain of command, and difficulties they faced on a daily basis. The hospital-based nature of outpatient mental health treatment also impeded close relationships with command leadership. This lack of investment in specific units limited military mental health providers’ ability to advise commanders on psychological fitness of their personnel and assist in enhancing unit combat readiness. These factors were potentially exacerbated by the advent of managed care and productivity measured solely by civilian metrics, such as clinic encounters, rather than on a unit’s psychological health and combat readiness. The second response was that selected Marine Officers and NCOs were to become training instructors to extend the reach of Combat and Operational Stress Control concepts and interventions as well as facilitate prompt recognition and referral for treatment of Marines and Sailors with psychological problems. They became known as OSCAR Team Members.

The Defense Center of Excellence for Psychological Health and Traumatic Brain Injury requested the RAND Corporation to evaluate the long-term effectiveness of OSCAR.<sup>22</sup> This evaluation comprised surveys, focus groups, and structured interviews with Marines and commanders. The population studied consisted of Marine units deploying to Afghanistan and Iraq between

March 2010 and December 2011. It compared 1,631 Marines and Sailors across four infantry battalions and two combat service support battalions that had received OSCAR training against 892 Marines and Sailors in two combat service support battalions that did not receive OSCAR training. Measures included help-seeking, perceptions of stigma associated with combat stress reactions, exposure to stress events, and mental health problems.

The study found no differences between groups on perceptions of mental health stigma, mental health outcomes, or utilization of mental health services. The study’s non-randomized nature and confounding effects of comparing combined infantry and service-support battalions against purely service-support battalions are concerns. The study also did not address or attempt to measure the independent effectiveness of each arm of the OSCAR program (i.e., OSCAR Providers and OSCAR Team Members). Thus, OSCAR Providers and OSCAR Team Members were treated as one in the same. Despite these limitations, the report concluded that OSCAR had not “fulfilled its mission of improving many of the key outcomes that it was designed to affect,” and there was insufficient evidence to “support the continuation of OSCAR in its current form.”<sup>23</sup>

### 3d MLG’s Combat Stress Platoon

A Deliberate Universal Needs Statement recommended introduction of the Marine Division’s OSCAR EMH Provider and OSCAR Team Training to (MLG and by 2016 a plan was finalized to assign mental health providers and technicians to Combat Stress Platoon (CSP) units at all three MLGs. CSP is an EMH unit within each MLG Medical Battalion that gives the Role II mental health capability and also performs functions of command consultant and mental health service support to regimental and battalion commands. The distinct identity of these CSP units disentangles the EMH Provider arm from the pre-existing lay OSCAR Team Member arm of the Division’s OSCAR Program. In 3d MLG, administrative and operational control of CSP person-

nel under an officer in charge is coupled with tactical assignment of individual providers to MLG units. This structure allows for individual providers to thoroughly embed in units as advisors to specific commanders while at the same time providing a level of independence to guard against potential conflicts of interest or undue command influence.

The 3d MLG's CSP began in 2016 with the reallocation of a psychiatrist, psychologist, and two behavioral health technicians from Naval Hospital Okinawa with the planned growth to meet the full complement of two psychiatrists, four psychologists, and twelve enlisted behavioral health technicians. Within two years, CSP assumed outpatient mental health services for all 3d MLG personnel (replacing the local MTF for outpatient mental health treatment). By the summer of 2020, CSP had become a fully functioning EMH unit.

The mission of CSP is to support and enhance the operational readiness and psychological health of 3d MLG units and personnel. This mission is executed through three integrated lines of effort that define the ROMHO: direct care, education and exchange of expertise, and operational engagement.

The direct care line of effort consists of outpatient mental health treatment for 3d MLG personnel. Although this comprises the bulk of CSP providers' time, it directly supports the other lines of effort. It is where the value of EMH is most appreciated and most demanded by commanders. At least 50 percent of a CSP provider's time in garrison is expected to be spent in formal individual and group mental health treatment. In contrast to the traditional outpatient model, 3d MLG personnel are triaged to providers aligned with their unit. The aligned psychiatrist and psychologist are able to develop an overall impression of the unit, allowing for clearer and more accurate understanding of service members' concerns. This simultaneously encourages customized and reality-informed feedback to commanders regarding trends. This mitigates one of the main limitations to traditional outpatient mental health: not knowing the full context of an individual's problems.

The education and exchange of expertise line of effort is carried out both internally and externally. The internal focus reflects the importance of continuous improvement within CSP. Initiatives in this vein include weekly trainings to ensure that CSP personnel are practicing in line with national standards of care. The external focus reflects the role CSP personnel play in expanding the mental health knowledge of other medical providers, training OSCAR team members, and participating in subject matter exchanges during multi-national operations.

In April 2020, CSP received Institutional Review Board approval for the 3d MLG Psychological Resilience Program study developed and implemented by CSP. Classes are held within battalion or regimental spaces to ease access and to further reduce resistance to help-seeking. A primary purpose is to determine whether and to what degree either program can meaningfully increase psychological resilience and combat effectiveness. But a second and equally important purpose is to create a shift from treatment and towards training, make such programs more acceptable to personnel, and build the concepts and skills into standard Marine Corps training. Initiatives such as this seek to lead the way towards evidence-based EMH practice.

Other education initiatives include the augmentation of OSCAR Team Member training to provide additional capability to lay OSCAR team members, publication of academic papers, the development of online resiliency videos, and academic presentations to national and international audiences. As with other aspects of CSP doctrine, the internal and external efforts are designed to be mutually re-enforcing.

The operational engagement line of effort is the *sine qua non* of EMH which the CSP approaches in two ways. In garrison, CSP serves as the senior uniformed mental health advisors to MLG commanders. This includes participation in Force Preservation Councils—made valuable by information obtained from the underlying direct care role—and monitoring the progress of mental health related administrative separa-

tions, limited duty periods, and physical evaluation board proceedings for MLG personnel. It also includes familiarization with the units' various workspaces in coordination with other members of a commander's force preservation team.

When participating in forward operations, CSP's role can vary from providing the Role II with mental health capability (Operation BALIKATAN 2018), community health engagements (Operations COBRA GOLD 2019 and KAMANDAG 2019), and to direct support of units (NORTHERN VIPER 2020). The bilateral U.S.-Japanese Self-Defense Force cold weather exercise NORTHERN VIPER 2020 became a high-water mark of forward operations as CSP simultaneously supported the Role II, executed psychological resilience training to both U.S. and Japanese Self-Defense Force personnel, and directly supported Combat Logistics Battalion 4 during various evolutions. This exercise also represented a monumental transformation to the historical use of military mental health providers in deployed environments. Specifically, the role was expanded from the standard PIES model of identifying, treating, and dispositioning personnel to an emphasis on optimizing war fighting capabilities through empirically supported psychological resilience training.

This structure of formal administrative and operational control by the medical battalion but tactical alignment with the regimental units supports the maintenance of centralized control while empowering decentralized execution to tailor work to the needs of the individual units. The ability to satisfy the needs of commanders with this structure has been validated by CSP's own internal assessment of commanders' impressions and satisfaction with CSP's services.

A Navy and Marine Corps approved anonymous survey was administered in June 2020 to 3d MLG regimental and battalion command teams (commanding officer, executive officer, and senior enlisted advisor). The survey was conducted through the platform Max. Gov and yielded a response rate of 54.5 percent. The survey was composed of 28 5-point Likert scale (Strongly Disagree,

Disagree, Neutral/Undecided, Agree, Strongly Agree) statements and 4 open text boxes seeking honest feedback and recommendations. According to results, 94.4 percent agreed or strongly agreed that EMH was vital to the warfighting readiness of their commands.

***“Embedded Mental Health that focuses on Combat Readiness and resiliency in a deployed environment is the ideal model.”<sup>24</sup>***

Ninety-four percent of respondents believed that CSP providers are available to them when needed, 88.9 percent reported that CSP had earned their trust and confidence, 83.3 percent felt that CSP recognized and supported accomplishment of their mission, 100 percent agreed that CSP cared for the psychological health of their personnel, 88.9 percent voiced that CSP was focused on mental illness prevention and operational readiness enhancement within their commands, and 88.9 percent were confident in CSP’s ability to effectively evaluate and treat their personnel.

***“CSP is an integral part to the behind the scenes functionality of the battalion. It deserves a more permanent home as part of every unit structure.”<sup>25</sup>***

When asked if the CSP should be made organic to the regiments they serve in the same way that OSCAR providers are, 66.7 percent agreed or strongly agreed. One respondent wrote:

Integrating CSP capability into the Regt would allow the Marines to have better continuity of care across many domains. It would also increase the

integration for our Force Preservation efforts ... they should be organic to the units that they serve to break down the barriers, provide better care, and save the Commander time. Anytime services are consolidated outside a unit is when those services are less effective and available.<sup>26</sup>

However, other respondents wrote, “I like the idea; however, it creates risk potentially ... Mental health providers may find themselves pressured by the chain of command,”<sup>27</sup> and “CSP personnel remain administratively attached to Med Bn, but assigned to units who are effectively their only customers. Keeping them attached to Med Bn allows them to shift assets as required to meet the demands of the MLG/MEF.”<sup>28</sup> Overall, commanders have increasingly begun to see CSP’s value in two ways: within garrison, build psychological resilience across the 3d MLG, aiming particularly at those individuals who came into military lacking it, in order to strengthen operational readiness of those individuals and their units; within exercises or deployments, re-apply training taught in garrison to enhance individual member and unit performance in operational tasks and duties and further bolster combat readiness.

Commanders’ investment in their relationship with aligned CSP providers has so far yielded significant dividends. Quite often when hearing about possible suicide related behavior, commanders automatically defaulted to sending service members to local emergency rooms for evaluation. These evaluations often consume multiple personnel-hours, vary in level of detail and by provider, and involve limited feedback or guidance as to appropriate aftercare. In response, commanders further dedicate more resources for unit-level monitoring of individuals for undetermined periods of time. Lack of clear follow-up other than perhaps safety checks at the local outpatient mental health clinic add to this anxiety as more often than not the service member has demonstrated concerning behaviors but not to the level of warranting hospitalization. The lack of closed loop communication also means that an individual’s assigned mental health provider may not have adequate

means of judging the veracity or reliability of an individual’s report.

The CSP model allows command leadership to utilize CSP in coordinating acute evaluation. This direct communication gives the CSP provider invaluable collateral information that an on-call emergency room provider rarely has the luxury of obtaining. The CSP provider can enter the encounter informed of the situation and focus on the needs and perspective of the service member. All of this is often accomplished in approximately the same amount of time the individual and command would be waiting under the traditional model.

Most commanders and regimental/battalion medical officers have thus found efficiency in working through CSP. The CSP provider can coordinate with the local hospital, brief the commander with minimally necessary information, and ensure an established follow-up appointment. The commander’s trust in CSP’s feedback and recommendations reduces the likelihood that the command will implement unnecessarily intrusive measures (such as buddy watches, relief of responsibilities, or removal of access to weapons) unless advised so by the CSP provider. As the therapeutic relationship continues, the level of monitoring can justifiably increase or decrease as needed.

### **The Way Forward and EMH Expansion**

The development of EMH doctrine, like that of warfare itself, has been messy, unpredictable, and rife with both contradiction and friction. The complexity of this history highlights the importance of understanding this context as both EMH and warfare advance into uncharted territory. The 3d MLG’s CSP model is the heir to a hard-fought legacy. The ability to perpetuate and further develop this relative success requires close partnership and ongoing communication between EMH providers, commanders, and senior leaders.

Most personnel seen by CSP enter the Service with pre-existing mental health issues. Overly restrictive entry criteria limits recruitment and the opportunity for personal growth that

attract many to military service. Nevertheless, it must be clear to all that a history of pre-service mental illness is predictive of an individual's inability to serve the entirety of one's contract and may also be disruptive to a unit's cohesion and operational readiness. As long as recruitment policies do not restrict accession of individuals with significant pre-service mental conditions, EMH will be increasingly necessary for identifying and addressing these issues and protecting both the individual and Corps from the follow-on effects.

As fewer Marines and Sailors see combat, the need is even greater to prepare untested service members for the eventual stress of combat. Delivery of EMH across the ROMHO—from unit-level prevention and education efforts to treatment of mental health conditions and optimization of combat performance—has made CSP a recognized asset within 3d MLG.

There is interest in expanding EMH into each of the Marine Information Groups and Marine Air Wings. In light of the Defense Health Agency assuming command of military treatment facilities, it is an opportune time to direct more uniformed providers not just to these additional Marine Corps entities but to expand the numbers. Now is the time to invest in this resource and prepare our units for combat.

The waning of major combat operations from the U.S. Central Command area of responsibility has led some to question the need for continued support of EMH. Some have cited the age of hypersonic missiles, unmanned platforms, and distributed operations as making EMH impractical or unnecessary for the future of warfare as currently envisioned. This skepticism is eerily analogous to that of amphibious doctrine following World War II. History of conflict has shown that as long as human performance is involved, psychological health will always be important. If anything, the use of remote platforms with global reach and stealth technology will only heighten the need to manage anxiety and optimize the judgment of our warfighters. To allow these lessons to be lost, as history has taught us, will only condemn us to relearn them at great cost.

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# Suicide in the Marine Corps

And other considerations

by LT Matthew J. Brackett

The following reflections, not intended to be an academic or researched approach to the topic of suicide, came about because of some questions that came down the chain of command and were brought to my attention by my sergeant major. In turn, I took some quiet time to jot down reflections, shared them, and was encouraged to present them to a broader audience.

As we are aware, the Marine Corps, while a world and culture in and of itself, does not exist in a vacuum. Social trends will inevitably affect the Marine Corps. Suicide is one of these social trends that bleeds over into the Corps. Why is this social trend accentuated in the Armed Forces and the Corps? What other social trends bleed over into the Corps culture, mentality, and climate? How do these help or hinder mission readiness and accomplishment? What aspects of Marine Corps mentality, practices, and culture enhance or hamper readiness? Since the Corps does not exist in a vacuum, clear discussions and answers to these questions will enhance the ability to not only mitigate crisis but also foster growth and more holistic force readiness.

So then, if readiness is the responsibility of the unit leader, what motivates leadership to be concerned with the suicide rate in the Corps? An honest answer to this question along with finding common ground among leaders and experts will then lay the necessary groundwork for an adequate search for answers.

It is not my place to answer nor intent to answer the question around why leadership is or should be concerned with the suicide rate in the Corps. I will,

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however, lay out a variety of possible reasons: suicide is a human tragedy; suicide is a sign of failure; suicide is a cowardice act and therefore not fit for a Marine; suicide taints the institutional image; suicide is an unhealthy response to an unhealthy situation; suicide is a permanent solution to a temporary situation; suicide directly affects readiness; suicide is not the answer; and suicide leaves more questions than answers. Another possible answer could be that suicide is not a concern. An honest answer to why this is a concern is essential for an adequate approach, dialogue, debate, and response.

I will now offer a few wave-top considerations for reflection and possible discussion.

Recruit training teaches Marines that the mission of the Marine Corps is to make Marines, win battles, and return good citizens. There is a strong focus on the first two goals and a hope that the third naturally occur. If we are intentional about truly making Marines, the other two will almost be guaranteed. But what is a Marine?

It is vital for the Corps to come up with a clear answer on what is and who is the Marine we make. The first step of this foundation is that the Marine is a human being. We deceive ourselves if we expect our young warriors that join the Corps to be well grounded, developed, internally connected, integrated,

and aligned human beings. We receive men and women, usually at a young age, from society. Being young usually means not fully developed, integrated, and aligned. Oftentimes, the recruit comes from an unstable upbringing, social framework, family structure, and sub-par education; the recruit is generation Z and all that this entails; the recruit has commonly not been educated in relationship skills, parenting skills and life skills; and the recruit is generally an underdeveloped human being between the ages of eighteen to twenty years old who is told he is a member of the elite amphibious fighting force. Thirteen tough weeks of recruit training will give us an entry level Marine, Marine Combat Training will offer us a fleet-ready Marine. These levels of quality training will give a *fleet ready Marine* but not necessarily a grounded, aligned, and developed human being that is a *life ready Marine*.

Young Devil Dogs are taught to believe they are the best, the strongest, the elite—and rightly so. A young Marine has stepped into a culture and mentality that is built around peer pressure, judgment, fear and shame-based motivation, perception, and acceptance or rejection according to inherent standards and values. Therein lies an unspoken erroneous logic: being human equals weakness; weakness is unacceptable;

therefore, being human is unacceptable. This one unspoken conviction is the cause of unimaginable limitations and destruction.

There is, therefore, an unconscious silent voice that proclaims it unacceptable to raise your hand and ask for support because it means one is weak, has a problem, or is a problem—and this is unacceptable. So, we stuff our problems in a closet and hope they take care of themselves, the closet gets filled, and challenges turn into crisis and crisis into a variety of visible problems that take lots of energy from leadership to manage, often leaving destruction in its wake. When being human becomes acceptable and held accountable, a healthy clarity reigns. When we serve our humanity, our humanity will serve us well; when we care for our humanity, our humanity will care for us.

The striking contradiction we are faced with is that the Corps is committed to bring death and destruction to the enemy—foreign and domestic. However, if we look at the last twenty years of war against terrorism, more of our people have been hurt, harmed, and died in our own bases, homes, and barracks than in combat. Death occurs through murder, accidents, and suicide. Hurt and harm occurs, although not exclusively, through physical and sexual assault, aggression, training accidents, and incidents involving substance abuse. These issues are part of the bigger conversation and influence in one way or another suicidal ideation and completion.

We have lost roughly 1,231 Marines to combat related deaths since between 2001–2016; we have lost roughly 426 Marines to suicide since 2012. There are many extensive studies on suicide in the military, but it is difficult to find precise suicide statistics for the Marine Corps during the last twenty years. Some light can be shed on the subject from a recent project performed by a student at Boston University, which “estimates 30,177 active duty personnel and veterans of the post 9/11 wars have died by suicide, significantly more than the 7,057 service members killed in post-9/11 war operations.”<sup>1</sup>

Suicide, substance abuse, sexual transgressions, anger, and abuse in

its varying forms are the leaves and branches that we can talk about, brief about, and manage, but they are often manifestations of deeper challenges our people face. As a Corps, we can choose not to attend to the deeper challenges, since this is not the mission of the Corps, or we will choose to take notice, study them, and implement methods to improve the quality of our men and women. This will in turn reduce behaviors that weaken human and mission readiness, and will consequently produce better Marines, allowing us to return more quality citizens.

If we just deal with the leaves and branches, the tree of humanity and the Corps will not become healthy. We must look to the roots, to the soil and nutrients: the environment our Marines are coming from, the environment that they become part of in the Corps, and if this environment is nourishing, nurturing, and favorable to growth or not.

The Marine Corps will have to take upon itself a new mission of overseeing the human development of the ladies and gentlemen that join our ranks if we expect them to be excellent human beings, Marines, and return to society as excellent citizens. This is no small undertaking and task, and it is something the Corps did not have to concern itself with decades ago.

This is undoubtedly a massive topic to tackle, as it could mean making training longer, investing much more in people and resources for human development, greater discernment in who we recruit and accept, extending the recruitment process and requirements for acceptance into the Corps, making aspects of human development education and workshops mandatory, creating a culture where interest in personal development is not only accepted but promoted, and adapting op tempos that will protect the values of human growth, personal harmony, healthy relationships, and family stability. This may mean having a recognition or award for those that intentionally invest in personal development. This may mean having required training in order to promote. This means improving leadership styles and abilities beyond fear and shame-based leadership. This

means putting well developed human beings in roles of leading and managing human beings. This means aligning a culture with its values, not only in theory and rhetoric but in reality and practice.

The reader is reminded that my approach to this topic does not pretend to be academic or thorough but rather to present relevant reflections from my small but meaningful chaplain corner. I outlined a series of questions at the beginning that I would encourage leadership to use for discussion and work groups. While these considerations can leave us with a restless spirit and with more questions, this may be a step towards true answers to the deep concerns around suicide and other behaviors that hurt and kill our Marines here in the safety of our camps and communities.

A few concluding words of encouragement:

- When people have stable and nurturing relationships, when people experience relative internal harmony, when people are relatively content with themselves as individuals, spouses, and parents, performance will peak, readiness will be high, and command climate will be superb.
- We invest intentionally in professional development, let us promote and facilitate intentional investment in personal development. Training and education for professional development is mandated, let us begin to adamantly promote, personal, relationship and parenting development.
- When we lead our Marines as human beings first and foremost, when we invest in our people as human beings, when we give them permission to be human and deal with their humanity, the results will be forthcoming and rich.

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#### Note

1. Thomas Suitt III, “High Suicide Rates among United States Service Members and Veterans of the Post 9/11 Wars,” *20 Years of War*, (Providence, RI: Watson Institute International & Public Affairs, June 2021).



# Taming the Modern Dragon

A look into how modern China became the threat we recognize

by 2ndLt Dillon C. Rodriguez

The United States of America faces many threats in today's multidimensional battlefield. But perhaps one of the most dangerous is the rising peer threat of China. It is no surprise that the United States and China have conflicting interests, but for the first time in history, China is close to the financial means, technology, and knowledge to contest the United States militarily. From China's rise to economic power to their plans to seize territory within the western Pacific Ocean. China learned from years of transitioning from a futile to an industrial economy, and using techniques like cyber hacking to gain military technology for their future. China's rise to power needs to be combated with an offensive naval posture to prevent them from maintaining a foothold for conquest and control.

China's rise to economic power was not an immediate affair, and it certainly did not occur when Communist leader Mao Zedong defeated the Nationalists during the Sino Civil War in 1949. It took decades and several failed reform policies under Chairman Mao to bring about the change required to put communist China onto a path to become an economic beacon and a leader of manufacturing. Mao's Great Leap Forward and Cultural Revolution gave his successor, Deng Xiaoping, the realization that Communist China needed a new economic model vastly different from previous agricultural-centered methods. By Mao's death in 1976, the United States and its allies had made a vast jump in technology after the Second World War, and Deng realized China fell well behind.<sup>1</sup> Not only was China well behind in the military and eco-

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nomics aspects of modernization, but the Chinese Communist Party (CCP) was also locked in internal conflict, and its citizens began pushing for a change in government. Deng knew that to redistribute the wealth of the country amongst its citizens as is the principal foundation of communism, they needed wealth to distribute. Deng attacked the problem by doing something no one could have imagined from a communist country and opened the country to free trade in 1978, only two short years after his rise to power.<sup>2</sup> By legalizing private ownership and market competition, investors flocked to China. Deng famously quoted, "It does not matter if they are black cats, or white cats, as long as they catch mice they are good cats."<sup>3</sup> He went against what a communist country stood for in the way they produce capital, and it worked. This is at its core the primary way in which China can freely trade with the world while still maintaining its assertiveness and control over its citizens and military.

In 2001, a little more than two decades after China opened its trade routes to the rest of the world, China saw an opportunity to expand its influence by joining the World Trading Organization. China opened its doors to even more investors from tech giants and automobile companies and the GDP exploded earning a shocking 8.34 percent its first year and as high as 14.27 percent in 2007. More recently in 2019,

China's economy was still growing at a steady 6.11 percent. In comparison, the United States' GDP growth was calculated at one percent in 2001, 1.88 percent in 2007, and 2.16 percent in 2019.<sup>4</sup> The Chinese model of the open market while focusing on producing and manufacturing for the world rather than primarily consuming has given it the growth it needs to become the second-largest economy in the world; at this rate, it will not be long before they outpace the United States, which is exactly what they plan to do.

The Chinese leader Xi Jinping has highlighted his desire to replace the United States as the world leader of trade, manufacturing, and technology in his plan "Made in China 2025." His endstate is to have China at what they believe to be their rightful place as the most powerful nation in the world by 2050, the hundredth anniversary of the beginning of the People's Republic of China.<sup>5</sup> This plan will position China to be a producing country rather than a consumer of goods from other nations.<sup>6</sup> China also desires to become the world leader in developing technologies to include military systems. China's economic success does not only come from free trade and smartly working the markets, a big portion comes from cyberespionage.

China is by far the largest offender in cyber hacking and online theft stealing more than 500 billion U.S. dollars annually in trade secrets and 300 billion dollars from the United States alone.<sup>7</sup> Many of the secrets they steal from the United States not only cost the Nation two million jobs, but they are gaining access to U.S. military secrets and technology. This is to be

used to boost their national defense as well as to project outward power. This strategy saves China time and money in research and development as well as reveals competitor's military weaknesses and vulnerabilities. The United States is slowly losing its competitive edge over China in military technology partly because of China's ability to steal military secrets almost at will as well as the United States losing its dominance economically, posing a great risk to national security.<sup>8</sup> There is no doubt the Chinese government will use some of the relevant stolen information to grow their Navy to attempt to match the United States' size and modernization. The Chinese are using past naval conflicts to learn and improve their current navy. It is important to understand this as they are actively trying to develop their strategy in the South and East China seas.

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***If China is successful in controlling these waters and vetting merchants from passing, it could have a detrimental economic impact that could potentially drive nations into war.***

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Another look into history uncovers an often forgotten and overlooked contest. The Sino-Japanese War of 1894–95 took place between the newly formed Empire of Japan and the Chinese military governed by the Qing Dynasty. During this conflict, on 17 September 1894, a naval battle called the Battle of Yalu, occurred at the mouth of the Yalu river and the Yellow Sea where the Korean peninsula and the Liaodong Peninsula meet. During this battle, eleven small, lightly armed Japanese Navy vessels met twelve larger, more heavily armored Chinese battleships. Theoretically, none of the Japanese vessels should have been able to stand up to the much larger twelve Chinese ships. However, the Japanese had better-trained crews, better officers, more command and control, and a better strategy to take down the larger Chinese force. The Japanese oriented their vessels in

columns, which allowed them to mass their firepower in concentrated sections and outpace the poorly trained Chinese crew manning the heavier artillery. The Japanese destroyed five Chinese vessels and sustained no losses.<sup>9</sup>

The Chinese focus on two key lessons. First, the Chinese recognize it does not need to have larger and more powerful ships to contest the seas with an adversary like the United States, although as stated before, the Chinese are rapidly seeking to improve their Navy. The second takeaway is that the CCP has abandoned the traditional Chinese thinking that land control outweighs the control of the seas.<sup>10</sup> The *Journal of Advanced Military Studies* (formally Marine Corps University Journal) states, “The contemporary Chinese Communist narrative of Qing seapower argues that, on top of other failings of the corrupt dynasty, society under the Qing

had no connection to the sea, leaving it unable to recognize China's maritime interests and the critical linkage between seapower and great power status.”<sup>11</sup> Ultimately, the Japanese won the war by using their navy to outmaneuver their counterparts on land and secure vast amounts of territory with a ship-to-shore capability without committing huge slow armies to the cause and decimating the Chinese ability to respond by disabling their navy. Today, Chinese naval officers study the Battle of Yalu as a prime example of the importance of naval power, and their strategy is based on the lessons learned from the past.

The topic of sea denial in the waters bordering the Chinese coast almost sounds like a broken record. It is mentioned constantly by Navy and Marine Corps leaders alike. Both branches train constantly to trounce Chinese defenses, thus denying them the ability to ac-

cess the sea in combat. For the Chinese, much is the same, but sea denial is only the beginning of their strategy. The Chinese recognized that their navy was far too reserved and passive during the First Sino-Japanese War, and taking initiative is the best way to obtain national security and project their will outward.<sup>12</sup> The Chinese Navy, known as the People's Liberation Army Navy (PLAN), has modernized its navy at such a rate within the past decades in which it can now execute this plan and position itself in an offensive stance, rather than primarily focusing on coastal defense. Unlike the PLAN of the 1980s and 90s, they do not rely on technology from other countries like Russia; although they steal many technologies from the West, they are capable of taking that knowledge and innovating it their way. The PLAN educates their officers and builds their own weapons.<sup>13</sup> This is a much different navy than the United States and its allies have observed over the years; it is modern, deadly, and demands a high level of respect if conflict is to break out between the West and China.

To combat this growing adversary, Marine Corps, Navy and Coast Guard released the new Tri-Service maritime strategy on 27 December, 2020 known as *Advantage at Sea*. This plan shares an aggressive course of action in combating China. The main idea is to beat China at their own game at sea: take an aggressive stance to clear the seas of Chinese vessels so land and air units can land and take territory if need be. It is ultimately to deny China the ability to “remake the international order in their favor.”<sup>14</sup> Controlling the sea is not only important for times of war but for times of peace in which trade and business seek passage through international waters. If China is successful in controlling these waters and vetting merchants from passing, it could have a detrimental economic impact that could potentially drive nations into war. Similar to how China is modernizing their fleet and the way they fight, the United States is as well. The use of smaller ships to provide landing parties, modernized 5th generation aircraft, and UAS are also included in the *Advantage at Sea*.<sup>15</sup> Sustainabil-

ity is an often overlooked piece as well. *MCDP 3* states, “Sustainability can be an especially important consideration in the developing world, where many regions often lack the infrastructure necessary to support highly advanced military forces.”<sup>16</sup> If the United States military is to employ its forces in any capacity around the thousands of islands surrounding the Chinese coastline, sustainability must be a priority; otherwise, the U.S. maritime forces will not be able to contest the seas. Most of the islands in the South and East China Sea are unsettled or underdeveloped. Forward naval ports and bases will be key to getting the three branches what they need to sail, fly, and fight. The Commandants of the Marine Corps, Coast Guard, and the Chief of Naval Operations are all too well aware of the risks involved if the United States does not take aggressive military action to deter PLAN and the CCP.

Many who look at this area of contention make a connection to the battles fought on the same islands and seas during the Second World War. Some scholars and historians look at it and ask themselves, “if we were to do it again, how would it look different, how would it look the same?” It is an easy connection to make, and it is hard to say exactly how the events would play out since war is a human affair, millions of possibilities are present at any turn. It is safe to assume, however, that some of the basic concepts and principles will be similar. Landing troops in mass off of ships using AAV’s is much less likely because of the invention of helicopters. But the idea of a ship-to-shore operation in the littorals is still the same. During the Battle of Peleliu, Eugene Sledge recalled Marine F4U Corsairs striking enemy defensive positions and an allied battleship bombarding the coast before landing. This was also the first time that Marine aircraft provided close air support.<sup>17</sup> There is no doubt when a landing operation occurs the basic principles of shaping enemy defenses with indirect and supporting fires will remain the same, but the technology employed will be more accurate, and it will often occur beyond the range of current weapon systems. Chinese mis-

sile sites will need to be eliminated as well as enemy aircraft and entrenched battle positions. If the United States arrives at those islands first, then operations to sink enemy ships will be a large part of controlling the waters. As a proof of concept, in 2019, Marines, soldiers, and airmen participated in a HIMARS rapid infiltration on an island to launch an anti-ship missile, displace and keep moving forward.<sup>18</sup> The goal is to remain mobile to outmaneuver the enemy and strike when and where they are least expecting. That is the direction in which our Marine Corps and sister Services are heading to fight the Chinese threat.

How has China become the economic power it is today? The CCP has evolved China from a futile nation into a world power in trade, technology, and militarily. China’s plan to dominate the seas and the market is clearly outlined in their published plan, titled *Made in China 2025*. They are extremely resourceful and good at acquiring classified information from allied nations, and they are becoming a nation that does not need to buy equipment from others. PLAN trains, educates, and arms its own navy, and they have learned from lessons of the past like the First Sino-Japanese War on how to combat larger forces like the combined strength of the United States and its allies. To combat this, the United States’ joint maritime strategy is aimed specifically at the region and has been conducting operations to prepare for any encounter with the threat in any domain. Like China, the United States can and should use lessons of the past to learn what to repeat and avoid to be successful in facing a peer threat. Defeating China in their own backyard is no easy task, but as long as China believes they are the rightful rulers of the world and they should maintain domain over everyone and everything, the United States and its allies are going to terminate the modern dragon.

Notes

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4. Staff, “China GDP Growth Rate 1961–2021,” *MacroTrends*, (n.d.), available at <https://www.macrotrends.net>.

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# On Decentralization

Maneuverist Paper No. 12

by Marinus

If maneuver warfare’s defining tactical or operational aim is systemic disruption, its dominant feature in Marine Corps doctrine is decentralization using mission-type orders. If there is one characteristic that more than any other marks military operations as maneuver warfare, at least in the Marine Corps, it is not rapid battlefield movement in the form of sweeping envelopments or lightning penetrations that strike deep into enemy rear areas—although that may be the classical manifestation of maneuver warfare. It is the extent to which decision-making authority is delegated to subordinate commanders acting on their own initiative with an understanding of the broader situation.

*Warfighting* uses the term *mission tactics*, translated from the German *Auftragstaktik*:

One key way we put maneuver warfare into practice is through the use of *mission tactics*. Mission tactics is just as the name implies: the tactics of assigning a subordinate a mission without specifying how the mission must be accomplished. We leave the manner of accomplishing the mission to the subordinate, thereby allowing the freedom—and establishing the duty—for the subordinate to take whatever steps deemed necessary based on the situation. Mission tactics relies on a subordinate’s exercise of initiative framed by proper guidance and understanding.<sup>1</sup>

MCDP 6, *Command and Control*, invented the term *mission command and control* to mean the same thing, and contrasted it with *detailed command and control*.<sup>2</sup> The Army, and later the joint community, subsequently adopted the doctrinal term *mission command*, defined as “the conduct of military opera-

tions through decentralized execution based upon mission-type orders.”<sup>3</sup> Sometimes you will also hear the term *trust tactics* to emphasize the requirement for trust between senior and subordinate. The terms are all synonymous.

Decentralization, by the way, was not the only available option in adopting a command model for maneuver warfare. Soviet military doctrine also pursued systemic disruption and could be called a maneuver doctrine, although that defeat mechanism was to be pursued through highly detailed, centralized control.<sup>4</sup> Indeed, the Marine Corps has flirted with centralization over the years—notably in the guise of orchestrated synchronization—although it has not embraced it nearly to the degree the other Services have. The urge to centralize authority seems to be inherent in human nature.

## Mission Tactics as a Response to Uncertainty

Mission tactics are first and foremost a response to uncertainty. The authoritative text on command during the early years of maneuver warfare development was Martin van Creveld’s magisterial *Command in War*, which established the challenge of certainty as the defining problem of command:

From Plato to NATO, the history of command in war consists essentially of an endless quest for certainty—certainty about the state and intentions of the enemy’s forces; certainty about the manifold factors that together constitute the environment in which the war is fought, from the weather and terrain to radioactivity and the presence of chemical warfare agents; and, last but definitely not least, certainty about the state, intentions, and activities of one’s own forces.<sup>5</sup>

*Decentralized execution means more than the physical dispersion of forces and is a fundamental tenet of maneuver warfare. (Photo by Sgt Emmanuel Ramos.)*

*Warfighting* and *Command and Control* both identify uncertainty as a fundamental attribute of war and argue that, while it is important to reduce uncertainty where possible, the ultimate requirement is to operate effectively despite uncertainty. According to van Creveld:

Confronted with a task, and having less information available than is needed to perform that task, an organization may react in either of two ways. One is to increase its information-processing capacity, the other to design the organization, and indeed the task itself, in such a way as to enable it to operate on the basis of less information. These approaches are exhaustive; no others are conceivable.<sup>6</sup>

Mission tactics are an attempt to do the latter—to enable the organization to operate based on less information. In contrast, most U.S. efforts to improve command and control (C2) capabilities in recent decades have taken the former approach—to increase information-processing capability through the growth of staffs and the development of technologies. This doctrine has put the Marine Corps at odds with much of the rest of the U.S. military—and sometimes with itself.

One of the great expectations of advanced information technology with respect to C2 is that it soon will place all relevant information at the ready disposal of the senior commander, finally solving Van Creveld’s “quest for certainty” and facilitating centralized control. The argument against this approach, to which *Warfighting* and *Command and Control* adhere, is that such information itself is essentially decentralized. In his groundbreaking article “The Use of Knowledge in Society” (1945), the future-Nobel economist Friedrich von Hayek argued that “the knowledge of the circumstances of which we must make use never exists in concentrated or integrated form, but solely as the dispersed bits of incomplete and frequently contradictory knowledge which all the separate individuals possess.”<sup>7</sup>

Hayek later introduced the economic and sociological concept of the “extended order,” which was characterized by dispersed knowledge.<sup>8</sup> Hayek argued that “this dispersed knowledge is *essentially* dispersed, and cannot possibly be gathered together and conveyed to an authority charged with the task of deliberately creating order.”<sup>9</sup> Hayek wrote:

Much of the particular information which any individual possesses can be used only to the extent to which he himself can use it in his own decisions. Nobody can communicate to another all that he knows, because much of the information he can make use of he himself will elicit only in the process of making plans for action. Such information will be evoked as he works upon the particular task he has undertaken in the conditions in which he finds himself. ... Only thus can the individual find out what to look for.<sup>10</sup>

This argument is consistent with *Warfighting*, which argues that

a competent subordinate commander who is at the point of decision will naturally better appreciate the true situation than a senior commander some distance removed. ... Commanders should command from where they can best influence the action, normally well forward. This allows them to see and sense firsthand the ebb and flow of combat, to gain

an intuitive appreciation for the situation that they cannot obtain from reports.”<sup>11</sup>

The key questions for our purposes are: Is uncertainty still the fundamental challenge of command that it was thirty years ago, or has advanced information technology finally delivered on its long-standing promise of providing near certainty? Regardless of the answer to that question, is decentralization still the appropriate response to the challenge of command?

### The Virtues of Mission Tactics

Separate from their effectiveness as a response to uncertainty, mission tactics exhibit other virtues as well. By empowering subordinates to make decisions on their own authority rather than passing information up the chain of command and waiting for instructions to filter back down, mission tactics can accelerate operating tempo, which often can provide a significant tactical advantage. In the same way, mission tactics can improve the ability of the force to adapt to the unexpected—always a critical factor. The force can more rapidly exploit fleeting opportunities or address problems before they become full-blown crises. That adaptability also can help make the force a learning organization as innovations emerge at the tactical edge and diffuse through the force.

Decentralization through mission tactics can improve situational awareness. Our position remains that despite the growth of technologies that allow higher commanders to observe events at the tactical edge, the commander on the spot continues to have the best understanding of the situation there—as long as he has been made aware of the larger situation. As Hayek argued, there is information about the local situation that still cannot be captured by even the most advanced technology and can only be sensed by a commander on the scene.

Finally, by empowering subordinate commanders, mission tactics encourage a greater sense of ownership among those subordinates, who will naturally feel a greater sense of responsibility for ultimate success. They will not be merely executors of somebody else’s plan but partners invested in the plan. This will energize the force, unleashing ingenuity and creativity up and down the chain of command.

### “Topsight” and Commander’s Intent

The challenge in implementing effective mission tactics is finding a way to harmonize all the various independent—actually, semi-independent—initiatives. Mission tactics require that commanders at all levels possess a quality that computer scientist David Gelernter has called *topsight*: an understanding of the broader situation and how their actions fit into it. Gelernter wrote that if “insight is the illumination to be achieved by penetrating inner thoughts, topsight is what comes from a far-overhead vantage point, from a bird’s eye view that reveals the whole—the big picture, how the parts fit together. It is the quality that distinguishes genius in any field. It is also the most precious intellectual commodity known to man.”<sup>12</sup>

One tool for helping subordinates gain topsight is the commander's intent, which *Warfighting* describes as

a device designed to help subordinates understand the larger context of their actions. The purpose of providing intent is to allow subordinates to exercise judgment and initiative—to depart from the original plan when the unforeseen occurs—in a way that is consistent with higher commanders' aims.<sup>13</sup>

The intent statement should be concise and simple—something that can provide clear direction in the heat and confusion of battle. *Warfighting* takes the position that intent is an integral part of a mission statement. A mission has two parts: the task to be accomplished and the underlying purpose, or intent.<sup>14</sup> We argue the commander's intent is usually best captured as an “in order to” clause following the assigned task in a mission statement given to a subordinate.

Unfortunately, we often overburden intent by trying to cram too much into it. We seem to think that because commander's intent is a tool explicitly designed to help subordinates exercise initiative, anything that helps subordinates exercise initiative must therefore be a part of commander's intent. So, we variously are told that intent statements should include an “expanded purpose” (beyond an “in order to” statement), key tasks, associated risks, the conditions that define the desired end state, and how the commander envisions achieving a decision.<sup>15</sup> (Frankly, *how* the commander envisions achieving a decision sounds like a concept of operations to us.) The more conditions we insert into a statement of commander's intent, the greater is the likelihood that the guidance actually will *limit* a subordinate's scope for initiative rather than broaden it.

Another point of confusion is the question of who establishes the intent for a unit. *Warfighting* is clear on that point:

The intent for a unit is established by the commander assigning the unit's mission—usually the next higher commander, although not always. A commander normally provides intent as part of the mission statement assigned to a subordinate.<sup>16</sup>

This is an important point. Receiving intent from the commander above and establishing intent for the commanders below creates an unbroken chain of purpose from the top of the organization to the bottom, providing coherence to operations. (In a centralized command system, that continuity of purpose is achieved through the detailed orders issued.) The common rule of understanding the intent two levels up only strengthens that continuity. If each commander were to establish his own intent, there would be no such continuity.

Yet, we continue to see examples of commanders establishing their own intent for their units on top of the intent already provided by the senior commander. *Army Doctrinal Publication 6-0, Mission Command*, for example, instructs:

When describing the purpose of the operation, the commander's intent does not restate the “why” of the mission statement. Rather, it describes the broader purpose of the unit's operation in relationship to the higher commander's intent and concept of operations. Doing this allows subordinates to gain insight into what is expected of them, what constraints apply, and, most importantly, why the mission is being conducted. If it is longer than a brief paragraph it is probably too long.<sup>17</sup>

We sometimes thus see a separate commander's intent statement as a subparagraph in paragraph 3, “Execution,” of the combat order.<sup>18</sup> Multiple intents for the same unit strike us as a formula for confusion. A commander most definitely should not establish the intent for his own unit.

Topsight comes from a number of places, not only the commander's intent. Much of it simply comes from a general understanding of the broader situation. Just having good situational awareness helps in the exercise of judgment and initiative. Much more, we submit, comes from understanding the concept of operations, not only of your own units but of higher and adjacent units as well. For commanders who want to put their personal stamp on operations, this is the place to do it. It is the concept of operations that provides the logic of how operations are supposed to unfold and how the various tasks that make up the concept are meant to work together. It is this logic more than anything else, we submit, that should help subordinates exercise judgment in departing from the assigned task.

## Organizational Implications of Mission Tactics

Mission tactics have organizational implications that are generally underappreciated. To operate independently, subordinate commanders must control the required resources, which implies self-contained tactical units. The more a commander must request support from others to accomplish the mission, the less scope he has for independent action.

Similarly, mission tactics also suggest that the various tasks of a concept of operations be loosely coupled as opposed to tightly coupled—that is, they do not require close coordination between units. In other words, the elements of the plan should be linked together broadly by intent and effect rather than precisely coordinated in time, space, and execution. Tightly coupled plans require close coordination among commanders. Loosely coupled plans allow more freedom of action, and as a result, commanders have greater latitude to exercise initiative. If a commander must closely coordinate every action with adjacent, higher, and supporting units, there can be little latitude for initiative, and there are no mission tactics—even if that commander has been issued a so-called mission-type order. Per mission tactics, the ideal was to provide the subordinate a mission (both task and intent), the resources needed to accomplish that mission, and a zone or sector of his own—and then to give him free license to operate. That is the essence of mission tactics.

## Command Archetypes

Elaborating on Van Creveld, Thomas J. Czerwinski, in a short but important article, “Command and Control at the Crossroads” (*MCG*, Oct95), identified three archetypes of command. The oldest archetype he called *command-by-direction*, in which the commander personally directs all operations. It is straightforward and dynamic, relying on the genius of the commander. Uncertainty is gathered and resolved entirely in the mind of the commander. As armies grew larger and battlefields expanded, however, commanders lost the ability to direct the entire scope of operations. They could command



**Decentralized C2 relies on the initiative and bias for action of small unit leaders informed by clear commander's intent.** (Photo by Sgt Emmanuel Ramos.)

part of the force all the time by locating themselves with a key subordinate unit, or they could command all the force part of the time, by moving from unit to unit, but they could not achieve the ideal of commanding all the force all the time. In the mid-eighteenth century, Frederick the Great attempted to address that limitation through the invention of *command-by-plan*, by which the commander attempts to restore control over the entire force by scripting its actions in advance—although at the expense of dynamism and adaptability. Command by plan also attempted to centralize uncertainty and to master it in the plan, often using contingencies. Command-by-plan has become the model for modern militaries around the world, the U.S. military included. The third archetype, *command-by-influence*, is better known as mission tactics or mission command.<sup>19</sup> By this method, historically most associated with the Germans in the World Wars, the commander gives only broad, permissive guidance, thereby *influencing* all the force all the time without, in theory, restricting subordinate freedom of action. In contrast to the first two archetypes, command-by-influence attempts to cope with uncertainty by distributing it throughout the force, where local commanders can share the burden, rather than by centralizing it in one place where it can threaten to overwhelm the force.

### Technology and Mission Tactics

With the possible exception of weapons and munitions, no aspect of warfare has been more impacted by technology in recent decades than C2. Similarly, in no aspect of warfare do we expect technology to solve our problems more than in C2. This does not bode well for command-by-influence. Information technologies tend to lend themselves to the first of Van Creveld's two possible approaches to dealing with uncertainty—eliminating or at least marginalizing it—while command-by-influence by contrast attempts to cope with it. Command-by-influence is based in the humanities rather than in technology.

The C2 technologies we build reflect our preferred approaches and then in turn reinforce those preferences. The

vast majority of new technologies are designed to support command-by-plan or even command-by-direction. There are very few technologies designed to support command-by-influence, in part because command-by-influence relies primarily on the personal relationships and trust among commanders. One such example was the Defense Advanced Research Projects Agency's Command Post of the Future (CPOF), the conceptual development of which, not surprisingly, was led by Marine generals Keith Holcomb and Paul Van Riper.<sup>20</sup> The operating concept for CPOF was a collegial and indirectly collaborative form of command-by-influence termed *stigmergic command*, which used distributed collaboration technologies to build mutual understanding that was bottom-up and horizontal as much as it was top-down.<sup>21</sup> Unfortunately, since CPOF transitioned to the Army in 2006, it has been transformed into a command-by-plan tool to fit the prevailing philosophy.

Mission tactics do not enjoy the happy, mutually reinforcing relationship with technology that command-by-plan and command-by-direction do, but it is unrealistic to expect that commanders will simply ignore what technology has to offer. If we believe that mission tactics remain the best solution for the future, it is imperative we figure out how to use technology to support them rather than undermine them. It is worth considering what future mission tactics may look like in an environment characterized by pervasive communications. CPOF's stigmergic command concept may provide the prototype for future mission tactics.

### The Future Prospects for Mission Command

Mission tactics were developed to deal with uncertainty in an era of unreliable communications and limited information. What are the prospects for mission tactics in an age characterized by pervasive communications and information saturation?

Our first observation is that the Marine Corps may not find itself fighting in such an information-saturated environment after all. We may find ourselves adopting mission tactics out of necessity—without the benefit of having trained for them—as our enemies disable our highly vulnerable information systems. We pay lip service to being able to operate in a degraded information environment, but it is not something we train for seriously. Additionally, mission command is not something you can just pick up; it requires commanders, both senior and subordinate, trained to operate that way.

In the absence of a degraded information environment, the Marine Corps will find itself swimming against the current to the extent it practices mission tactics. Mission tactics are inherently messy, even inefficient. Commanders must be willing to give up positive control, which means accepting greater uncertainty. The implicit assertion is that the gains in tempo, adaptability and energy through mission tactics will more than make up for the disorder, inefficiency, and uncertainty that are a natural side effect. This will require institutional commitment that we are not sure the Marine Corps possesses. While most of us may be in favor of our seniors practicing mission tactics with us, it is human nature to want to maintain positive control at our own level. Letting

go of control will be a hard sell in an era characterized by risk aversion and expectations of near-perfect information.

The reality is that U.S. joint operations, driven largely by the scheduling requirements of the air component, strongly favor command-by-plan and are only moving further in that direction. In fact, it is no stretch to say that the U.S. military generally pays lip service to command-by-influence, practices command-by-plan, but fervently hopes for a return to command-by-direction through the power of advanced information technology.<sup>22</sup> The U.S. military has been waiting for decades for technology to deliver on this promise—and continues to wait. Artificial intelligence and machine learning are only the latest pending breakthroughs upon which the U.S. military has pinned its command-by-direction hopes.

Finally, the continued evolution of joint operations argues against the use of mission tactics. The entire history of the evolution of joint operations has been one of breaking down the boundaries between the Services to achieve ever-greater levels of unification—from mere deconfliction to limited coordination to actual integration to full interdependence (which strikes us as more of a liability than the strength it is often portrayed to be). The underlying premise of joint operations is synergy achieved through ever-tighter integration.<sup>23</sup> This premise is now an article of faith. We are not disputing the potential value of integration, but it comes at a cost. We wonder if beyond some point that cost begins to outweigh the advantages. In any event, as we have discussed, this emphasis on precise integration runs contrary to mission command's preference for self-contained units and loose coupling of operations.

### Conclusion

Mission tactics, the most distinguishing feature of maneuver warfare, developed as a response to pervasive uncertainty, which *MCDP 6*, based on Van Creveld, identifies as the fundamental challenge of command. The Marine Corps, we argue, needs to answer three questions as an institution. First, does it still believe this condition to be true? We certainly do. We do not believe that information technology has changed that condition—or is about to any time soon. Second, if the answer to the first question is yes, are mission tactics still the best response to that condition—especially in the face of technology developments, the continued evolution of joint operations, and a culture of control that strongly favor command-by-plan? Third, if the answer to that question is also yes, is the Marine Corps willing make the effort necessary and put itself decidedly out of step with the other components of the joint force to institutionalize mission tactics?

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### Notes

1. Headquarters Marine Corps, *MCDP 1, Warfighting*, (Washington, DC: 1997).

2. Headquarters Marine Corps, *MCDP 6, Command and Control*, (Washington, DC: 1996).

3. Office of the Joint Chiefs of Staff, *Joint Publication 1-02, Department of Defense Dictionary of Military and Associated Terms*, (Washington, DC: 2010). Mission-type order: 2. An order to a unit to perform a mission without specifying how it is to be accomplished.

4. The operational concepts developed by the Soviet Army in the 1920s and 1930s and employed in the latter years of the World War II were later modified to account for atomic and then nuclear weapons. They were further revised to counter the U.S. Army's Air-Land Battle doctrine in the 1980s. Always at the center of Soviet thinking was the primary role of operational and tactical maneuver to enable its forces "to attack an enemy's defenses as near simultaneously as possible throughout their depth to effect a catastrophic disintegration of their entire defense system." Bruce W. Menning, "Operational Art's Origins," in *Historical Perspectives of the Operational Art*, (Washington, DC: Center of Military History, United States Army, 2005). See also David M. Glantz, *Soviet Military Operational Art in Pursuit of Deep Battle*, (New York, NY: Frank Cass, 1991); and Headquarters Department of the Army, *FM 100-2-1, The Soviet Army: Operations and Tactics*, (Washington, DC: 1984): "The Soviets recognize that effective command and control is critical for success in modern combined arms warfare. Their method of insuring success is to establish and to maintain a system of tightly centralized control over the combat and supporting forces at each level of command."

5. Martin van Creveld, *Command in War*, (Cambridge, MA: Harvard University Press, 1985).

6. Ibid.

7. F.A. Hayek, "The Use of Knowledge in Society," *The American Economic Review*, (September 1945).

8. F.A. Hayek, *The Fatal Conceit: The Errors of Socialism*, ed. by W.W. Bartley III, (Chicago, IL: University of Chicago Press, 1988). Hayek was specifically addressing economies, but we suggest there are many examples of extended orders in human societies, including military organizations.

9. Ibid.

10. Ibid.

11. *Warfighting*.

12. David Hillel Gelernter, *Mirror Worlds, or, The Day Software Puts the Universe in a Shoebox: How It Will Happen and What It Will Mean*, (New York, NY: Oxford University Press, 1991).

13. *Warfighting*.

14. "Mission: The task, together with the purpose, that clearly indicates the action to be taken and the reason therefor." See Office of the Joint Chiefs of Staff, *Joint Publication 1-02, Department of Defense Dictionary of Military and Associated Terms*, (Washington, DC: 2010).

15. Department of the Army *ADRP 5-0, The Operations Process*, (Washington, DC: 2012); Office of the Joint Chiefs of Staff, *Joint Publication 3-0, Joint Operations*, (Washington, DC: 2017, incorporating Change 1 of October 2018); and Marine Corps Air Ground Task Force Training Center, "Five-Paragraph Order Format," (Twentynine Palms, CA: undated).

16. *Warfighting*.

17. ADP 6-0, *Mission Command Mission*.

18. Marine Corps Air Ground Task Force Training Center, "Five-Paragraph Order Format," (Twentynine Palms, CA: undated).

19. *Joint Publication 3-0*: "Mission command—The conduct of military operations through decentralized execution based upon mission-type orders." Also "mission-type order —2. An order to a unit to perform a mission without specifying how it is to be accomplished."

20. Originally conceived as a futuristic command post, as the name indicates, CPOF transitioned into a distributed command network.

21. Stigmergy is a form of indirect coordination in decentralized systems by which actors leave information for other actors by acting in the environment. During CPOF experimentation exercises, commanders would create live work products—reports, assessments, taskers, imagery, overlays, fragmentary orders, etc.—in their shareable situation displays that would provide coordinating information for other commanders. Probably the best-known example of stigmergy in nature is ants leaving instructions for other ants by laying down pheromone trails as they scout for food.

22. D. Robert Worley, *Shaping U.S. Military Forces: Revolution or Relevance in a Post-Cold War World*, (Westport, CT: Praeger, 2006). Worley makes this point about the Army in particular, but we believe it applies generally to joint forces as well.

23. This premise has now been expanded beyond the joint force to include all elements of national power: "Whereas the term joint operation focuses on the integrated actions of the Armed Forces of the United States, the term unified action has a broader connotation. Unified action refers to the synchronization, coordination, and integration of the activities of governmental and nongovernmental entities to achieve unity of effort." See *Joint Publication 3-0, Joint Operations*.



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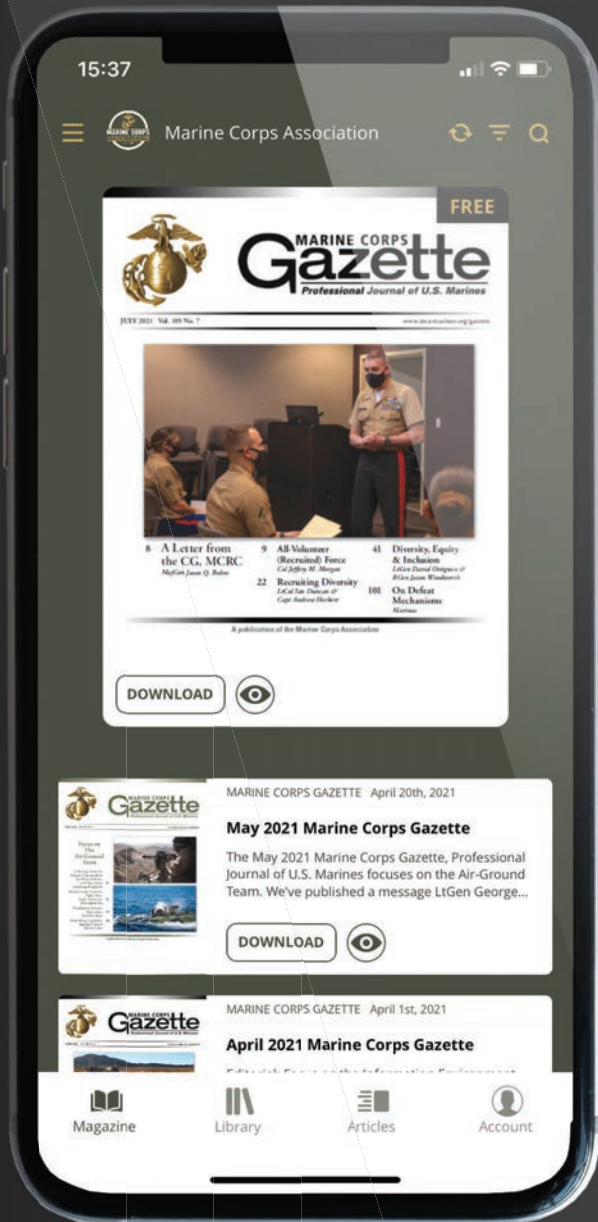
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# Dead Germans

More reasons to study Russian  
and Chinese military minds

by Col Joseph Bornschein, USMCR

I could not agree more with Maj Ruggles' view expressed in his November 2019 *Marine Corps Gazette* article that proposed "every day spent focusing on 'dead Germans' is one more day that could be better used to study 'dead Russians' and Russians who are still alive"<sup>1</sup> To take it one step further, along with the Russians, we also need to study Chinese military strategic thought, especially as the People's Republic of China (PRC) observes U.S. responses and reactions to Russian actions. Of consideration is the Marine Corps' shift to *Force Design 2030* and our future actions in the INDOPACOM Area of Responsibility. The time is now to change our study habits and to better prepare for a near-peer or peer confrontation as the adversary is not waiting. Russia's efforts to shape the battlefield are well underway using renewed, Soviet-era thinking modified for today's operational and information environment.<sup>2</sup>

We should look to Russia's Chief of the General Staff Gen Valery Gerasimov's perspective to learn more. A review of online publications indicates that perhaps an academic debate continues as to whether a "Gerasimov Doctrine" exists.<sup>3</sup> However, the bottom line is that Russia's political and military strategy revolves around subversion in all the aspects of the operational environment using lethal and non-lethal methods. Maj Ruggles clearly outlined Russian actions in all domains to deliver effects in Georgia, Ukraine, Syria, and in the Arctic to name a few, but highlights that U.S. efforts remain focused on studying the German *Blitzkrieg* initiated against Poland in 1939. Marine Corps professional military education, as well as scholars studying conventional, irregular, and cyber warfare must shift focus to conduct practical and academic "deep-dives" into recent adversary actions, how these actions are initiated, and the thinking for which they are based upon. Violent extremists such as Al-Qaida and ISIS would release statements telling us what they were planning to do, then they would do it. Peer adversaries' indicators are perhaps not as clear as those of terrorist organizations; however, their actions based on historical theories can tell us a great deal about how they think and therefore operate. Rather than the German *Blitzkrieg*, we should shift immediately to thoroughly explore how Russia's renewed thinking has created a "disguised blitzkrieg impact" by combining the Soviet Deep Operation Theory advanced by Marshall Mikhail Tukhachevsky with Reflexive Control Theory that influences the Russian adversary's decisions by shaping their perceptions.<sup>4</sup>

**>Col Bornschein is a Reserve Intelligence Officer assigned to the MARFORCYBER IMA Detachment. He deployed to Afghanistan in 2007 as a civilian and 2010 as the Officer-in-Charge of the USCYBERCOM Expeditionary Cyber Support Element. Col Bornschein was the AC/S G-2 for 2DMAW/ACE in Norway in 2018 during exercise TRIDENT JUNCTURE.**

In addition to shifting the focus of study, we also need to consider the PRC's military strategic thought process, specifically as it relates to U.S. responses and reactions to Russian actions in all domains, including the cyber domain. U.S. actions in Iraq, Afghanistan, parts of Africa, and many other areas have been closely monitored by the PRC, and so too are our reactions to Russian "hybrid warfare."<sup>5</sup> The NATO Exercise TRIDENT JUNCTURE 18 (TJ18) in Norway telegraphed how NATO, and especially II MEF, prepared and deployed to Russia's backyard. Although a pre-planned, large-scale NATO exercise is different from an operational response, TRIDENT JUNCTURE 18 provided both Russia and the PRC with a large amount of information as to how we would potentially operate to deter or defend NATO allies.

As we shift to study Russian military thinking, we must also study the strategic thinking of the PRC and the People's Liberation Army to better understand their perception and reactions to our actions. It is relatively easier for Western military students to study and comprehend other Western-like military thought than strategic thinking of Eastern military minds, illustrated by the war in the Pacific in World War II against Japan and the Battle of the Chosin Reservoir during the Korean War. We must therefore study harder to understand the PRC. The DOD's 2002 annual report on Chinese military power in July 2002 mentions information gaps in the United States' understanding of Chinese military thinking.<sup>6</sup> Of specific interest is the concept of *Shi*, described in Michael Pillsbury's book, *The Hundred-Year Marathon: China's Secret Strategy to Replace America as the Global Superpower*, as a close approximation to "the force" in *Star Wars*.<sup>7</sup> As a Chapter in Sun Tzu's *Art of War*, *Shi* is clearly an item worth studying to understand PRC thinking on how to "harness opportunities to turn events to his [leader] will" and "get others to act in ways that work to their advantage."<sup>8</sup>

The concepts of Russian reflexive control and Chinese *Shi*, though not synonymous, should be studied equally and thoroughly to better comprehend how our potential adversaries are thinking. As the Marine Corps pivots to reorganize

under *Force Design 2030* and prepares for readiness in the EUCOM and the INDOPACOM Area of Responsibilities, our study habits will determine our level of success in the future. I agree we need to move on from studying “dead Germans” in order to better prepare for the next fight.

**Notes**

1. Alfred B. Ruggles, “We Should Study More Dead Russians,” *Marine Corps Gazette*, (Quantico, VA: November 2019).
2. Can Kasapoglu, “Russia’s Renewed Military Thinking: Non-Linear Warfare and Reflexive Control,” (Rome: Research Division–NATO Defense College, 2015).
3. Mark Galeotti, “I’m Sorry for Creating the ‘Gerasimov Doctrine,’” *Foreign Policy*, (March 2018), available at <https://foreignpolicy.com>.

4. “Russia’s Renewed Military Thinking: Non-Linear Warfare and Reflexive Control.”

5. David Lai, “Learning from the Stones: A Go Approach to Mastering China’s Strategic Concept, Shi,” U.S. Army War College Strategic Studies Institute, (May 2004), available at <https://publications.armywarcollege.edu>.

6. Michael Pillsbury, *The Hundred-Year Marathon: China’s Secret Strategy to Replace America as the Global Superpower*, (New York, NY: Saint Martin’s Press, 2016).

7. Ibid.

8. Ibid.



**Quote to Ponder:**

“If my soldiers were to begin to think, not one of them would remain in the army.”

—Frederick the Great, King of Prussia



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# Burn In

reviewed by Maj Jack Long, USMCR

**P**eter Singer and August Cole, authors of 2015's hit novel *Ghost Fleet*, are back with a new technothriller set in the near future which explores the impact of autonomy and artificial intelligence if current trends continue unabated and, in so doing, raise interesting questions about the society we are building. Openly billed as a think tank report told in the form of a story, the heavily footnoted book makes it easy for the reader to further explore the technologies presented.

The story follows former Marine and current FBI agent Laura Keegan, who, fresh off the heels of preventing a major terrorist bombing at Union Station, is given a special assignment by the FBI's Deputy Director: train and evaluate an advanced robot, the Tactical Autonomous Mobility System—TAMS—for service with the FBI. Though resistant to the assignment, Keegan sets off with her new partner in tow. Readers familiar with current sci-fi depictions of robots having personalities may be in for a shock, as TAMS is portrayed as more robotic than human (think T-800, not Bender or Data).<sup>1</sup> They quickly find themselves in the middle of a national crisis, as the United States is beset by a series of disasters resulting from seemingly innocent technological malfunctions.

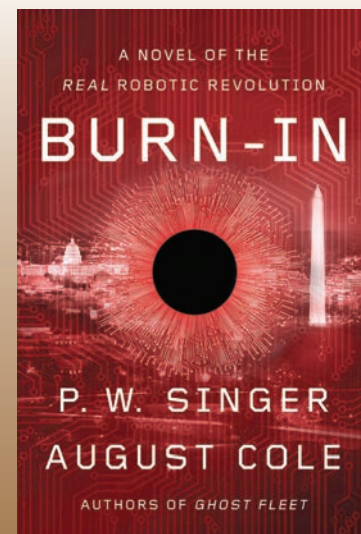
As our heroes dash from one crisis to the next, the reader is exposed to repeated lessons in how today's technology will be implemented in the future. Slowly but steadily, the villains are revealed: a broad Neo-Luddite conspiracy, made up of a loose coalition of anti-technology groups, each with their own agenda, who have coalesced around the idea that humanity has allowed itself to be enslaved by technology, and in doing so, brought about a dystopian world in which massive in-

>Author's biographic information not provided.

come inequality is the norm and free will has been all but eliminated by the recommendations of all-knowing algorithms.

Ultimately, the relationship between Keegan and TAMS gives this story its heart. It is a cop buddy story, with Keegan in the role of experienced veteran breaking in her naive but brilliant new rookie partner, TAMS. The reader will find humor in her struggles to teach it to understand human irrationality and will enjoy watching as the two gel as partners, with the jaded Keegan slowly coming to trust and respect TAMS's skills while TAMS's programming evolves to compute that it can best execute its mission to the Bureau by prioritizing its loyalty to its partner—even if that means slightly bending a rule here or there.

The book is not without its flaws. The slow start and frequent digressions into technological explanations may cause some readers to give up early. It feels at times as if the authors shoe-horned in every single technology they could think of, and it is a bit heavy-handed on pushing its message of a dystopian future. The cast of characters is made up of the typical one-dimensional stereotypes found in crime thrillers (Keegan and TAMS being notable exceptions). The story is pleasantly ludicrous and only works if the reader does not think too much about it, ignoring the unlikely coincidences, lucky breaks, and silly plot twists that are the hallmarks of enjoyable summer beach reads. The book unsubtly sets up a sequel, with Keegan poised to go after the real villain of the story (which I will not spoil).



BURN IN: A Novel of the Real Robotic Revolution. By Peter Singer and August Cole. New York, NY: Houghton Mifflin Harcourt, 2020. ISBN: 978-1328637239, 432 pp.

For all its flaws, *Burn-In* is worth reading, especially for those who have not been paying attention to recent advances in artificial intelligence and automation. It is an easily readable, fast moving, and enjoyable primer on the technologies that may have a large impact on us over the coming years, one that leaves the reader to ponder the unanswered questions of what those technologies will mean for humanity.

## Notes

1. Cyberdyne Systems Model 101, aka T-800, portrayed by Arnold Schwarzenegger, most notably in *Terminator 2: Judgement Day*; Bending Unit 22, serial number 2716057, from the TV series *Futurama*, drawn by Matt Groening and voiced by John DiMaggio; and LCDR Data, portrayed by Brent Spiner, in *Star Trek: The Next Generation*.



# Adaptation Under Fire

reviewed by 1stLt Victor Wu

The Marine Corps exists by nature in a state of uneasy paradox. Its doctrine praises adaptation and innovation, and it officially urges its members to demonstrate freethinking and initiative. Yet, it is also rigidly hierarchical in structure and jealously protective of its traditions. In theory, a lance corporal with a great idea—or a critique of an existing one—ought to be able and willing to convince a colonel of its merits. But how often does this really happen in practice?

The tensions between tradition and innovation, certainty and change, reside in every organization. Military organizations like the Marine Corps, though, face these challenges to a unique degree. Militaries are necessarily large, bureaucratic institutions that place a high premium of uniformity, obedience, and discipline. This is because they must ensure that their members can ultimately be counted on to understand and execute orders in the most chaotic, urgent, and stressful of conditions. Yet, without a robust culture of learning, risk taking, and adaptation, militaries will inevitably find themselves unprepared and unable to respond to the complex, constantly shifting demands of war.<sup>1</sup> So how do we achieve this inherently difficult goal?

This is what David Barno and Nora Bensahel propose to answer in their impressive new book, *Adaptation Under Fire*. Barno, a retired Army lieutenant general, and Bensahel, a political science professor, bring a vast wealth of both personal experience and academic insight to bear on this topic in the same tradition of contemporary soldier-scholars such as David Petraeus, John Nagl, and James

*>Author's biographic information not provided.*

Mattis. Their contribution is distinctive, though, for the extent to which it seeks to synthesize and bridge discussions across all three levels of war—tactical, operational, and strategic. In particular, as they note, they are focused most on filling scholarly gaps at the operational level. Their ultimate aim is essentially a practical one: to provide senior commanders and their civilian counterparts with a useful framework for action to improve the U.S. military's capability to adapt and win in future theaters of war.

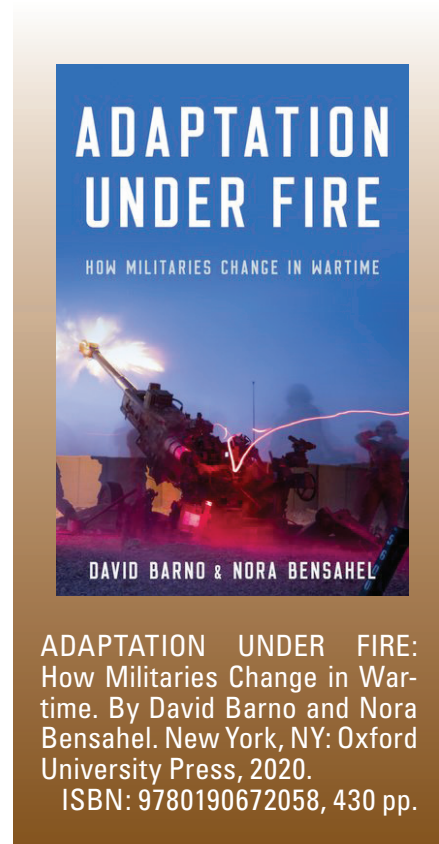
Barno and Bensahel pursue this aim through a blended historical and social-scientific approach. Their book consists of three interconnected parts:

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***It is one thing to profess adaptability; it is quite another to actually realize and institutionalize it in practice.***

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first, an analytical framework for understanding military adaptation, then the application of that framework to the wars in Iraq and Afghanistan, and finally their evaluation of and recommendations for the U.S. military's readiness to win its future wars. They single out three key elements of adaptation: doctrine, technology, and leadership. For each element, they discuss illustrative case studies in adaptation from modern military history, both



**ADAPTATION UNDER FIRE:**  
How Militaries Change in War-  
time. By David Barno and Nora  
Bensahel. New York, NY: Oxford  
University Press, 2020.  
ISBN: 9780190672058, 430 pp.

successful and unsuccessful, distilling from them more general themes and implications. Some of the cases, particularly of failure to adapt, are well-known—the United States in Vietnam or the French in World War II. Others are relatively unfamiliar, such as Israel's victory against Egypt in the 1973 Yom Kippur War, a fascinating

example of “mistaken and adaptable” doctrine triumphing over an “accurate and rigid” counterpart.<sup>2</sup> Some are frustrating and even outright infuriating, calling to mind LTC Paul Yingling's (Ret) searing critique of the early theater-level leadership in the Iraq War: “As matters stand now, a private who loses a rifle suffers far greater consequences than a general who loses a war.”<sup>3</sup> Yet, all are instructive. As any good military leader knows, the mis-

takes of the past, filtered through the lens of understanding, are the best teachers for the future.<sup>4</sup>

The key theme throughout the book is *uncertainty*. As Clausewitz understood and Marine Corps doctrine reinforces, war is defined by radical uncertainty—about our enemy, our environment, and even ourselves. Under the perpetual constraints of time and human imperfection, we can make our best guesses about the future, but they are ultimately just that, guesses. “What matters most, then,” Barno and Bensahel argue, “is the *ability to successfully adapt to unforeseen circumstances as they arise*.”<sup>5</sup> This idea, more than any specific analysis or recommendation, is the heart of their book. Any student of *MCDP 1, Warfighting*, certainly will find their perspective quite familiar. As Barno and Bensahel would likely caution, though, the devil is in the details. It

is one thing to profess adaptability; it is quite another to actually realize and institutionalize it in practice. As the Marine Corps and U.S. military writ large prepares itself anew for the rigors of great power competition, the insights Barno and Bensahel offer for how to do so are more relevant than ever.<sup>6</sup> After all, we must fight the war we are given, not the one we chose. The only certainty is that there is none.

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#### Notes

1. For a discussion of the importance for militaries of an organizational culture of learning through the historical lens of counterinsurgency, see John A. Nagl, *Learning to Eat Soup with a Knife: Counterinsurgency Lessons from Malaya and Vietnam*, (Chicago, IL: University of Chicago Press, 2005).

2. *Adaption Under Fire*.

3. *Ibid*.

4. See Michael Howard, “The Use and Abuse of Military History,” *Royal United Services Institution Journal*, (1962), also republished in Michael Howard, *The Causes of War*, (Cambridge, MA: Harvard University Press, 1983).

5. *Adaption Under Fire*.

6. For a discussion of the Marine Corps’ future that emphasizes its tradition of adaptability, see Gen David H. Berger, “Preparing for the Future: Marine Corps Support to Joint Operations in Contested Littorals,” *Military Review*, (May 2021), available at <https://armyupress.army.mil>.



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Our basic policy is to fulfill the stated purpose of the *Marine Corps Gazette* by providing a forum for open discussion and a free exchange of ideas relating to the U.S. Marine Corps and military and national defense issues, particularly as they affect the Corps.

The Board of Governors of the Marine Corps Association & Foundation has given the authority to approve manuscripts for publication to the editor and the Editorial Advisory Panel. Editorial Advisory Panel members are listed on the *Gazette's* masthead in each issue. The panel, which normally meets as required, represents a cross section of Marines by professional interest, experience, age, rank, and gender. The panel judges all writing contests. A simple majority rules in its decisions. Material submitted for publication is accepted or rejected based on the assessment of the editor. The *Gazette* welcomes material in the following categories:

- **Commentary on Published Material:** The best commentary can be made at the end of the article on the online version of the *Gazette* at <https://www.mca-marines.org/gazette>. Comments can also normally appear as letters (see below) 3 months after published material. BE BRIEF.
- **Letters:** Limit to 300 words or less and DOUBLE SPACE. Email submissions to [gazette@mca-marines.org](mailto:gazette@mca-marines.org) are preferred. As in most magazines, letters to the editor are an important clue as to how well or poorly ideas are being received. Letters are an excellent way to correct factual mistakes, reinforce ideas, outline opposing points of view, identify problems, and suggest factors or important considerations that have been overlooked in previous *Gazette* articles. The best letters are sharply focused on one or two specific points.
- **Feature Articles:** Normally 2,000 to 5,000 words, dealing with topics of major significance. Manuscripts should be DOUBLE SPACED. Ideas must be backed up by hard facts. Evidence must be presented to support logical conclusions. In the case of articles that criticize, constructive suggestions are sought. Footnotes are not required except for direct quotations, but a list of any source materials used is helpful. Use the *Chicago Manual of Style* for all citations.
- **Ideas & Issues:** Short articles, normally 750 to 1,500 words. This section can include the full gamut of professional topics so long as treatment of the subject is brief and concise. Again, DOUBLE SPACE all manuscripts.
- **Book Reviews:** Prefer 300 to 750 words and DOUBLE SPACED. Book reviews should answer the question: "This book is worth a Marine's time to read because..." Please be sure to include the book's author, publisher (including city), year of publication, number of pages, and the cost of the book.

**Timeline:** We aim to respond to your submission within 45 days; please do not query until that time has passed. If your submission is accepted for publication, please keep in mind that we schedule our line-up four to six months in advance, that we align our subject matter to specific monthly themes, and that we have limited space available. Therefore, it is not possible to provide a specific date of publication. However, we will do our best to publish your article as soon as possible, and the Senior Editor will contact you once your article is slated. If you prefer to have your article published online, please let us know upon its acceptance.

**Writing Tips:** The best advice is to write the way you speak, and then have someone else read your first draft for clarity. Write to a broad audience: *Gazette* readers are active and veteran Marines of all ranks and friends of the Corps. Start with a thesis statement, and put the main idea up front. Then organize your thoughts and introduce facts and validated assumptions that support (prove) your thesis. Cut out excess words. Short is better than long. Avoid abbreviations and acronyms as much as possible.

**Submissions:** Authors are encouraged to email articles to [gazette@mca-marines.org](mailto:gazette@mca-marines.org). Save in Microsoft Word format, DOUBLE SPACED, Times New Roman font, 12 point, and send as an attachment. **Photographs and illustrations must be in high resolution TIFF, JPG, or EPS format (300dpi) and not embedded in the Word Document. Please attach photos and illustrations separately.** (You may indicate in the text of the article where the illustrations are to be placed.) Include the author's full name, mailing address, telephone number, and email addresses—both military and commercial if available. Submissions may also be sent via regular mail. Include your article saved on a CD along with a printed copy. Mail to: *Marine Corps Gazette*, Box 1775, Quantico, VA 22134. Please follow the same instructions for format, photographs, and contact information as above when submitting by mail. Any queries may be directed to the editorial staff by calling 800-336-0291, ext. 180.

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