The Breckinridge Papers

SELECTED STUDIES FROM THE MARINE CORPS UNIVERSITY

Volume 3, Number 1

dedicated to and with a special foreword by General Charles C. Krulak
31st Commandant of the U.S. Marine Corps

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Dedication

Making Marines and winning battles is what our beloved Marine Corps does for the United States. The ultimate dynamo for accomplishing these two tasks is the active mind—the most creative and commanding force known in conflict.

The domains of warfighting, ethics, strategy, science, and the liberal arts are inextricably intertwined. The warrior who appreciates them as one piece, who delves, wrestles, and writes about them, builds the most precious of military assets. These are the assets on which we draw and on which our future victories will depend.

In this volume of the *Breckinridge Papers*, Marine, Army, Air Force, Navy, and Allied servicemembers pour their energies into disaggregating problems, discovering insights, and developing solutions.

Lieutenant General Victor "Brute" Krulak, who was both a warfighter and an intellectual and who saw these two vocations as one, would be proud to see the rising generation of noncommissioned and commissioned officers thinking, taking up the pen, and developing our future military advantages. As such, the dedication of this issue of the Breckinridge Papers to the Brute is saluted.

Semper Fidelis,
Charles C. Krulak
General, U.S. Marine Corps
31st Commandant

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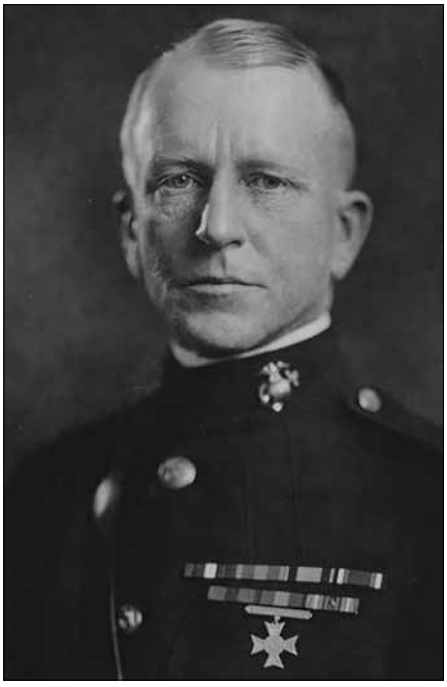
President's Foreword

Today, our nation faces an increasingly complex and ever-changing global security environment, and our Marine Corps exists to provide the country with combat ready forces to protect our citizens and our interests in that environment. Marine Corps University endeavors to contribute to that readiness by maintaining a sharp focus on teaching officers and noncommissioned officers how to outthink as well as outfight their opponents. Our current approach develops leaders with a bias for action, the capability to think critically and creatively, and exercise sound military judgment. This third volume of the *Breckinridge Papers: Selected Studies from the Marine Corps University* presents the best work done by students of the Marine Corps War College, the School of Advanced Warfighting, the Command and Staff College, the Expeditionary Warfare School, and the College of Enlisted Military Education and builds on the university's continuing commitment to developing and constantly refining a maneuver warfare mindset.

Lieutenant General James C. Breckinridge served as the commanding general of Marine Corps Schools (predecessor to the president of Marine Corps University) twice in the 1930s. In this role, he presided over preparation and eventual publication of the Marine Corps' first-ever doctrinal statements, the most renowned of which are the *Tentative Manual for Landing Operations* (1935), the *Tentative Manual for Defense of Advanced Bases* (1936), and the *Small Wars Manual* (1940). The resulting doctrinal and organizational breakthroughs enabled the successful amphibious campaigns of the Pacific War. Midlevel officers participated in, thought about, and wrote on these innovations in warfighting, often while attending the schools that became the Expeditionary Warfare School and the Command and Staff College. Their writings filled the pages of the *Marine Corps Gazette* and U.S. Naval Institute *Proceedings*. Today, as then, sharing such critical thinking and creativity improves both the individual author and the Service as a whole.



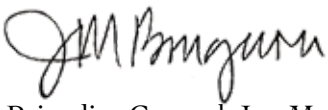
LtGen James C. Breckinridge
Reference Branch, Marine Corps History Division

Following the tradition of Lieutenant General Breckinridge, in November 2018 Marine Corps University established the Lieutenant General Victor H. "Brute" Krulak Center for Innovation and Creativity as an incubator for academic innovation. During the 1950s

and 1960s, Lieutenant General Krulak incorporated technology such as the landing craft and helicopter into Marine Corps operational concepts. With the same spirit that Krulak led those and many other efforts, the Krulak Center embraces change in warfighting and proposes novel solutions to current and future warfighting challenges.

This volume comprises offerings that received or were nominated for awards during the past two academic years. An editorial board of university faculty oversaw the process of evaluating the most outstanding selections for this publication in an organic continuation of the annual award process conducted by each individual school. Marine Corps University will continue this selection method in future academic years, assembling the most provocative, thoughtful, and relevant papers by university award recipients and nominees for the editorial board's consideration. *The Breckinridge Papers: Selected Studies from the Marine Corps University* celebrates and continues the inquisitive spirit of such professional scholars as Lieutenant General Breckinridge.

Semper Fidelis,



Brigadier General Jay M. Bargeron
President, Marine Corps University

Top: Unveiling the portrait of LtGen Victor H. Krulak at the grand opening of the Brute Krulak Center for Innovation and Creativity, Gray Research Center, Marine Corps University, Quantico, VA, on 27 March 2019. Right to left: Gen Alfred M. Gray Jr. (Ret), 29th Commandant of the Marine Corps; Gen Charles C. Krulak (Ret), 31st Commandant of the Marine Corps; Col Valerie Jackson (USMCR), director of the Krulak Center; Gen John R. Allen (Ret); and Gen Carlton W. Fulford Jr. (Ret).
Bottom: Ribbon cutting at the grand opening with Col Jackson and Gen Krulak.
Courtesy of the Brute Krulak Center for Innovation and Creativity

The Breckinridge Papers

Center of Gravity
A Model for the Twenty-first Century Warfighter

by Major Charles C. Nash, U.S. Marine Corps[1]

The year is 2025. II Marine Expeditionary Force (II MEF) recently embarked aboard amphibious and littoral shipping from the Navy's Fourth Fleet as part of a Combined Joint Task Force (CJTF) in support of Operation Littoral Resolve. This task force yields the largest integrated naval force operation since Operation Chromite brought Marines and soldiers to the beaches of Inchon, South Korea, in September 1950—75 years prior. The purpose of this operation is to assist an ally nation to repel an aggressive neighbor and simultaneously quell a proxy force insurgency.[2] This scenario reveals distinctly different centers of gravity (COGs) at the varying levels of command.

When framing the problem, the secretary of defense identified the enemy's strategic center of gravity as the dictatorial regime. The self-appointed president general led multiple border incursions and overtly threatened the sovereignty of a U.S. ally. The president general is an aggressive ruler who routinely violates human rights and maintains a firm grip on the population through intimidation and coercion. Department of Defense assessments determined that this particular dictator acts alone as their nation's "political strategic decision-making entity."[3] The secretary of defense further estimated that the removal of this regime by compulsion or force will immediately erode the willingness of their military leadership to continue cross-border expansion, effectively ending the conventional military threat.

As the task force commander, the commander, U.S. Southern Command, views the enemy's operational center of gravity in two components, both physical. First, during joint forcible entry operations designed to gain a foothold in the operating environment and seize the initiative, they see the COG as the enemy's antiaccess/area denial systems. This radar and missile capability has potential to limit the task force's ability to approach the objective area as well as defend locally against landing. Neutralization or suppression of this capability restores friendly freedom of maneuver critical for mission success. Additionally, during operations to dominate and subsequent stability operations, the commander views the enemy COG as their covert logistics capability supplying arms and munitions to the proxy insurgent force. Disruption of this resource will effectively reduce the insurgent ability to use force, allowing coalition forces to establish security and stability ashore.

To support the operation, the 24th Marine Expeditionary Unit (24th MEU) tasked its boat company to seize an airfield near the coast for use as a forward armament and refueling point and eventual expeditionary advanced base. The battalion landing team commander identified the enemy's tactical COG as their command and control, determining that disruption of this highly centralized command structure would render subordinate units ineffective in their defense of the shore. Meanwhile, the company commander identified an additional

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[1] Maj Nash is a distinguished graduate of MCU's Command and Staff College and is presently a student at the School of Advanced Warfighting. This paper won the Col Franklin Brooke Nihart Award for academic year 2017–18.

[2] *Marine Corps Operating Concept (MOC): How an Expeditionary Force Operates in the 21st Century* (Washington, DC: Headquarters Marine Corps, 2016), 1.

[3] Jacob Barfoed, "A COG Concept for Winning More Than Just Battles," *Joint Force Quarterly no.* 88 (1st Quarter 2018): 117.

tactical COG as the enemy's crew-served weapons as they provide the most lethal means to deny the Marines access to the beaches. Applying a combination of precision munitions against communications nodes and indirect fires against crew-served weapons will mitigate the risk to the landing force as it hits the beach. Meanwhile, the platoon commanders and squad leaders plan to execute local combined arms with fire and maneuver, avoiding enemy surfaces while attacking and exploiting gaps created by suppression and flanking maneuver.

This scenario captures the essence of the contemporary center of gravity:

The COG exists at all levels of warfare, can be plural, and can change across phases
At the strategic level, the COG can be singular or plural, physical or moral
At the operational level, the COG can be singular or plural but is typically physical
At the tactical level, the COG is typically singular and should be physical
Small units avoid surfaces and exploit gaps while conducting tactical actions on an objective

It does not matter what Carl von Clausewitz said about the center of gravity (COG) in the 19th century. What matters is how we want to use the COG concept in the 21st century.[4]

Originally introduced by Carl von Clausewitz in the early nineteenth century, the concept of *center of gravity* remains the subject of much debate and misunderstanding, even today. Though acknowledged in the latter half of the twentieth century by military scholars and strategists, center of gravity made its first real appearance in mainstream doctrine in the 1980s with the advent of maneuver warfare doctrine as a viable option for the modern force. Since then, scholars, theorists, and military leaders have worked to define, redefine, and analyze the topic ad nauseam, with its definition and application likely still not settled. Meanwhile, joint and Service doctrine sufficiently evolved during the past 20 years to better synchronize and simplify their definitions of center of gravity, presenting a sufficient framework within which to conduct an analysis. The center of gravity stands as a still-relevant element in planning, applicable at all levels of war.

ORIGINS

Military theorists and scholars continue to ponder contemporary definitions, applications, and models for center of gravity, as evidenced by the myriad recommendations and articles regarding this subject, this chapter included. In the original (translated) text regarding the concept, Clausewitz uses a descriptive narrative to develop awareness and understanding of the center of gravity. When dissected, his narrative yields the following factors, given that center of gravity:

- is always found where the mass is concentrated most densely
- presents the most effective target for a blow
- can strike/generate the heaviest blow[5]
- is analogous in war when unity or cohesion are present
- can be possessed by forces of a single state or alliance of states
- its movement and direction governs the rest
- is found wherever forces are most concentrated
- determines the cohesion of the parts and limits effects produced against it
- if struck by a blow stronger than required, the blow may be ineffective and wasteful[6]
- is developed out of the dominant characteristics of a belligerent force

[4] Dale C. Eikmeier, "Redefining the Center of Gravity," *Joint Force Quarterly*, no. 59 (4th quarter 2010).
[5] Carl von Clausewitz, *On War*, ed. and trans. Michael Howard and Peter Paret (Princeton, NJ: Princeton University Press, 1976; first published 1832), 485.
[6] Clausewitz, *On War*, 486.

- is the hub of all power and movement[7]
- is that on which everything depends
- is the point against which all energies should be directed[8]

Though this list does not appear contradictory in nature given that its contents encompass a broad enough theoretical swath through which one can easily understand the genesis of differing interpretations or applications of the concept. Later in this analysis, these factors will be juxtaposed against current doctrinal characteristics.

Aiming to clarify Clausewitz's concept of COG for the joint community, professor of history and strategic studies Dr. Joe Strange partnered with former UK Army doctrine branch commander Richard Iron. Together, they published a two-part analysis of Clausewitz's theory of COG, succinctly addressing multiple sources of confusion and discrepancy found in *On War*. This work also included a recommended analysis model for planners, which this chapter will address in greater detail below. Strange and Iron focus on the differences between Clausewitz's book six and book eight, providing amplification and context for their interpretation of his intended meaning. First, they assert that "Clausewitz's discussion of centers of gravity in Book Six of *On War* is clear and straightforward."[9] Building upon James J. Schneider and Lawrence L. Izzo's 1987 description of physical centers of gravity, Strange and Iron reinforce mass and concentration as key attributes of a COG, while also focusing on the COG as a source of power, which informs current doctrine.[10] Moreover, Strange and Iron highlight Clausewitz's book eight as "the cause for considerable confusion."[11] This, they write, is the cause for COG to be described as a set of "characteristics" versus a physical or moral source. Their added context of the differences in translation, combined with confusion between the internal books of *On War*, adds much-needed clarity to the incomplete work of Clausewitz.

During nearly the same period as Clausewitz, Baron Antoine-Henri Jomini authored *The Art of War*, which introduced or provided structure and clarity to several elements of strategy that still permeate contemporary doctrine, including his principles of war (*principes généraux de l'art de la guerre*) and lines of operation (*lignes d'opérations*).[12] Beyond these two highlights, however, some elements of Jomini's work clearly reflect Clausewitz's concept of center of gravity. As John Shy recalls that, in *Makers of Modern Strategy from Machiavelli to the Nuclear Age*, "Albrecht von Boguslawski . . . asserted that he saw no reason whatsoever for setting the theories and conceptions of war of these two 'erudite thinkers' in opposition to one another," despite the fundamental differences in their perspectives on the character of war.[13]

Specifically, Jomini's discussion of massing at the decisive point carries with it clear similarities to Clausewitz's introduction of the center of gravity. In *The Art of War,* Jomini declares there to be "one great principle underlying all the operations of war."[14] He expands this into four maxims, which in summary state that the mass of the friendly force should be thrown on fractions of

[7] Clausewitz, *On War*, 595.
[8] Clausewitz, *On War*, 596.
[9] Joe Strange and Col Richard Iron, UK Army, "Understanding Centers of Gravity and Critical Vulnerabilities, Part 1," Joint Forces Quarterly, no. 35 (Fall 2004): 2.
[10] Strange and Iron, "Understanding Centers of Gravity and Critical Vulnerabilities," 3.
[11] Strange and Iron, "Understanding Centers of Gravity and Critical Vulnerabilities," 4.
[12] John Shy, "Jomini," in *Makers of Modern Strategy from Machiavelli to the Nuclear Age*, Peter Paret, ed. (Princeton, NJ: Princeton University Press, 1986), 165–67.
[13] Shy, "Jomini," 178.
[14] Baron de Jomini, *The Art of War*, trans. G. H. Mendell and W. P. Craighill (Westport, CT: Greenwood Press, 1971), 47.

the enemy force at a decisive point, at the proper time, and with energy.[15] In this assertion, his premise parallels Clausewitz's center of gravity. Whereas Clausewitz's center of gravity speaks directly to the concentration of mass, either physical or metaphysical, Jomini's decisive point is more the time and place that a massed force should engage. Regardless, elements of both serve to inform twenty-first century U.S. joint and Service doctrine.

Yet, herein lies the challenge: How does the United States Marine Corps, or any military force, extract from Clausewitz's weighty theory a simple and applicable definition of such a concept, particularly if additional theories provide amplifying considerations, such as Jomini's decisive point? Moreover, evolution and discrepancies within the joint force doctrine further highlight the challenges associated with simply defining center of gravity, let alone understanding it and applying it to the different levels of war.

MODERN THEORISTS

Joe Strange emerged in the late twentieth century as a leading thinker on center of gravity. He, either alone or with a partner, published a continuum of articles and papers regarding the concept and its (mis)application in doctrine, but always advocated for its use. Specifically, he reinforced the idea of a moral COG, not simply a physical COG, providing citation and examples.[16] Moreover, Strange crafted the COG-to-critical vulnerability analysis model found in current doctrine and expanded on it:

Centers of gravity → Critical capabilities → Critical requirements → Critical vulnerabilities

Joint Intelligence Preparation of the Operational Environment, Joint Publication (JP) 2-01.3, cites Strange's 1996 contribution to the Marine Corps University's *Perspectives on Warfighting* to synthesize the following example:

> During the Battle of Britain in 1940, an operational *center of gravity* for Britain was the Royal Air Force Fighter Command. A *critical capability* for Fighter Command was the ability to meet Luftwaffe attacks in a timely manner. The *critical requirement* linked to that specific critical capability was advance warning regarding the timing, strength and direction of Luftwaffe attacks. The *critical vulnerability* linked to that specific critical requirement was the fragility and vulnerability of the British radar system that provided the advance warning. However, the Germans did not realize the importance of the radar system and did not follow up their early attacks against it.[17]

Retired Army colonel and, at the time, assistant professor at the U.S. Army Command and General Staff College Dale C. Eikmeier published an article in 2010 providing his insights on the recently updated *Joint Planning*, JP 5-0, and how it defined and applied COG. His argument fell partially in favor of Strange's work and that "joint doctrine needs to break from Clausewitz and develop new definitions of the center of gravity and its critical factors based on the criteria of clarity, logic, precision, and testability."[18] Eikmeier further argued that any definition of COG must include those four criteria: clarity (answers the question "what is it?" and is simple to understand with limited meaning); based on logic (contains rules that allow for a valid inference);

[15] Jomini, *The Art of War*, 47–48.
[16] Strange and Iron, "Understanding Centers of Gravity and Critical Vulnerabilities," 10.
[17] *Joint Intelligence Preparation of the Operational Environment*, JP 2-01.3 (Washington, DC: Joint Chiefs of Staff, 2014), IV–12.
[18] Eikmeier, "Redefining the Center of Gravity," 156.

precision (narrowly focused to exclude the extraneous); and testable (can be objectively tested using rules and logic).[19] Perhaps most significantly, Eikmeier resequenced the Strange model, proposing that COGs are actually derivatives of critical capabilities vice the opposite:

Objective(s) → Critical capabilities → COGs → Critical requirements → Critical vulnerabilities

Moreover, Eikmeier laid out six steps to determine the COG, critical requirements, and critical vulnerabilities:

Step 1: Identify the organization's desired ends or objectives.

Step 2: Identify the possible "ways" or actions that can achieve the desired ends. Select the way(s) that the evidence suggests the organization is most likely to use.
Remember: Ways are actions and should be expressed as verbs. Then select the most elemental or essential action—that selection is the critical capability.
Ways = critical capabilities.

Step 3: List the organization's means available or needed to execute the way/critical capability.

Step 4: Select the entity (noun) from the list of means that inherently possesses the critical capability to achieve the end. This selection is the center of gravity. It is the doer of the action that achieves the ends.

Step 5: From the remaining items on the means list, select those that are critical for execution of the critical capability. These are the critical requirements.

Step 6: Complete the process by identifying those critical requirements vulnerable to adversary actions.[20]

Eikmeier argues against "intangible" COGs, claiming that a COG must be capable of actually conducting the action (critical capability) that achieves its objective. The assets that enable—but do not conduct—the action are simply critical requirements and not a COG.[21]

DEFINED BY DOCTRINE

Joint Doctrine

Last year, the lead joint doctrine integrator from the Joint Chiefs of Staff Joint Doctrine Division provided an excellent synopsis of the origin and evolution of *Joint Operations*, Joint Publication (JP) 3-0. In his article that followed the 2017 publishing of *Joint Operations*, Rick Rowlett stated that it "began with a January 1990 'test publication' titled *Doctrine for Unified and Joint Operations*," and the Joint Chiefs of Staff published the "first official version of JP 3-0 in 1993," while releasing the first print copy in 1995.[22] In this initial printed edition, the Joint Staff defined *center of gravity* as "those characteristics, capabilities, or locations from which a military force derives its freedom of action, physical strength, or will to fight."[23] Presently, *Joint Planning*, JP 5-0, defines center of gravity as "a source of power that provides moral or physical strength,

[19] Eikmeier, "Redefining the Center of Gravity."
[20] Eikmeier, "Redefining the Center of Gravity," 158.
[21] Eikmeier, "Redefining the Center of Gravity," 157.
[22] Rick Rowlett, "Joint Publication 3-0, *Joint Operations*," *Joint Force Quarterly*, no. 86 (3d Quarter 2017): 122.
[23] *Joint Operations*, JP 3-0 (Washington, DC: Joint Chiefs of Staff, 1995), GL-4.

freedom of action, or will to act."[24] This definition frames the COG as a "source of power," reflecting updated verbiage from the 2006 iteration of *Joint Planning*, which still called the COG a "set of characteristics, capabilities, and sources of power."[25] Though a minor change, the current "source of power" provides more focus and is more logical to apply in analysis than a "set of" anything. The same definition also appears in *Joint Intelligence Preparation of the Operational Environment*. Though several other joint doctrinal publications consistently mention center of gravity, including the current *Joint Operations,* they typically do so as a component to some other aspect of the doctrine, which we discuss further below. Additionally, joint doctrine invokes Jomini with inclusion of his decisive point alongside COG as an element of operational design. *Joint Planning* describes a *decisive point* as "a geographic place, specific key event, critical factor, or function that, when acted upon, allows commanders to gain a marked advantage over an adversary or contribute materially to achieving success."[26] To simplify, a decisive point is often the situation in time and space that provides opportunity to directly or indirectly access a COG.

Marine Corps Doctrine

Marine Corps Operations, Marine Corps doctrinal publication (MCDP) 1-0 (with change 1), defines COG identically to current joint doctrine. *Strategy*, MCDP 1-1, defines center of gravity slightly differently: as "a key source of the enemy's strength, providing either his physical or his psychological capacity to effectively resist."[27] *Warfighting*, MCDP 1, defines center of gravity even less directly, as having "factors . . . critical to the enemy . . . [that] the enemy [can]not do without . . . which, if eliminated, will bend him most quickly to our will."[28] Of note, the original iteration of *Warfighting*, Fleet Marine Force Manual 1 (FMFM 1), predated MCDP 1 by eight years. In this first document, Marine Corps doctrine expressly captured critical vulnerability as the keystone of an objective, outright omitting COG. The following extracts from "Chapter 2: The Theory of War" show the evolution in Marine Corps doctrine from 1989 to 1997:

> It is not enough simply to generate superior combat power. We can easily conceive of superior combat power dissipated over several unrelated efforts or concentrated on some indecisive object. To win, we must concentrate combat power toward a decisive aim.[29]

The 1989 manual continues:

> Therefore, we should focus our efforts against a critical enemy vulnerability. Obviously, the more critical and vulnerable, the better.[30]

With no mention of COG in the actual text of the original edition of *Warfighting*, endnote 28 attempts to provide the reader appropriate context:

> 28. Sometimes known as the *center of gravity*. However, there is a danger in using this term. Introducing the term into the theory of war, Clausewitz wrote (p. 485): "A center of gravity is always found where the mass is concentrated the most densely. It presents the most effective target for a blow; furthermore, the heaviest blow is that struck by the center of gravity." Clearly, Clausewitz was

[24] *Joint Planning*, JP 5-0 (Washington, DC: Joint Chiefs of Staff, 2017), xxii.
[25] *Joint Planning*, IV-8.
[26] *Joint Planning*, IV-26.
[27] *Strategy*, MCDP 1-1 (Washington, DC: Headquarters Marine Corps, 1997), 86.
[28] *Warfighting*, MCDP 1 (Washington, DC: Headquarters Marine Corps, 1997), 46.
[29] *Warfighting*, FMFM 1 (Washington, DC: Headquarters Marine Corps, 1989), 35.
[30] *Warfighting*, FMFM 1, 36.

> advocating a climactic test of strength against strength "by daring all to will all" (p. 596). This approach is consistent with Clausewitz' historical perspective. But we have since come to prefer pitting strength against weakness. Applying the term to modern warfare, we must make it clear that by the enemy's center of gravity we do not mean a source of strength, but rather a critical vulnerability.[31]

Warfighting represented the initial publishing of the maneuver warfare concept as Marine Corps doctrine. While the manual attempted to provide clarity in the form of an endnote, the COG concept remained vague. With maneuver warfare as the Corps' new approach to warfighting, authors clearly made deliberate efforts to avoid the attritionist concept of strengths pitted against strengths, therefore relegating COG to reside among the publication's notes. Moreover, when attempting to modernize the COG for the emerging concept of maneuver warfare, FMFM 1 explicitly described the center of gravity as a critical vulnerability; a paradox now easily recognized as unsuitable for modern use. However, after the COG appeared in joint doctrine in 1993, the Marine Corps aptly followed suit. In the 1997 revision of *Warfighting* (MCDP 1), the Marine Corps not only included COG in the revised text, COG became a noteworthy element of mission analysis.

> It is not enough simply to generate superior combat power. We can easily conceive of superior combat power dissipated over several unrelated efforts or concentrated on some inconsequential object. To win, we must focus combat power toward a decisive aim. There are two related concepts that help us think about this: *centers of gravity* and *critical vulnerabilities*.[32]

The final sentence in the above excerpt from the 1997 edition of *Warfighting* notes the now-emphasized inclusion of COG in Marine Corps doctrine. After a mere footnote on COG in 1989, the Marine Corps included three pages in the 1997 rewrite. However, while detailed and useful, the portion of *Warfighting* that describes COG is 20 years old, reflects more "Clausewitzian" language, and no longer matches the current verbiage in joint doctrine.

Other Service Doctrine

With the presence and clarity of COG in joint doctrine expanding during the previous 25 years, all the Services now capture it within their respective planning or operations doctrine. While Robert Dixon provided a synthesis of the different Service applications of COG to support his argument that COG is outdated, elements of his analysis no longer apply due to the continued refinement of joint and Service doctrine.[33] The U.S. Navy addresses COG in *Navy Planning*, Navy Warfare Publication (NWP) 5-01. While the publication acknowledges the current joint definition of COG, the December 2013 edition further defines COG as "critical strengths that actually accomplish objectives at specific levels of war," tying the COG to objective attainment.[34] Moreover, Navy doctrine reinforces that, at the operational level of war, COG is "typically . . . a physical force."[35]

Meanwhile, in *Operations*, Army Doctrine Reference Publication (ADRP) 3-0, the U.S.

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[31] *Warfighting,* FMFM 1, 85.
[32] *Warfighting*, MCDP 1, 45. Emphasis original.
[33] Robert Dixon, "Clausewitz, Center of Gravity, and the Confusion of a Generation of Planners," *Small Wars Journal*, 20 October 2015.
[34] *Navy Planning*, NWP 5-01 (Norfolk, VA: Navy Warfare Development Command, Department of the Navy, 2013), C-3.
[35] *Navy Planning*, C-2.

Army mirrors the joint definition of COG as a "source of power."[36] Similar to the Navy, the Army also reflects on the need to tie COG to objectives, describing it as "only meaningful when considered in relation to the objectives of the mission."[37] Paralleling joint doctrine, the Army also ties the decisive point to COG: "Commanders identify the decisive points that offer the greatest physical, temporal, or psychological advantage against centers of gravity."[38]

Last, the Air Force also mirrors the COG definition found in *Joint Planning*. Of note, the Air Force's *Operations and Planning*, Annex 3-0, cautions that the "process of COG analysis may also lead to a mental image of a static adversary . . . [therefore] the best correctives to this oversimplification are to study the adversary thoroughly, respect the adversary as capable and willing to fight wherever and whenever possible, and accept that the adversary could be employing a strategy which we may find hard to understand."[39] Similar to the other Services' assessment of COG, the Air Force also identifies that "COGs can emerge or change over time, due to the interplay of friendly, adversary, and other forces in the operational environment. They may be based on the end state, mission, and objectives as well as the adversary's strategy."[40] The Air Force, like other Services, now identifies that a COG should be tied to an objective or objectives.

Marking a positive development from previous years, current editions of doctrine across the joint community now reflect a consistent definition of COG. Beyond the definition, however, the Services take different approaches to both the weight and methodology assigned to COG.

BEYOND THE DEFINITIONS

Both *Joint Planning* and *Joint Intelligence Preparation of the Operational Environment* display the identical graphic, which outlines 12 characteristics of the center of gravity. Of these, several demonstrate linkage to Clausewitz, while a few remaining characteristics do not demonstrate any clear link to the origins of center of gravity:

Doctrine: May be where the enemy's force is most densely concentrated
Clausewitz: Always found where the mass is concentrated most densely
Found wherever forces are most concentrated

Doctrine: Dependent on adversarial relationship
Clausewitz: That on which everything depends
Possessed by forces of a single state or alliance of states

Doctrine: Allows or enhances freedom of action
Clausewitz: The movement and direction of the COG governs the rest
The hub of all power and movement

Doctrine: Is a source of leverage
Clausewitz: Developed out of the dominant characteristics of a belligerent
The hub of all power and movement

Doctrine: Contains many intangible elements at the strategic level

[36] *Operations*, ADRP 3-0 (Washington, DC: Department of the Army, 2016), 2-4.
[37] *Operations*.
[38] *Operations*, 2-5.
[39] *Operations and Planning*, Annex 3-0 (Maxwell Air Force Base, AL: Curtis E. LeMay Center for Doctrine Development and Education, 2016), appendix A.
[40] *Operations and Planning*.

Clausewitz: Analogous in war when unity and cohesion are present
The cohesion of the parts determines and limits effects produced against it

Doctrine: Can endanger one's own COG
Clausewitz: Can strike/generate the heaviest blow

Doctrine: Linked to objective(s)
Clausewitz: Presents the most effective target for a blow
The point against which all energies should be directed

Doctrine: Exists at each level of warfare
Clausewitz: Possessed by forces of a single state or alliance of states

Overall, most of Clausewitz's factors of the COG nest within joint doctrine; however, four doctrinal characteristics of the COG do not reside within Clausewitz's factors: that COGs are mostly physical at operational and tactical levels, may be transitory in nature, can shift over time or between phases, and often depend on factors of time and space. All four of these characteristics hold relevance in contemporary analysis and planning and are worthy of inclusion in joint doctrine.

COG Analysis

Joint Intelligence Preparation of the Operational Environment (JIPOE) states that the "most effective method for JIPOE analysts to identify adversary COGs is to visualize each COG's role/function relative to each of the various systems and subsystems."[41] The publication also employs the "Strange Model" for COG analysis, also known as the "Joint Model." Outlined below, Navy and Air Force doctrine capture this three-factor analysis model of critical capabilities, critical requirements, and critical vulnerabilities:

(1) Critical capabilities are those means considered crucial enablers for a COG to function as such, and are essential to accomplish the adversary's specified or assumed objective(s).
(2) Critical requirements are the conditions, resources, and means that enable a critical capability to become fully operational.
(3) Critical vulnerabilities are those aspects or components of critical requirements that are deficient, or vulnerable, to direct or indirect attack in a manner achieving decisive or significant results.[42]

The Marine Corps' MAGTF Staff Training Program (MSTP) provides an example of the linkage from an objective to the critical vulnerabilities upon which friendly forces will orient to defeat that COG. However, the sequencing presented in this graphic reflects Eikmeier's work vice the Strange Model found in joint doctrine—deriving COG from critical capability—while joint doctrine reflects critical capability/capabilities coming from the enemy COG. Further, *Navy Planning* provides a zoomed out overview that links all the way from strategic and operational objectives to potential critical vulnerabilities. This model also reflects the inclusion of critical factors from which to select a COG or COGs.

As previously mentioned, the Air Force's *Operations and Planning* acknowledges the COG

[41] *Joint Intelligence Preparation of the Operational Environment*, IV-11.
[42] *Joint Intelligence Preparation of the Operational Environment*, IV-12.

analysis model found in *Joint Planning*, further identifying it as the "Marine Corps Model," the "CG-CC-CR-CV Model," and the "Strange Model," described above.[43] Beyond this, *Operations and Planning* describes three additional methods: the Strategic Ring Model, the National Elements of Value Model, and the CARVER Model.[44]

The Strategic Ring Model, also known as the "Five-Rings Model" or as "Warden's Rings," establishes the premise that the enemy system is a series of concentric "rings," each dependent on the previous, and that each ring holds one or more COGs.[45] This method provides little utility to a primarily ground maneuver force, such as the Marine Corps, because it neither makes a discernment of critical vulnerabilities nor does it provide paths for attack in keeping with maneuver warfare doctrine. Moreover, it treats the enemy structure as static, failing to account for interactive and evolving systems.

The National Elements of Value Model, also known as the NEV Model or as Barlow's Model, builds on the foundation of the Strategic Ring Model, replacing the concentric and static nature of the model with an interdependent, systems-based model. This model provides for a more sophisticated view of a COG system.[46] However, it again creates a set of fixed nation-state characteristics, making the bold assumption of rationality by a potential irrational actor. Though the model allows for some fluctuation in the "weight" of the nodes in this system, its rigidity still limits a commander or planner's ability to independently analyze an enemy system; therefore, this model is also of limited utility for Marine Corps' operational design and tactical actions.

Last, the CARVER Model provides a useful tool for determining the legitimacy of COGs or perhaps even critical requirements. The acronym CARVER refers to criticality, accessibility, recuperability, vulnerability, effect, and recognizability.[47] Found in *Joint Tactics, Techniques, and Procedures for Special Operations Targeting and Mission Planning*, JP 3-05.2, special operations commanders and staffs use this method "during target analysis to evaluate the relative merit of striking a target under consideration."[48] The Air Force's *Operations and Planning* offers this model as "a means to help analyze which COG to act against, given determination by other methods." For the Marine Corps, this model provides a simple tool to use in series with another model (e.g., Strange, Eikmeier) to validate the process, similar to the broad evaluation criteria a commander uses during the *Marine Corps Planning Process* (MCPP). In MCPP, the commander evaluates if a potential course of action is suitable, feasible, acceptable, distinguishable, and complete.[49] Similarly applied, a planner or commander could ask if a proposed COG is critical (important to completion of the friendly mission), accessible (able to be influenced by friendly action), able to be recouped (easily reconstituted with minimal time or resources), vulnerable (able to be attacked with available resources), effectible (will attack against this COG achieve friendly goals), and recognizable (identifiable to facilitate engagement).

APPLICATION

From joint doctrine, the concept of center of gravity "exists at each level of warfare."[50] This section explores the doctrinal references to the three levels of warfare and, as applicable, provides examples. *Joint Intelligence Preparation of the Operational Environment* expands by stating that COGs

[43] *Operations and Planning*, appendix A.
[44] *Operations and Planning*.
[45] *Operations and Planning*.
[46] *Operations and Planning*.
[47] *Operations and Planning*.
[48] *Joint Tactics, Techniques, and Procedures for Special Operations Targeting and Mission Planning*, JP 3-05.2 (Washington, DC: Joint Chiefs of Staff, 2003): A-2.
[49] *Marine Corps Planning Process*, MCWP 5-10 (Washington, DC: Headquarters Marine Corps, 2016), 3-1.
[50] *Joint Planning*, IV-24.

are "always linked to the objective. If the objective changes, the COG could also change."[51] Moreover, the publication clearly states that a "COG typically will not be a single node in the system, but will consist of a set of nodes and their respective links. However, a single node might be considered a COG as an exception."[52] Therefore, in keeping with joint doctrine, COGs exist at each level, must be linked to the/an objective, can change, and can be singular or plural at a given level. The *Operational Planning Team Leader's Guide,* MSTP Pamphlet 5-0.2, depicts Iraqi COGs at all levels of war in 1991. This table provides reference for the subsequent discussion.

Centers of Gravity at the Strategic Level

According to *Joint Intelligence Preparation of the Operational Environment*, "At the strategic level, a COG could be a military force, an alliance, political or military leaders, a set of critical capabilities or functions, or national will."[53] Barfoed subdivides COGs at this level into two categories: strategic will COGs and strategic ability COGs. Assessing the doctrinal definition, a military force or a set of critical capabilities or functions would refer to *strategic ability COGs*, while an alliance, political or military leaders, or national will would refer to *strategic will COGs*. In table 1, the Coalition assesses two strategic Iraqi COGs: Saddam Hussein (political/military leader, moral) and the Iraqi Army (military force, physical). Therefore, at the strategic level, the COG can be singular or plural, physical or moral.

Centers of Gravity at the Operational Level

Joint Intelligence Preparation of the Operational Environment also states that "at the operational level a COG often is associated with the adversary's military capabilities—such as a powerful element of the armed forces—but could include other capabilities in the [operational environment]."[54] *Intelligence*, MCDP 2, provides a case study that uses the 1990–91 example of Operation Desert Storm to "illustrate the nature of intelligence and its core concepts and challenges."[55] This brief analysis captures three operational-level enemy centers of gravity:

1. Command and control: critical for coordination of Iraqi defensive effectiveness
2. Weapons of mass destruction: a major factor in Iraq as a regional threat
3. The Republican Guard: key to Iraq's defense or potential future offensive operations[56]

These three examples meet the criteria set forth by *Joint Intelligence Preparation of the Operational Environment*, in that each is a powerful element of the armed forces and associated with the adversary's military capabilities. While operational planners and commanders often identify physical COGs, recent experience and doctrinal development demonstrate the importance of moral COGs during counterinsurgency operations: "[T]he ability to generate and sustain popular support . . . often has the greatest impact on the insurgency's long-term effectiveness. This ability is usually the insurgency's center of gravity."[57] Therefore, the support of the populace, or the insurgency's ability to sustain it, represents "other capabilities" in the operational environment. Table 1 provides a slightly different analysis of the same enemy force. Here, the Coalition

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[51] *Joint Intelligence Preparation of the Operational Environment*, IV-10.
[52] *Joint Intelligence Preparation of the Operational Environment*, IV-11.
[53] *Joint Intelligence Preparation of the Operational Environment*, IV-10.
[54] *Joint Intelligence Preparation of the Operational Environment*.
[55] *Intelligence*, MCDP 2 (Washington, DC: Headquarters Marine Corps, 1997), 21.
[56] *Intelligence*, 22.
[57] *Insurgencies and Countering Insurgencies*, FM 3-24/MCWP 3-33.5 (Washington, DC: Department of the Army, 2006), 3-13.

assesses two operational Iraqi COGs: the Republican Guard (powerful element of the armed forces, physical) and the Iraqi integrated air defense system (powerful element of the armed forces, physical). Therefore, at the operational level, the COG can be singular or plural but is typically physical.

Centers of Gravity at the Tactical Level

Joint Intelligence Preparation of the Operational Environment makes no mention of COGs at the tactical level. With joint doctrine focusing exclusively on COG at the strategic and operational levels, Army doctrine also now reflects a perspective that potentially excludes the concept from tactical planning: "Not all elements of operational art apply at all levels of warfare. For example, a company commander may be concerned about the tempo of an upcoming operation but is probably not concerned with an enemies' [*sic*] center of gravity."[58] However, COGs do "exist at each level of warfare."[59] In table 1, the Coalition assesses three tactical Iraqi COGs: the Iraqi Army's *12th Corps* (military unit, physical), the *Tawakalna Division* reserve tank battalion (military unit, physical), and an Iraqi defensive bunker complex (military facility, physical). Though the analysis represents three tactical COGs, each would be assessed by a Coalition unit at a different level. For example, the Iraqi *12th Corps* was a COG to the U.S. Army's VII Corps. The *Tawakalna Division* reserve tank battalion was a COG to the 2d Armored Division (Forward). Meanwhile, the bunker complex was a COG to the 2d Armored Cavalry Regiment. Each level of command identified enemy COGs that nested within its higher headquarters' tasking and determination of enemy centers of gravity. At the small unit level, squadrons and troops may have identified different enemy COGs tied to their assigned objectives, while platoons and sections likely sought to attack enemy gaps, avoiding direct engagement with identified COGs. Therefore, for any given unit at the tactical level, the COG is typically singular and should be physical.

In 1992, Marine Major Patrick M. Strain argued against the application of COG at the tactical level. Citing Clausewitz and using Operation Chromite (the September 1950 amphibious assault at Inchon) as his primary example, his analysis focused on the relative capabilities of tactical level units, tying them to decisive points vice centers of gravity: "A center of gravity is a source of strength. It is not a vulnerability that is easily attacked and destroyed. For each center of gravity there exists vulnerable points that can be attacked, allowing the center of gravity to be indirectly destroyed or neutralized. These points—decisive points—are the focus of tactical level commanders."[60] However, if decisive points are the focus of tactical commanders, and decisive points are the attackable vulnerabilities of a COG, the tactical commander becomes intrinsically tied to the COG.

Of note, an overemphasis on the doctrinal allowance for multiple COGs provides an opportunity for a loss of operational focus. In the early 1990s, the United Nations and the U.S. executed Operation Restore Hope in Somalia. This reflects an operational-level COG analysis of the Somali warring factions. This analysis reveals six different factions and 20 different COGs. Since doctrine requires that COGs are tied to objectives, this analysis is of little utility to the commander, who simply cannot obtain focus in that many different directions. Multiple COGs should be used sparingly at all levels, and the fewer COGs identified the more easily forces can orient on what is most important.

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[58] *Operations*, 2-4.

[59] *Joint Planning*, IV-24.

[60] Maj Patrick M. Strain, "The Tactical Center of Gravity: Fact or Fallacy?" (master's thesis, School of Advanced Military Studies, U.S. Army Command and General Staff College, 1992), 39.

MARINE CORPS TRAINING AND EDUCATION

The U.S. Marine Corps Training and Education Command (TECOM) "is charged by the Commandant of the Marine Corps with the development, coordination, resourcing, execution, and evaluation of training and education concepts, policies, plans, and programs to ensure Marines are prepared to meet the challenges of present and future operational environments."[61] TECOM operationalizes this mission statement through its six core competencies (parenthetical references include schools and programs relevant to this chapter):

- Transform civilians to Marines, imbued with our Warrior ethos and reflecting the Marine Corps ethics and core values *(Recruit Training)*
- Provide Marines with the initial skills of their assigned Military Occupational Specialty (MOS) to allow them to function in the Operating Forces *(MOS Schools)*
- Provide progressive education and training that will allow Marines to assume increasing responsibilities, and increase their decision-making abilities *(Follow-on MOS-specific schools, such as Advanced Infantry Training Battalion; Marine Corps University Schools, including officer and enlisted Professional Military Education)*
- Enable home station training to ensure the Operating Forces are able to function as MAGTFs in joint environments *(MAGTF Staff Training Program)*
- Develop and execute Service-level training programs and assessments that support the readiness of MAGTFs to deploy in support of missions across the ROMO [range of military operations] *(MAGTF Staff Training Program)*
- Identify and establish training in those common skills that are integral to all Marines, regardless of rank or MOS, and ensure that "Every Marine is a rifleman" *(Marine Combat Training, Basic Officer Course)*[62]

Though the TECOM structure accounts for several subordinate units, including directorates for culture, training standards, staff training, etc., its two major subordinate commands are Training Command and Marine Corps University/Education Command.[63] Training Command "produces officer and enlisted entry-level Military Occupational Specialty, career progression, and career enhancement skills-trained Marines and Sailors," effectively accounting for the entry-level training continuum, including both indoctrination/basic training as well as subsequent and MOS-producing schools.[64] Meanwhile, the Marine Corps University (MCU) "develops and delivers Professional Military Education and training through resident and distance learning programs," providing the sustaining and continuing professional education for officers and staff noncommissioned officers.[65] While the following list reflects many of the schools under the umbrella of Training and Education Command, the next section of this chapter assesses and analyzes the curriculum at those schools marked with an asterisk, primarily the entry-level training continuum for commissioned officers.

[61] "About," TECOM Training and Education Command, accessed 21 February 2018.
[62] "About," TECOM.
[63] "About," TECOM.
[64] "Training Command," Marines.mil, accessed 21 February 2018.
[65] "Mission and Vision Statement," Marine Corps University, accessed 21 February 2018.

Table 1.

Training Command	MCU/Education Command
Marine Corps Recruit Training	Staff NCO Career Course
School of Infantry	Staff NCO Advanced Course
• Marine Combat Training	
• Infantry Training Battalion	
• Advanced Infantry Training Battalion	
	Expeditionary Warfare School
	Command and Staff College
	Marine Corps War College
Officer Candidates School*	MAGTF Staff Training Program*
The Basic School*	
• Basic Officer Course*	
• Warrant Officer Basic Course*	
• Infantry Officer Course*	
Marine Corps Intelligence Schools*	

Officer Candidates School

The Marine Corps Officer Candidates School (OCS) exists "to educate and train officer candidates in Marine Corps knowledge and skills within a controlled and challenging environment in order to evaluate and screen individuals for the leadership, moral, mental, and physical qualities required for commissioning as a Marine Corps officer."[66] In short, it is a training, evaluation, and screening mechanism used by the Marine Corps prior to offering an individual the opportunity to commission as an officer. OCS professes that it holds officer candidates accountable for actions and to Marine Corps standards while providing a leadership, academic, and physical fitness evaluation.[67] Academics at OCS provide candidates a very basic exposure to Marine Corps topics, such as history, tactics, operations, organization, and land navigation. Primarily residing within the tactics instruction, future officers initially learn the topic of center of gravity in the Introduction to Warfighting class. As a first exposure for most candidates, OCS employs a lengthy and complex definition, verbatim from *Warfighting*:

> Each belligerent is not a unitary force, but a complex system consisting of numerous physical, moral, and mental components as well as the relationships among them. The combination of these factors determines each belligerent's unique character. Some of these factors are more important than others. Some may contribute only marginally to the belligerent's power, and their loss would not cause significant damage. Others may be fundamental sources of capability. We ask ourselves: *Which factors are critical to the enemy? Which can the enemy not do without? Which, if eliminated, will bend him most quickly to our will?* These are *centers of gravity*. Depending on the situation, centers of gravity may be tangible or intangible characteristics.[68]

There is no subsequent requirement for candidates to apply the concept in planning or in

[66] "Officer Candidates School," Training Command, accessed 22 February 2018.
[67] "Officer Candidates School."
[68] "Introduction to Warfighting, LDR 1033LP, Student Handout" (Officer Candidates School, Training Command, August 2016), 4. Emphasis original

orders development, simply that they "will get more than ample opportunity to practice this at [The Basic School]."[69] At The Basic School, specifically within the Basic Officer Course (BOC), lieutenants account for and brief their center of gravity analysis in the "commander's intent" portion of their operation order. The OCS curriculum identifies commander's intent as "the part of the order that ties the mission statement and the concept of the operation together (your mission with your plan to accomplish it). At OCS, you will simply state 'none'."[70] This sets up the officer entry-level training continuum to properly instruct and expand on the concept of center of gravity during the BOC and beyond.

The Basic School

The Marine Corps trains its newly commissioned lieutenants and newly appointed warrant officers at The Basic School in Quantico, Virginia, in either its BOC or Warrant Officer Basic Course (WOBC). For the purposes of this chapter, due to near-identical academic curriculum, reference to the BOC includes both courses. The BOC program of instruction encompasses 26 weeks of intense study, practical application, and leadership development and evaluation to provide basically qualified officers prepared to undertake the rigor of leading Marines as platoon commanders and to continue training in a specific MOS. In the second month of training, instructors introduce the lieutenants to tactical planning. In a series of classes, discussion groups, and sand table exercises, the students learn the basic tenets of estimating a situation, developing a plan, and issuing an operations order.

The above comes from the BOC "Tac Planning" student handout and demonstrates the sequential analysis, starting with METT-TC (mission, enemy, terrain and weather, troops and fire support available, time, and civil considerations). From this, a leader derives the EMLCOA (enemy's most likely course of action). Based on the METT-TC and EMLCOA, the leader identifies the enemy's center of gravity and critical vulnerability, and then the friendly plan to exploit the enemy's critical vulnerability to defeat its center of gravity. Tying back to joint doctrine, the EMLCOA reflects the enemy's objectives, to which the COG must be tied. The student materials provide the following additional amplification:

> [W]e aim to gain an advantage over the enemy through exploitation of a vulnerability. Commanders seek to avoid surfaces and exploit gaps to gain an unfair advantage on the enemy. The careful consideration of enemy Center of Gravity (CG) and Critical Vulnerabilities (CV) is critical to developing the friendly Scheme of Maneuver (SOM).[71]

The lesson card continues, defining COG as "the element or capability which allows the enemy to execute his mission."[72] This introductory BOC lesson details the following:

a. A CG [commanding general] is the answer to the below questions:
   i. Which factors are critical to the enemy?
   ii. Which can the enemy not do without?
   iii. Which, if eliminated, will bend him most quickly to our will?
b. Though an enemy system may have multiple CGs, at the tactical level we focus on one.
c. We want to take away the CG—that source of strength.[73]

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[69] "Introduction to Warfighting," 5.
[70] "The Operation Order Part 2—BAMCIS, TACT 1015, Lesson Card" (Officer Candidates School, Training Command, August 2016), 3.
[71] "Tactical Planning Process I, B2B0255XQ, Student Handout" (The Basic School, Training Command), 18.
[72] "Tactical Planning Process I."
[73] "Tactical Planning Process I."

The student handout continues, providing amplification to the critical vulnerability and its relationship to the center of gravity:

2. Critical Vulnerability (CV)

a. Definition: a vulnerability that, if exploited, will do the most significant damage to the enemy's ability to resist us. It is a pathway to the CG, it is directly related to the center of gravity.

Consideration must be given to a CV as it is the pathway to the enemy's CG. A CV is something which combat power is applied, at the right time/right place, utilizing speed and focus to render it ineffective.

The CG and CV analysis is critical to the development of a plan that directly counters the EMLCOA. If the vulnerability is not targetable at the leader's level, or the center of gravity is not directly tied to the EMLCOA, his plan will not successfully counter the enemy.[74]

Similar to the instructional products from OCS, the TBS materials directly reflect *Warfighting*. As students continue through the program of instruction for the BOC, the enemy center of gravity and critical vulnerability become staples in the outputs of tactical planning. Every operation order that a student briefs, whether at the squad or platoon (reinforced) level, includes a COG/CV analysis and plan for exploitation. It is upon this foundation that Marine officers build a more comprehensive understanding of COG, analysis thereof, and its application.

Infantry Officer Course

Subordinate to the commanding officer of The Basic School, the Marine Corps' Infantry Officer Course (IOC) serves to "train and educate newly selected infantry and ground intelligence officers in the knowledge, skills, and leadership required to serve as infantry platoon commanders in the rifle company and to provide advanced employment and training considerations of the weapons company platoons."[75] This is the MOS-producing school for Marine infantry officers and consists of eleven weeks of mentally and physically rigorous classroom and field training. While the course runs several classes and decision games involving the estimate of the situation and tactical planning, the curriculum makes only brief mention of COG. This reflects the actual classroom presentation from the Combat Orders class given at IOC. In this, COG (CG in the figure) is included as an element of commander's intent. Specifically, the instruction reinforces the idea that COG at this level should be something physical; moreover, the curriculum introduces the concept that COG is a function within the enemy system. This course instructs no formal COG analysis, an appropriate approach for new platoon commanders. However, center of gravity and critical vulnerability remain integral to the tactical planning process as introduced during the BOC, and IOC students brief this element of their analysis during the commander's intent portion of combat orders.

Marine Corps Intelligence Schools

An element of the Marine Corps Training Command, Marine Corps Intelligence Schools (MCIS) serves "to provide command and control and other functions as are necessary for the discipline, morale, and welfare of permanent and student personnel assigned to MCIS Headquarters (HQ) and subordinate detachments. Additionally, MCIS coordinates and integrates training and edu-

[74] "Tactical Planning Process I."

[75] "Marine Corps Infantry Officer Course–Quantico, VA," Defense Visual Information Distribution Service, accessed 3 May 2018.

cation requirements for all intelligence occupational fields."[76] In teaching COG, MCIS lays out a "COG Workshop" with multiple classes and six practical applications. Starting with the history of COG, MCIS presents students with a comprehensive background prior to introducing doctrinal and contemporary analysis options. However, MCIS breaks from current doctrine and endorses the Eikmeier Model (a.k.a. the MSTP Model), a contemporary technique. In fact, in its Intelligence Training Enhancement Program, MCIS cites current doctrine in several classes to identify it as "wrong."[77] Specifically, MCIS classes state that only one COG exists at each level (does not specify by time or phase), and that a COG must be physical, essentially teaching against the Clausewitzian and doctrinal perspectives of the moral COG.[78] Most importantly, despite a focused teaching that counters doctrine however, MCIS does instruct multiple analysis methods and addresses the pros and cons of each, providing Marine intelligence analysts additional tools from which to select during future operations. For example, MCIS teaches Colonel Peter R. Mansoor and Major Mark S. Ulrich's proposal that the "people are the environment," attempting to provide linkage between the doctrinal concept that the COG can be a leader or the population and contemporary assertions that those are simply enablers.[79]

FINDINGS

After a review of historical theory, contemporary analysis, doctrine, and Marine Corps training methodology, this chapter yields the following findings.

During the past 25 years, joint and Service definitions of COG became increasingly consistent. Evolution of doctrine reveals that the joint community took appropriate steps to modernize and synchronize COG. Further, Service doctrine proponents continue to update text and definitions with consistent verbiage during routine revisions. While some inconsistencies remain, and each Service has its own take on COG and how to apply it, the current doctrinal foundation stands to provide clarity and synchronization to the joint force. This neither resolves nor does it end the ongoing academic debate about the true definition of COG or how the joint force should apply it to each level of war.

Current doctrinal models for COG analysis and application started with modern theorists' journal publications but remain open to debate. The best example of this is Joe Strange's model linking COG to critical vulnerability. While Strange's model is now the baseline in joint doctrine, the elements of COG analysis for each respective Service have roots either directly in joint doctrine or from one of the modern theorists. Meanwhile, other analyses, such as that by Eikmeier, call for further refinement of the doctrinal application of COG, slightly modifying Strange's model.

Differing opinions remain (and will remain) regarding application of COG at the tactical level of war. Aside from a graphic that carried over from previous editions, joint doctrine no longer directly reflects COG at the tactical level. However, the Marine Corps rightfully continues to instruct its company grade officers on the concept, as it is valid and relevant. The research for this chapter reveals that formal COG analysis holds little utility below the battalion level. Companies and platoons should identify an enemy COG, but tactical actions orient more deliberately on perceived critical vulnerabilities, pitting friendly strengths against enemy weaknesses, an oversimplification of maneuver warfare doctrine.

The current Marine Corps training continuum provides a balanced, rank-appropriate model to learn the COG. As this analysis focused on the officer entry-level training continuum, looking specifically

[76] "Marine Corps Intelligence Schools," Training Command, accessed 22 February 2018.
[77] "The Counterinsurgency COG" (presentation, Marine Corps Intelligence Schools).
[78] "COG Analysis: The Eikmeier Method" (presentation, Marine Corps Intelligence Schools).
[79] Col Peter R. Mansoor and Maj Mark Ulrich, "Linking Doctrine to Action: A New COIN Center-of-Gravity Analysis," *Military Review* (September–October 2007): 46.

at Officer Candidate School, the Basic Officer Course, the Infantry Officer Course, and Marine Corps Intelligence Schools, these findings do not reflect in detail the enlisted training continuum. More research would yield concise recommendations for advanced military occupational specialty courses, such as those for squad leaders, section leaders, and platoon sergeants. Additionally, further analysis would yield similar recommendations for enlisted professional military education such as the Staff Noncommissioned Officer Career Course or Advanced Course. Otherwise, the current approach appears sufficient: introduce the concept in name and definition at OCS; expand and execute basic analysis at TBS; build on the TBS/*Warfighting* model for more complex enemy situations at IOC; and deliberately focus on joint and Service doctrine and contemporary non-doctrinal theories at Marine Corps Intelligence Schools.

Opportunities remain for additional synchronization of the definition and application of COG. Starting with *Warfighting*, the Marine Corps does not maintain consistency in its doctrinal definitions or analysis models. Logically, each manual will be updated upon the normal life cycles of doctrine: in the joint community, the four-step cycle includes proposal, front-end analysis, validation, and program directive development.[80] Moreover, *Marine Corps Order 5600.48C* states, "Service doctrine shall be consistent with approved joint doctrine. Any Service doctrine developed that is inconsistent with approved or emerging joint doctrine could cause unnecessary implications for joint force operations. In such cases, joint doctrine takes precedence."[81] This statement serves not to strip Service identity from definitions or COG analysis models; rather, it speaks to the necessity to nest within the joint doctrinal hierarchy. Not all Marine Corps doctrine and manuals currently nest within the joint definitions and models of COG.

RECOMMENDATIONS

The aforementioned findings reveal a short list of modifications to behavior or doctrine that gain efficiency for the application of COG in contemporary warfare.

Joint Doctrine

Continue to codify and streamline definitions, analysis models, etc., to reflect the most current and best-validated research and practices. Due to drastic differences in scope and type of mission set, no single solution will fit all Services and missions. However, joint doctrine plays a critical role and will remain effective as the foundation for Service doctrine, while also continuing to shape application of COG at the combatant command and joint task force levels. While the Strange Model remains the published joint method for COG analysis, Eikmeier's proposed refinements provide commanders and staffs a more logical approach to better analyze and identify COGs. Moreover, the vague nature of current doctrine requires a test for COG validation. One analysis points out that "a new methodology does not necessarily need to directly mirror Eikmeier's . . . but it does need to make joint doctrine COG determination a testable process . . . With qualifying standards, COGs are less likely to be misidentified."[82] The CARVER Model provides an interim framework for such a test until appropriate research and analysis reveals an improved, COG-specific model for use in doctrine.

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[80] *Joint Doctrine Development Process,* CJCSM 5120.01A (Washington, DC: Chairman of the Joint Chiefs of Staff, 2014), B-6.

[81] *MCO 5600.48C, U.S. Marine Corps Procedures for Participation in the Development of Joint Doctrine and NATO Allied Joint Doctrine* (Washington, DC: Headquarters Marine Corps, 19 September 2016), 6.

[82] Daniel J. Smith et al., "Three Approaches to Center of Gravity Analysis: The Islamic State of Iraq and the Levant," *Joint Force Quarterly*, no. 78 (3d Quarter, 2015): 135.

Application in the Marine Corps

Overall, seize opportunities to synchronize center of gravity verbiage and methodology across schools and doctrine. In training and education, sustain the current OCS, TBS, and IOC models. At TBS, acknowledge the joint definition of COG to reflect current doctrine but sustain the emphasis on *Warfighting*. At MCIS, staff should ensure that instruction reflects current doctrine, whether endorsed or not. Sustain instruction of alternative and contemporary models of COG analysis, but students must leave the schoolhouse reflecting the joint language and its relative strengths and weaknesses, not simply that it may not be as good as other models. Sustain instruction on multiple tools for intelligence Marines to employ in the operating forces.

Operationally, the Eikmeier Model provides the Marine Corps the most logical but still appropriately flexible and easily understandable framework for COG analysis. This requires a shift from current joint doctrine. Marine planners should employ this method as a key element of operational design. When leveraged against time, space, and resources available, an Eikmeier Model for COG analysis reveals appropriate critical vulnerabilities that provide clarity to the development of a friendly scheme of maneuver. As recommended above, the Eikmeier Model, in conjunction with the CARVER Model for COG validation, provides a simple but effective tool most Marine planners already know.

Tactically, the COG concept remains relevant and holds value for Marine leaders. To simplify small unit planning and actions, tactical COGs should be singular by unit and by phase, easily identifiable, and physical. Anything beyond this likely exceeds the ability of a tactical unit to mass or achieve focus, reducing effectiveness. At the small unit level, companies may orient on an enemy COG while their platoons and sections continue to bypass enemy surfaces, seeking to exploit gaps to gain an advantage in time and space.

Doctrinally, the Marine Corps should clarify its approach to COG at each level of war. Reflection on the variances between generations of joint and service doctrine reveals that the Marine Corps last revised *Warfighting* in 1997. In this revision, now 21 years past, then-Commandant of the Marine Corps Charles C. Krulak stated, "*Warfighting* can and should be improved. Military doctrine cannot be allowed to stagnate, especially in an adaptive doctrine like maneuver warfare. Doctrine must continue to evolve based on growing experience, advancements in theory, and the changing face of war itself."[83] In this spirit, it is time for the Marine Corps to review and revise *Warfighting*, incorporating theory derived from the longest war in U.S. history. Beyond *Warfighting*, the Marine Corps should update other warfighting and reference publications and pamphlets to reflect the Eikmeier–CARVER Model for COG analysis and validation. MCIS already adopted Eikmeier, and MSTP materials already reflect the same. If the Joint Staff preserves the Strange Model as doctrine, the Marine Corps must acknowledge this, while providing an appropriate alternative. Codifying this technique in doctrine synchronizes the force with a more effective construct.

[83] *Warfighting*, Foreword.

Does the Corps Have a "Ready Bench"?
An Analysis of the Disparity between Supply and Operational Demand

by Major Mabel B. Annunziata, U.S. Marine Corps[1]

INTRODUCTION

The U.S. Marine Corps provides a responsive "medium-weight" force that can be task-organized and deployed to any point of friction at the right time and place. With this desirable advantage, the operational demand on the Marine Corps across the continuum of military operations will not see any respite in the near future. Specifically, the Service must concurrently balance capabilities in support of global force operations, sustaining residual readiness for major combat operations (MCO), and modernizing the force of tomorrow. Those objectives come with heavy manpower requirements that ultimately compete for the same finite resources. Over time, the negative impacts of spreading a force too thin across competing priorities have produced more risks than current manpower readiness assessments reveal.[2] Without a holistic appreciation of those impacts weighing on personnel readiness, the Marine Corps is unable to properly balance force readiness against operational demand to meet its current and future strategic goals.

ORGANIZATION AND METHODS OF ANALYSIS

The purpose of this discussion is to create a well-rounded understanding of the manpower readiness problem. This study used the *Marine Corps Planning Process* (MCPP) design framework to "achieve a greater understanding of the environment and the nature of the problem in order to identify an appropriate conceptual solution."[3] The study began by assessing the current environment and all the factors that influence or affect personnel readiness.[4] The first step in this analysis was to study the Service-level processes that govern force development, force structure, manpower management, and force management as they are designed in comparison with how they are executed. Once the enterprise-level processes were understood, their relationships and impacts were applied to a case study of the 1st Marine Division. This case study explored personnel readiness assessments and impacts at the Service, organizational, and occupational levels of analysis.[5] This case study formed a more complete appreciation of the attributes of the problem, its root causes, and potential solutions. The 1st Marine Division is the "fighting divi-

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[2] Gen Robert B. Neller, *U.S. Marine Corps Infrastructure Reset Strategy* (Washington, DC: Headquarters Marine Corps, 2018), 2.

[3] *Marine Corps Planning Process*, MCWP 5-1 (Washington, DC: Headquarters Marine Corps, 2010), 1-2–1-3.

[4] *Marine Corps Design Methodology*, MSTP Pamphlet 5-0.1 (Washington, DC: Headquarters Marine Corps, 2017), 29.

[5] Harry J. Thie et al., "Existing Documentation, Studies, and Analysis,"in *A Fiscally Informed Total Force Manpower* (Santa Monica, CA: Rand, 2008), 15–20.

sion" of the Service, contains the greatest amount of combat power, and is staffed according to this priority.[6] It was assumed and later confirmed during the study that any strain on personnel readiness in this division is comparable in degree and magnitude to the same personnel readiness strain on any major subordinate command in the operating forces. This is relevant because the most viable solution is one that is universal and can be applied broadly across the force.

One challenge to writing about manpower and personnel readiness is the broad misinterpretations of common manpower terms, definitions, and processes that undermine and distract from root cause analysis. To eliminate confusion, Annex A contains terms and definitions of the language used throughout this document. Further, the results of this case study have implications beyond the 1st Marine Division. Annex B contains a list of Service-level stakeholders across the enterprise that are relevant to this chapter. In Annex C, the results of the case study are coalesced into a strategic plan of action that shapes and supports future force development. Furthermore, graphic representations are provided throughout the chapter that visualize the complex concepts, processes, and systems to simplify the logic, and hopefully improve understanding. Annex D contains a graphic comparison of infantry battalion readiness that depicts the compounding impacts of all unstructured demand through the lens of 1st Marine Division. Last, Annex E contains a summary of recommended changes to readiness reporting nondeployable categories that would provide a more accurate assessment of unit personnel readiness.

CURRENT ENVIRONMENT

> This increasingly complex security environment is defined by rapid technological change, challenges from adversaries in every operating domain, and the impact on current readiness from the longest continuous stretch of armed conflict in our Nation's history. In this environment, there can be no complacency—we must make difficult choices and prioritize what is most important to field a lethal, resilient, and rapidly adapting Joint Force. America's military has no preordained right to victory on the battlefield.[7]

As the United States emerged from 14 years of continuous war, the demand for a global U.S. military presence has not decreased. In this evolving operational environment, the Marine Corps remains at the forefront of crisis response, providing ready capabilities with a 10 percent reduction in force strength from its height of 202,000 Marines during Operations Iraqi Freedom (OIF) and Enduring Freedom (OEF).[8] In 2016 alone, with a 184,000 end strength, "the Marine Corps executed over 210 operations, 20 amphibious operations, 160 Theater Security Cooperation (TSC) events, and participated in 75 exercises."[9] These operational commitments and the demand on the force required the Marine Corps to accept some Service-level risks and make some deliberate sacrifices. Specifically, the Service reprioritized costly initiatives, postponed recapitalization and modernization efforts, and delayed critical infrastructure projects, combining

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[6] *Marine Corps Order (MCO) 5320.12H, Precedence Levels for Manning and Staffing* (Washington, DC: Headquarters Marine Corps, 22 April 2017), 2-6–2-8.

[7] *Summary of the 2018 National Defense Strategy of The United States of America: Sharpening the American Military's Competitive Edge* (Washington, DC: Department of Defense, 2018), 1.

[8] *Defense Manpower Requirements Report, Fiscal Year 2016* (Washington, DC: Office of the Assistant Secretary of Defense for Manpower & Reserve Affairs, 2016), 143.

[9] *2018 U.S. Military Strength Index*, Dakota L. Wood, ed. (Washington, DC: Heritage Foundation, 2018), 365; and *House Armed Services Committee, Readiness Subcommittee on the Current State of the Marine Corps* (5 April 2017) (statement of LtGen Ronald L. Bailey, LtGen Jon M. Davis, and LtGen Michael G. Dana).

to have a negative impact on overall Service readiness.[10] Further compounding the problem, high operational tempo resulted in compressed deployment timelines and higher deployment rates. According to Commandant of the Marine Corps, General Robert B. Neller, "Marines in the operating forces are averaging a two-to-one deployment-to-dwell ratio, typically deploying for six months, then spending 12 months or less at home station before deploying again."[11] As a result, high deployment frequency with no room built in for unit recovery exponentially degrades unit and personnel readiness, and ultimately puts the Service at risk of culmination.[12] Essentially, there is an imbalance between operational demand and available resources.

In 2017, the *National Security Strategy of the United States of America* (NSS) directed the Department of Defense (DOD) to focus on producing innovative capabilities, growing the force, and restoring readiness to operate at "sufficient scale and for ample duration to win across a range of military operations," to include major war.[13] Based on emerging national security threats identified in the NSS, the Marine Corps determined that it was "not organized, trained, equipped, or postured to meet the demands of the rapidly evolving future operating environment" and could no longer postpone capability modernization, infrastructure initiatives, or readiness recovery.[14] Essentially, the readiness of the force was in question. The challenge for the Marine Corps is doing all things necessary to improve its lethality and readiness with the means available, while concurrently maintaining its obligation to global operations.

UNDERSTANDING THE PROBLEM

Stakeholders and Processes

The multiple and complex factors that degrade manpower readiness must be evaluated holistically and begins with an understanding of the enterprise-level shaping factors.[15] There are multiple agencies that concurrently impact, assess, or consume the finite manpower resources across the Service. Their responsibilities are formally codified by policy, standard operating procedures, and programs of record. Those agencies do not share lexicons, procedures, timelines, metrics of analysis, or Marine Corps Authoritative Data Source (ADS) systems. Based on the complexity and depth of their disparate, yet connected missions, they are staffed by well-educated and experienced professionals and managed by senior military leaders who are fully invested to support and enforce their respective processes. The amalgamation of these processes form the relationships between Service manpower supply and demand. By design, those processes are in a constant cycle and meant to be mutually supporting—not independent work flows with isolated purposes. Problems arise when there are major changes to one process and all others do not evolve to synchronize and balance the force. To fully appreciate how these processes generate layers of demand on the force, it is first important to understand how force development, force structure, manpower management, and force management processes are designed to work, as well as understand the relationship between these processes and where disconnects generate risk.

Combat Development and Integration (CD&I) and Marine Corps Combat Development Command (MCCDC) are responsible for integrating Marine Corps concepts, capabilities, and

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[10] *Military Readiness: Clear Policy and Reliable Data Would Help DOD Better Manage Service Members' Time Away from Home*, GAO-18-253 (Washington, DC: Government Accountability Office, 2018), 2.
[11] *Posture of the Department of the Navy: Hearing before the Senate Committee on Armed Services*, U.S. Senate, 115th Cong., 11th Sess. (15 June 2017) (statement of Gen Robert B. Neller, Commandant, USMC), 3–4.
[12] *2018 U.S. Military Strength Index*, 366.
[13] *National Security Strategy of the United States of America* (Washington, DC: White House, 2017), 28.
[14] *Posture of the Department of the Navy*, 3–4.
[15] *National Security Strategy of the United States of America*, 30.

requirements to include force development. This begins with the conceptual development of the warfighting capabilities needed to accomplish the Marine Corps' wartime mission and current national security objectives. The responsibility for this process shared by Marine Corps Warfighting Lab (MCWL) and Futures Directorate (FD) branch and feeds force development. Within this process, the Capabilities Development Directive (CDD) takes the conceptual requirement for the future force and identifies an optimal number of personnel with specific skills that, when combined, produce a desired warfighting capability. The Marine Corps designs the force through its warfighting principles; each personnel requirement identified builds on another's ability to accomplish the unit's mission essential task list.[16] Once there is a conceptual desired end state, the Service publishes the Marine Corps Enterprise Integration Plan and the process transitions to the development of force structure, which is executed by Total Force Structure Division (TFSD), CD&I.[17] This generates the table of organization (T/O) or troop list. As planners develop the T/O, there is no excess manpower built into the organization. The end result is a detailed list of "the minimum quantity of personnel required by a command or unit to effectively and efficiently accomplish their wartime mission."[18]

Human Resource Development Process

Once force structure is complete, TFSD collaborates with Manpower and Reserve Affairs (M&RA) to develop the *Authorized Strength Report* (ASR). This report calculates the budgetary constraints placed on the Service and optimizes the personnel requirements outlined in the T/O against the allocation of authorized end strength. The promulgation of the ASR is also known as the manning process and results in a list of billets that the Service can afford to buy. Its completion is the point of departure where M&RA planners take the lead and produce the Grade Adjusted Recapitulation (GAR) analysis. The GAR subtracts the population in transient, training, patient, and prisoner (T2P2) status and provides the actual inventory available for future assignment. The Marine Corps had an average of 27,000 Marines in a T2P2 status.[19] With this information, Manpower Management (MM) Division employs the staffing goal model to manage and distribute the current and forecasted inventory.[20]

Note that the transition from structure development through the manpower assignment process is also known as the human resource development process (HRDP). In the past, TFSD and the entire HRDP process was managed under one roof by M&RA to facilitate economies of scale and efficiencies across the enterprise. The Marine Corps later reorganized TFSD under CD&I. While this reorganization improved the relationship between force and structure development, it requires an extensive amount of collaboration and coordination between all stakeholders to synchronize efforts and work effectively.

In the context of Service-level manpower readiness, the ASR and staffing goal model are points of accepted risk to the wartime mission. The Marine Corps accepts that risk under the premise that, if there was a need to execute the mission, Title 10 Armed Forces statutes would allow the Service to grow the force to T/O end strength (reserve mobilization, stop-loss, draft, etc.).[21] Alternately, there is no process to fill the void for steady state operational commitments.

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[16] *MCO 3500.26A, Universal Naval Task List (UNTL)* (Washington, DC: Department of the Navy, Headquarters Marine Corps, U.S. Coast Guard, 30 January 2007), 1–5.
[17] *MCO 5311.1E, Total Force Structure Process* (Washington, DC: Headquarters Marine Corps, 18 November 2015), 11.
[18] *MCO 3000.13A, Marine Corps Readiness Reporting* (Washington, DC: Headquarters Marine Corps, 18 July 2017, 1–8.
[19] *Manpower Gougesheet* (Quantico, VA: Manpower and Reserve Affairs, 2018).
[20] *MCO 5320.12H*, 1–3.
[21] *MCBUL 1900. Marine Corps Stop Move and Stop Loss Policy*, MARADMIN 007/03 (Washington, DC: Headquarters Marine Corps, 7 January 2003). Title 10 Armed Forces statutes are relevant to the military readiness discussion; however, they are outside the scope of this chapter.

Once M&RA assigns a population, the risks or manpower shortfalls associated with sourcing unstructured personnel requirements are absorbed by the units. This illustrates how the Marine Corps' officer population decreases from the initial T/O requirements through the actual available population determined by the staffing goal.[22] There are approximately 4,600 leadership billets in the Corps' organizational structure that are vacant. Every billet vacancy has its associated impact and requires the respective unit to accept and mitigate the risk caused by that leadership gap. Prior to OEF and the exponential growth of operational demand, this leadership gap was a manageable risk. Since then, it has become one of the many contributing factors that negatively impacts Service readiness. This provides an example of the additional factors that affect officer populations once assigned to a unit. Understanding the potential impacts to unit readiness underscores the importance of providing M&RA with clear and timely Service priorities for the distribution of all manpower resources, prior to the planning and execution of the staffing goal model. Doing so empowers Manpower Management Division planners to minimize institutional risk across the force and relieves some of the burden on the operating forces.

Global Force Management Process

The Global Force Management (GFM) process was created in 2005 to formalize and manage the tremendous growth of operational demand for military forces across the DOD.[23] It was designed to provide a venue that integrated and synthesized the established priorities of the national security strategy, the geographic combatant commanders' (GCCs) requirements to execute their regional missions for both steady state and wartime, and the Services' assessments of forces available to meet those demands. GFM is employed by the secretary of defense to "assign, apportion, and allocate service generated forces (units and individuals) to CCDRs [GCCs] for employment."[24] Through this process, the Services make risk-informed decisions to meet registered GCCs requirements with the available forces ahead of planning and deployment milestones.

The secretary of defense publishes two documents that drive the assignment of forces to combatant commands: the *Forces for Unified Commands* memorandum (odd numbered years) and the *Global Force Management Implementation Guidance* (even numbered years). In accordance with those two documents, Marine Corps Forces, Pacific (MARFORPAC), Marine Corps Forces Command (MARFORCOM), and Marine Forces Reserve (MARFORRES) are assigned as the primary Marine Corps force providers to GCCs' registered requirements. The deputy commandant of Plans, Policy, and Operations (PP&O) is the force provider for supporting establishment forces and the Washington, DC, lead for the GFM process. The remaining unassigned forces are left to the control of the Service.[25]

During this period, the Services provide the Joint Staff with an estimate of the forces available for future assignment and allocation. This forecast is known as the "force offering" and drives the GCCs' future expectations. Of critical importance at this point of the process is understanding that this "force offering" is an initial assessment that preempts the formal registration of the GCCs' operational demand and therefore shapes their appetite for forces. This initial milestone is the point at which the Marine Corps can best influence future operational demand on the force. The force offerings that the Services provide feed the secretary of defense's *Guidance for Employment of the Force*. This document provides the Services and GCCs' "relative priority of

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[22] "Manpower Management, Officer Assignments (MMOA), FY18 Road Show Version 5" (PowerPoint presentation, Manpower and Reserve Affairs, 27 November 2017, Quantico, VA).
[23] *MCO 3120.12, Marine Corps Global Force Management (GFM) and Force Synchronization* (Washington, DC: Headquarters Marine Corps, 11 February 2015), 1-1.
[24] *MCO 3120.12*, 2.
[25] *MCO 3120.12.*

contingency plans, specific force levels, and supporting resource levels projected to be available for the period of time for which such plans are to be effective."[26]

The second phase of GFM is the allocation or sourcing of specific forces to meet GCCs' requirements. The GCCs register their recurring demand for Service-level forces through the annual GFM Allocation Plan (GFMAP). After submission of the GFMAP, any modifications that are tied to crisis response or other emergent requirements that cannot be fulfilled by assigned or allocated forces are registered through the emergent allocation cycle.[27] The GFMAP is managed through the logbook database that contains both Force and Joint Individual Augment (JIA) registered requirements. In general, and as expected, there is more registered demand than there are forces available, so the Marine Corps must perform a risk-based assessment to balance internal versus joint requirements. The commander, Marine Corps Forces Command, is the delegated coordinating authority responsible for the collection of risk and force availability assessments from the Service's force providers. Through an assessment of all known variables, MARFORCOM develops recommended sourcing solutions for the Commandant's approval. There are two key assessments MARFORCOM conducts on behalf of the Service:

- Operational assessment: MARFORCOM staff closely coordinates with numerous force providers within the operating forces and supporting establishment to assess the feasibility of support and operational risk and develop sourcing solutions.[28]
- Institutional assessment: performs Service-level reviews of sourcing recommendations (PP&O/M&RA) for approval and assesses institutional risk.[29]

Subsequently, MARFORCOM makes necessary modifications or receives Service-level approval to submit recommended sourcing solutions via logbook. Then PP&O and M&RA use their directive service authority to task sourcing requirements to force providers: PP&O via *Marine Corps Bulletin (MCBUL) 3120* and M&RA via Manpower Requirements Tracking Module (MRTM) and message traffic. In isolation, the process appears relatively benign. However, because the process is cyclical in nature and requirements tend to breed additional requirements, the Marine Corps has found itself in a never-ending dilemma where it's persistently trying to meet the operational demand that has been assigned and allocated to the force.

Ultimately, the Marine Corps is a force provider and the GFM process is the base of movement for Service force generation. Although the GFM process is relatively new in comparison to force development and the HRDP, it is the established platform that the Department of Defense will use to register and task operational requirements for both steady state and major combat operations in the future. If there are preexisting inefficiencies within internal Marine Corps processes, they must be restructured and improved to enable the Service to continue as an adaptive and responsive "force in readiness."[30]

Misalignment of Manpower Initiatives and Resources

In theory, all the processes described above are meant to mutually support each other. Most have governing policies that identify the relationships and tasks between the deputy comman-

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[26] Patrick C. Sweeney, *Guidance for Employment of the Force (GEF), Joint Strategic Capabilities Plan (JSCP), the Adaptive Planning and Execution System, and Global Force Management (GFM)* (Newport, RI: U.S. Naval War College, 2013).
[27] *MCO 3120.12*, 2.
[28] Lee Whalen, "GFM Process–Force and IA" (PowerPoint presentation, Marine Forces Command, 30 April 2018, Norfolk, VA).
[29] Whalen, "GFM Process–Force and IA."
[30] Charles C. Krulak, "A Force-in-Readiness," *Marine Corps Gazette* 79, no. 9 (September 1995): 20–21.

dants. However, with the new direction of the *National Security Strategy* and the growing demand for limited personnel resources, it is apparent that key synchronization points between the Service-level stakeholders are frustrated. Essentially, there are many voices in the room but few are being heard. Additionally, there is no overarching strategy or staff that aligns initiatives, sets universal priorities for all Service manpower requirements, or balances the personnel "checkbook." Hence, institutional stakeholders are competing for the same manpower resources to meet Service strategic objectives. Without an overarching plan that prioritizes resources and synchronizes efforts, solutions to all manpower initiatives will continue to be developed in isolation with unintended second or possibly third-order impacts. Moreover, isolated solutions tend to divert attention away from the root causes they aim to solve and may further exacerbate the underlying problem.

As the Marine Corps postures to concurrently modernize, improve readiness, and support global force operations, internal stakeholders are leveraging additional requirements on the force to accomplish their respective missions. Those additional Service-level requirements are the product of planning and assessments that evaluate problems that are specific to each stakeholder.

The overarching issue is that each stakeholder is only looking at varying symptoms of the same personnel readiness problem. For example, between 2017 and 2018, the Marine Corps sanctioned a series of government studies to assess manpower-related problem areas identified by various stakeholders and recommend solutions. While each of these studies share a common manpower-related theme, they are not well synchronized, and therefore recommended solutions are proffered with unintended redundancy. That is, one solution to any manpower readiness problem may be made at the expense of another, causing another readiness problem that needs to be solved. To provide context to this assertion, below are a few of the ongoing Service studies and initiatives:

- Force 2025 (Commandant; deputy commandant, CD&I).[31]
- Secretary of Defense Nondeployable Personnel Initiative (Commandant).[32]
- In-Stride Replacement Model for staffing deploying units (deputy commandant, M&RA).[33]
- Smart Concept: NCO Infantry Units Staffing Initiative (deputy commandant, CF&I; deputy commandant, M&RA; Infantry Ground Board).[34]
- Impact of Unstructured Manpower Requirements on Readiness and Execution of Plans Study (commanding general, I MEF; CNA).[35]
- Fleet Assistance Program Impact on the Execution of Plans (deputy commandant, PP&O).[36]
- Marine Corps Readiness Integrated Data Environment Working Group, System of Systems Initiative (deputy commandant, PP&O).[37]

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[31] *Marine Corps Operating Concept: How an Expeditionary Force Operates in the 21st Century* (Washington, DC: Headquarters Marine Corps, 2016).

[32] Robert L. Wilkie, "DoD Retention Policy for Non-Deployable Service Members," memorandum, 14 February 2018, 1-2.

[33] *MARADMIN 375/17, Results of the Marine Corps Studies System (MCSS) Call for Studies for the 3rd Qtr of FY17 and the Call for Studies for the 4th Qtr of FY17 and the 1st Qtr of FY18* (Quantico, VA: Combat Development and Integration Command, 18 July 2017).

[34] Jim Lively, "Rifle Squad Leader Staffing: Time for Change," *Marine Corps Gazette* 102, no. 5 (May 2018): 31.

[35] *MARADMIN 375/17.*

[36] *MARADMIN 375/17.*

[37] Plans, Policies and Operations, "Readiness Integrated Data Environment (RIDE) Working Group Plan of Action and Milestones" (PowerPoint presentation, Readiness Branch, 23 January 2018, Washington, DC).

- Joint Chiefs of Staff, Set the Globe Initiative (deputy commandant, PP&O).
- Global Force Management-Availability Model (MARFORCOM).[38]

There are numerous recently published Service documents that outline plans and priorities to posture the Marine Corps to meets its current and future strategic objectives. For example, the *Force Development Strategic Plan* (FDSP) published by CD&I provides a framework for the Marine Corps to innovate and develop capabilities to win future conflicts in an of era competing security challenges and budgetary constraints. What the plan lacks is synchronization with other Service documents and a means to implement it across the various deputy commandants.[39] Another example, the *Military Manpower Modernization Campaign Plan* published by M&RA, describes in detail a strategic plan to modernize the Marine Corps military manpower human resource system. However, while the plan sufficiently outlines its purpose to support the Service's Title 10 responsibilities to provide trained and ready Marines to commanders, its relationship to other Service-level plans is not completely aligned, unintentionally degrading the influence and the reach of the plan. Collectively, the various Service-level plans (see Annex E) that outline tasks and synchronization points between stakeholders must be reconciled to properly align Service-level priorities, clearly incorporate the direction of the NSS, and account for all of the evolving initiatives aimed to develop the force of the future.

> Without sustained and predictable investment to restore readiness and modernize our military to make it fit for our time, we will rapidly lose our military advantage, resulting in a Joint Force that has legacy systems irrelevant to the defense of our people.[40]

Readiness Assessments

As described throughout this analysis, there are several Service-level risk assessments conducted by key stakeholders that inform critical manpower decisions. There is only one assessment that is both a DOD requirement and provides an opportunity for commanders to communicate their unit-level readiness assessments. This mechanism is the Defense Readiness Reporting System–Marine Corps (DRRS-MC) assessment. DRRS-MC reports interface with the chairman of the Joint Chief of Staff's (CJCS) readiness system and (in priority order) are intended to support: "crisis response planning, deliberate or peacetime planning, and the management responsibilities to organize, train, and equip combat-ready forces for the combatant commands."[41] Moreover, at the Service level, these assessments provide the Marine Corps with a reoccurring means to communicate the negative impacts that resource shortfalls have on Service readiness. The information in DRRS-MC is also used for Service testimony, reports to Congress, and fed into joint automated systems (e.g., Global Transportation Network, Joint Operation Planning and Execution System, and Joint Planning and Execution Services) in support of the joint planning process.[42] It is critically important that readiness assessments are complete, accurate, and justified because DRRS-MC interfaces with numerous information systems and supports internal and external stakeholder decision making. DRRS-MC assessments are promulgated on a monthly basis to evaluate the readiness and capability of Marine Corps units to carry out their

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[38] *Global Force Management Availability Model*, Business Case, Version 1 (Washington, DC: U.S. Marine Corps Forces Command, 2015), 3.
[39] *Force Development Strategic Plan*, 2d ed. (Quantico, VA: Marine Corps Combat Development Command 2017), figure 9, in Annex C, provides a summary of the lines of efforts and tasks included in the Force Development Strategic Plan.
[40] *Summary of the National Defense Strategy of the United States of America*, 1.
[41] *MCO 3000.13A*, 1-2.
[42] *MCO 3000.13A*, 1-2.

assigned or core missions. The CJCS's readiness system defines readiness as the "ability of U.S. military forces to fight and meet the demands of the national military strategy. Readiness is the synthesis of two distinct but interrelated levels:"[43]

- Unit Readiness. The ability to provide capabilities required by the combatant commanders to execute their assigned missions. This is derived from the ability of each unit to deliver the outputs for which it was designed.
- Joint Readiness. The combatant commander's ability to integrate and synchronize ready combat and support forces to execute his or her assigned missions.

Assessments use measurable aspects of readiness to calculate a rating and provide a venue for a commander's written assessment. Although all the resources measured in DRRS-MC reports are key to calculate a unit's overall ability to meet its core or assigned mission, this chapter will only focus on the personnel attribute of readiness. Personnel readiness is calculated through the personnel-level (P-level) rating and is based "on the unit's ability to provide deployable, military occupational specialty (MOS) qualified personnel and DoD civilians to accomplish its missions."[44] Simple in concept, the calculus used to determine personnel readiness can be misleading and cause inaccurate reporting.

Accurately measuring force readiness and specifically personnel readiness is a challenge and prone to subjectivity. Inaccurate reporting based on unsupported optimism, for example, can generate a false sense of readiness, despite an obvious gap in manpower capacity to support operational demand and core mission requirements. The problem is compounded in that commitments are made based on inaccurate data without trained and ready personnel in the bank. Senior leaders in the Marine Corps have acknowledged the existing flaws and inconsistencies in the current model. In 2017, the Assistant Commandant of the Marine Corps chartered a Service working group "to improve the accuracy and value of readiness, information, enhance the interoperability of Marine Corps systems, and reduce the work load required to submit a readiness report."[45]

As the Service is already working to improve the system, a deeper review of the metrics used to calculate readiness is prudent to provide a more holistic readiness evaluation that captures a true depiction of Service readiness, identifies and mitigates risks to both core and assigned missions, and provides a comprehensive manpower assessment to support the full spectrum of crisis response planning (not just MCO focused).[46] More specifically, to inform crisis response planning for the full range of military operations, the calculation of personnel ratings needs to be modified to provide a more accurate assessment of steady state operations. Currently, DRRS-MC's nondeployable categories are the same for calculating core and assigned missions. Units do not fall under the same legal statutes as those that would support the execution of major combat operations when executing assigned GFM missions. Assigned missions are executed with the inventory available and are staffed in accordance with M&RA deployment staffing guidelines. Therefore, the current personnel rating calculation for assigned missions gives a false indicator of readiness. This chapter uses a case study of the 1st Marine Division to provide a real-time example of the disparity between the metrics used by Service stakeholders to measure deployability and readiness. Modifying deployable/nondeployable categories does not require a major modification to the DRRS-MC system. The data for all additional categories is already

[43] *MCO 3000.13A.*
[44] *MCO 3000.13A,* A-1.
[45] *Readiness Integrated Data Environment (RIDE) Working Group Plan of Action and Milestones.*
[46] *Interim Policy and Procedures for Strategic Manpower Planning and for Development of Manpower Estimates for Defense Acquisition Programs* (Washington, DC: Office of the Under Secretary for Personnel and Readiness, 2003), 1.

resident in the Marine Corps Total Force System or Total Force Structure Management System (TFSMS), both of which are the authoritative data source systems that interface with DRRS-MC.[47]

Furthermore, PP&O is conducting a study on the Fleet Assistance Program (FAP) Impact on the Execution of Plans.[48] When complete, this study will reveal the existence of FAP requirements that are necessary to sustain installations during a time of major combat operations. If in reality all Marines supporting FAP would not be recalled when the Service has to execute its wartime mission, then those requirements identified as vital to sustain Marine Corps installations should be codified and subtracted from the "available" population when calculating the P-rating. Making these modifications to the P-rating would provide a more accurate analysis of the forces available and would properly align with the metrics used by M&RA to staff deploying units. The appendix provides recommended changes to nondeployable categories. These recommendations are practical modifications that could be further assessed and incorporated into the Assistant Commandant's ongoing initiative.

Deployment-to-Dwell and Personnel Tempo[49]

In 2016, the Marine Corps determined that the optimal balance of deployment-to-dwell and Service readiness was 186,000.[50] This estimate did not capture the increased operational demand in the past two years or the demand from modernization initiatives. Most recently, Congress approved a Service strength of 185,000. In testimony to the Senate Armed Forces Committee, General Neller emphasized that current "tempo is not sustainable as it does not provide options to train to our full mission sets and it puts unreasonable strain on our Marines and families."[51] He determined that the ideal deployment-to-dwell ratio for the force is 1:3. He affirmed that "a deliberate and measured capacity increase, reduction of our operational tasking, or a combination of the two, are solutions that would put us on the path to improve our deployment-to-dwell ratio."[52] Based on similar testimonies by senior military leaders, the Government Accountability Office (GAO) conducted a study on military readiness to assess the root causes of degraded Service readiness, including the management of personnel tempo (PersTempo) when forces are mobilized and deployed ratios.[53] The study highlighted that the Marine Corps does not have reliable and complete data to monitor PersTempo (a DOD requirement).[54] As a response, the Service has been tasked to evaluate its PersTempo and deployment-to-dwell ratios. The DOD distinguishes between unit operations and individual

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[47] *MCO 3000.13A.*

[48] Combat Development and Integration Command, "Fleet Assistance Program (FAP) Impact on the Execution of Plan Study for MARFORCOM G-1 Huddle Brief" (PowerPoint presentation, Force Synchronization Conference, 8 February 2018, Norfolk, VA).

[49] *MARADMINS 346/14, Deployment-to-Dwell, Mobilization-to-Dwell Policy Revision* (Quantico, VA: Manpower and Reserve Affairs, 14 July 2014). Deployment-to-dwell refers to the ratio of time a unit, detachment, or individual is operationally deployed to the time the unit, detachment, or individual is in dwell. The secretary of defense's goal for operational deployment-to-dwell is 1:2; the operational deployment-to-dwell ratio threshold is 1:1. The secretary of defense must provide approval to deploy a unit, detachment, or individual with a 1:1 ratio or less. An individual may voluntarily waive their deployment-to-dwell threshold by submitting an administrative action form (NAVMC 10274) to the first general/flag officer in the chain of command of the parent organization. *ALMAR 026/01, Marine Corps Deployment Tempo (DEPTEMPO) Policy Guidance* (Washington, DC: Headquarters Marine Corps, 12 May 2008). Personnel tempo refers to the amount of time servicemembers serve on official duty at a location or under circumstances that make it infeasible for them to spend off-duty time in the housing in which they reside.

[50] *2017 U.S. Military Strength Index*, ed. Dakota L. Wood (Washington, DC: Heritage Foundation, 2017).

[51] *Posture of the Department of the Navy*, 3-4.

[52] *Posture of the Department of the Navy.*

[53] *Military Readiness*, 1.

[54] *Military Readiness*, 1-5.

time away from home when discussing tempo; both categories are bound by established reportable thresholds (see Appendix E).

It is acknowledged that PersTempo and unit deployment-to-dwell ratios directly impact force readiness. Tracking and capturing these categories are enduring Service requirements and are a DOD concern. Both metrics should be tracked and assessed as a part of the holistic readiness picture that will "better align ends, ways and means to maximize the probability that the [Marine Corps] will meet its targeted policy objectives."[55] DRRS-MC is not a catchall system. Nevertheless, PersTempo and unit deployment-to-dwell feed decision making for crisis response options outside of MCO. The data to track these categories is also resident in Marine Corps Total Force System (MCTFS) and can be automatically fed into the DRRS-MC system. Alternatively, if these categories cannot be immediately configured to the DRRS-MC personnel rating, the Marine Corps should implement a standardized form of articulating the added risk-to-mission and the force they bring. Finally, reviewing and improving the various definitions and metrics used to calculate the Marine Corps' deployable population requires a large investment of time and collaborative work and will ultimately create transparency, accuracy, and unity of effort.

Multiple Systems and Informal Processes

The Service does not have a single source of integrated manpower information that can provide uniform manpower capabilities, assessments, and trends. This is a contributing factor to the Marines Corps' ability to capture all demand on the force and properly assess the risks incurred. If higher headquarters receives the data through different systems, filters, and metrics, there is no common picture or assessment of the information. Moreover, due to the urgency of meeting Service objectives, requirements are often generated, accepted, and levied on the force without a full understanding of the cumulative effect. Such requirements come from multiple agencies and through formal and informal channels. Since there is no standard process or system for tasking the force, the Service does not have a clear picture on where all personnel resources are committed at any given time. This causes friction and misunderstanding that ultimately detracts from the ability of the Service to meet its strategic goals.

The absence of a standard system or process creates an administrative burden that exponentially increases as the demand filters down. Force providers struggle to compose meaningful data for both required readiness reporting and the sustainment of GFM or Service manpower requirements. Without a Service-level system that automates the tasking, sourcing, and assessing of demand, units create their own informal systems and relationships to attempt to mitigate the problem. Many build ad hoc programs that allow them to capture the necessary information their commanders require to make informed decisions. However, with the current personnel rotation ratios and compressed timelines, local solutions become unsustainable. This problem was recognized as the number two priority for the Ground Combat Element Conference (Ground Board 2-17).[56] They concluded that the Service must "develop analytical tools that provide an objective view that will inform institutional risk management and allows for the effective management of risk and readiness in human resources."[57] Not surprisingly, MARFORCOM had identified the same problem and has been developing a program to address the issue since 2015. They are in the last phases of developing a system that will close the gap between how units are organized at the institutional level and how they are employed at the operational level—"balance

[55] *Joint Risk Analysis Manual*, A-3.
[56] *Ground Combat Element Board 2-17 Report*, AMHS Message R 212127Z DEC 17 (Quantico, VA: Plans Policies and Operations, 2017).
[57] *Ground Combat Element Board 2-17 Report*.

the people checkbook"—enable visibility of manpower demand, align it against sourcing solutions, and reveal Marines remaining to support future requirements.[58]

This system, or the GFM-A Model, brings transparency and will cut down on thousands of hours that can be reinvested in Service modernization or readiness recovery. If the GFM-A Model is properly resourced and supported by the Service, it can align the efforts of several ongoing manpower initiatives and identify where other potential service gaps may exist. As the NSS stresses, "we must eliminate bureaucratic impediments to innovation and embrace less expensive and time-intensive commercial off-the-shelf solutions."[59] The GFM-A model is a step forward to resolving the manpower readiness problem and should be regarded a service priority.

1ST MARINE DIVISION CASE STUDY

> The operating forces are our focus of effort. As the source of the combat-ready MAGTFs that are our unique contribution to the defense of the Nation, the operating forces are the soul of the Corps. . . . Accordingly we will promote the continued operational excellence of our units by addressing those issues that influence readiness, such as manning and funding. The operating forces will not be the bill-payer for other requirements! We need to protect them from becoming overextended.[60]

A case study of the 1st Marine Division is used to demonstrate the linkage between all the processes discussed in this analysis (see figure 1), their compounding effects across time, and the levels of risk to readiness that are incurred. These impacts are not the same for all types of units, but the demand and readiness trends within 1st Marine Division are comparable to those experienced by the remaining operating forces. The data used for this analysis is primarily based on combat arms unit personnel and operational records from 2015 through 2017.

Division Overview

The 1st Marine Division's wartime mission is "to serve as a multi-role, expeditionary ground combat force employed as the ground combat element of the I Marine Expeditionary Force. It may provide task-organized forces for assault operations and such operations as may be directed."[61] In addition, the 1st Marine Division must be able to "provide the ground amphibious forcible entry capability to the naval expeditionary force and to conduct subsequent land operations in any operational environment."[62] To execute this mission, the division's force structure is 24 units comprising approximately 22,000 Marines and sailors.[63] In addition to its core mission, the division provides forces for four assigned Global Force Management (GFM) missions: 31st Marine Expeditionary Force (31st MEU), West Coast MEUs (11th, 13th, and 15th MEUs), the Unit Deployment Program (UDP), and Marine Rotational Force-Darwin (MRF-D), the core of a regimental size Special Purpose Marine Air-Ground Task Force (SPMAGTF), and sourced over 1,000 individual augmentees (IAs) to deploy in support of GFM billets between 2015 and 2017.[64]

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[58] *Global Force Management Availability Model,* 3.

[59] *The National Security Strategy of the United States of America*,13.

[60] James L. Jones, "Commandant's Guidance," *Marine Corps Gazette* 83, no. 7 (July 1999): A-9.

[61] "1ST Marine Division," 1stMarDiv.Marines.mil; and "International Security & Counter Terrorism Reference Center, 2010," EBSCO.com, accessed 10 February 2018.

[62] "1ST Marine Division."

[63] *FY18 1st Marine Division Table of Organization Report* (Quantico, VA: Total Force Management System, 2017), 22.

[64] Commanding General, 1st Marine Division, to Commanding General, 1st Marine Expeditionary Force, Status of Command, 22 June 2017, 2.

Infantry Unit Readiness

The division has three infantry regiments and each regiment has four subordinate battalions. In addition to managing and supporting their battalions, the regimental headquarters rotate in and out of the SPMAGTF-Crisis Response–Central Command (SPMAGTF-CR-CC) command element mission. This GFM requires a 14–15-month commitment: 9-month deployment with a 5-month predeployment work up. At any given time, one regiment is deployed, one is in predeployment training, and the other has just returned from deployment. This mission is not sourced with the entire unit. Instead, the unit is composed through the IA process, which means that the regiment is not staffed for deployment by M&RA. This requires the unit to split off a small version of the command to manage the regimental mission, while the core of the regiment is deployed. Although the SPMAGTF-CR-CC is a legitimate operational mission, this perpetual demand significantly degrades the regiments' ability to command and control and properly manage their subordinate battalions to meet their own assigned and core missions.

Analyzing the problem at the battalion level provides a similar perspective. At any given time, 4–5 of the 12 division infantry battalions are deployed in support of GFM missions. Those respective missions are staffed for deployment by Manpower Management Integration Branch (MMIB), M&RA. MMIB executes unit staffing through the deployment unit cohesion model (a.k.a. implementation/stabilization model). In 2011, the Commandant of the Marine Corps implemented this model to ensure "individual Marines [arrived] six months prior to deployment to train and become cohesive units prior to combat operations, and upon return, [remained] as a cohesive unit to allow for post-combat actions."[65] This model is based on a 15-month timeline to optimize the "timely arrival and unit longevity of captains, staff non-commissioned officers (SNCO)s and other key leaders and post-deployment unit stability."[66] Furthermore, it was designed to maximize the length of contracts for first-term Marines. Through this model, infantry battalions are "implemented" for their mission 12 months prior to their scheduled departure date.[67] The institutional goal is to staff battalions to 90 percent of their T/O (with only deployable personnel), before they are at six months from deployments (or lock-on-date).[68] This process would allow units to build and sustain cohesion and stability. Of note, when this model was designed, the assumed predeployment period was six months.

Although the unit cohesion model was meant to provide units an optimal time to build up for deployment (14–15 months), infantry battalions within 1st Marine Division had an average unit deployment-to-dwell ratio of 1:67 in FY16 and 1:1.8 during FY17, based on their operational commitments.[69] This means that, on average, the units only had 10–11 months in between their scheduled deployments for GFM assigned missions. Due to the compressed timelines, the battalions were behind on meeting their administrative requirements to staff their units for their next deployment before they returned from their current deployment. Upon returning from deployment, approximately 30–45 percent of the enlisted Marines in their battalions did not have the enough time remaining on their service contracts to meet the next deployment. The large population of Marines with an expiration of active service (EAS), coupled with the compressed timeline, caused a volatile turnover of personnel after every deployment. Moreover, the intangible effects of the problem on unit cohesion, command climate, and resiliency are salient points worth considering as well, but currently beyond the scope of this work. This provides a

[65] *MARADMIN 585-1, Deployed Unit Cohesion Staffing* (Quantico, VA: Manpower and Reserve Affairs, 4 October 2011).
[66] *Deployed Unit Cohesion Staffing*.
[67] "Deploying Unit Staffing Process" (PowerPoint presentation, Manpower Management Division, 28 March 2016, Quantico, VA).
[68] "Deploying Unit Staffing Process."
[69] *Division Bulletin 1500, Quarterly Operations Bulletin*, (Camp Pendleton, CA: 1st Marine Division, 17 October 2016), 4.

true depiction of an infantry unit build for deployment in the current manpower constrained environment (see also Annex D).

The 1st Marine Division continues to execute its forecasted plan with the inventory it has available. With a delayed start and inventory constraints across the force, 1st Marine Division battalions reached deployment staffing goals one to six months prior to deployment. The late arrival of key leaders and large turnover ratios directly impacted the units' ability to train for their assigned missions.[70] Although the battalions eventually reached their forecasted deployment staffing goals, there were direct and negative impacts on unit cohesion and readiness. As a result of this cyclical problem, there is no excess time available for MCO training or readiness recovery.

Impacts of FAP/CAP

The Fleet Assstance Program (FAP) is the method used by the Marine Expeditionary Force (MEF) commander and the host supporting installation commander to negotiate and agree to the sourcing of personnel requirements beyond the personnel capabilities of the host installation command. The program is intended to provide the installation command with "sufficient manpower resources to accomplish current, new, or increased workload to support" the tenant MEF forces.[71] The secondary objective of the program is to "provide enhanced training opportunities for OpFor Marines whose Miliatry Occupational Specialties (MOS) could be put to better use in a garrison situation" by the installation commander.[72] This program has three billet requirement categories:

- Category 1: billet requires specific MOS. Operational and training opportunities for individual MOS skill maintenance and mprovement are found predominantly at the host command, with only limited opportunities at the tenant command. Tenant Fleet Marine Force (FMF) units should support these identified FAP requirements to 100 percent of their assigned onboard strength in that MOS when the situation permits. Examples of billets in this category may include those in law enforcement, fire and rescue, weather forecasting, and air traffic control.[73]
- Category 2: billet requires specific MOS. Operational and training opportunities for individual MOS skill maintenance and improvement are equally available at both the host and tenant commands. Tenant FMF units should support the identified FAP billet requirements in proportion to their assigned onboard strength in that MOS when the situation permits. Examples of billets in this category may include those in motor transport, communications, and postal services.[74]
- Category 3: any billet not in category 1 or 2. Operating forces will support these billets in proportion to their overall onboard strength when the situation permits. Examples of billets in this category may include those in range, recreation, and other support staff functions. Accordingly, "Combat readiness of FMF units remains the primary consideration" and any billet not in category 1 or 2 should be supported in proportion to MEF's overall onboard strength when the situa-

[70] Commanding General, 1st Marine Division to Commanding General, Status of Command, 5.
[71] *MCO 1000.8, Fleet Assistance Program (FAP)* (Washington, DC: Headquarters Marine Corps, 12 July 1994), 2–3.
[72] *MCO 1000.8.*
[73] *MCO 1000.8.*
[74] *MCO 1000.8.*

tion permits.[75] The Camp Augmentation Program (CAP) has the same requirements at category 3.[76]

The service order that governs the FAP program was last updated in 1995. During that time, large FAP requirements were manageable and could be informally coordinated between local commands. As the Marine Corps faced end-strength and budget reductions, the supporting establishments took the largest cuts in military structure and funding for civilian/contracting support. Over time, the Fleet Assistance Program has been used to compensate for the deficiencies those cuts caused. Consequently, 1st Marine Division has absorbed a large portion of the FAP burden because of its population size and the dispersion of its units between five geographical camps within two major bases. For example, during FY16/17, the division sourced an average of 850 Marines to support FAP/CAP and more than 40 percent of FAPs were noncommissioned officers (NCO).[77] The duration of these FAP assignments removed individual Marines from their assigned units for 6–12 months.[78] The preponderance of the division's requirements are category 3 or CAP billets that demand deployable Marines of any MOS between E1 to E5. However, there are no excess deployable Marines. Therefore, the division makes the difficult decision to meet those requirements with either young Marines who have not yet developed MOS credibility or experienced NCOs who have just returned from deployment. With the significant increase in operational demand, in combination with unstructured manpower demand, every requirement that consumes the operating forces has a negative operational impact. If the Marine Corps aims to build capacity and facilitate readiness recovery, it is time to register, validate, and prioritize all unstructured requirements at the service level.

Impacts on the Individual Marine

At any given time, there were approximately 1,200 unstructured requirements taking individual Marines away from their assigned units. This includes an average of 350 IAs who are primarily comprised of officers, SNCOs, and high-demand, low density occupations. When the total number of unstructured requirements is viewed in aggregate, the impacts seem relatively small. However, that absent population is equivalent to one infantry regimental headquarters and one infantry battalion.[79] Once those requirements are combined with constrained Service inventories and compressed deployment timelines, there is a significant impact to leader-to-led ratios, unit readiness, and cohesion. This strain is shared by all three Marine divisions.

In a deliberate attempt to improve this situation, Ground Board 2-17, PP&O, and M&RA endorsed an initiative "to implement a series of policy changes to ensure rifle squads are more consistently staffed with mature, educated, and trained sergeant squad leaders."[80] Although this initiative is well-intended, the reality is that there is no excess. Every decision involving the consumption or reallocation of manpower resources has a direct and negative second-order impact on the manpower of another unit, population, or mission. Comparatively, if the unstructured demand is not reduced, there will continue to be a comparative level of leader-to-led gaps at the

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[75] *The National Security Strategy of the United States of America*, 2.
[76] *Area Order 11010, Augmentation Program Requirements for 11-18 and 27 Area,* Area Order 11010 (Camp Pendleton, CA: 1st Marine Division, 30 March 2015), 1–10
[77] "CMC's Readiness Meeting, Sep 16 v6" (PowerPoint presentation, 1st Marine Division, 12 September 2016, Camp Pendleton, CA).
[78] I Marine Expeditionary Force, *IMEFO P5320.5, Fleet Assistance Program Procedures Manual* (Camp Pendelton, CA: I Marine Expeditionary Force, 28 April 2010), 2-2–2-4.
[79] *FY18 1st Marine Division Table of Organization Report* (Camp Pendleton, CA: Total Force Management System, 9 October 2017). FY17 T/O for an infantry regiment was (241) Marines and sailors and (963) for an infantry battalion.
[80] Lively, "Rifle Squad Leader Staffing," 31.

battalion level. The Ground Board has taken a leap to improve the current situation. The Service must balance all unstructured demand for this initiative to be successful.

Division Lessons Learned and Applied

Bottom-up refinement is key to improving any plan or process. "Commanders realize how important it is for them to understand and give way to more collaborative and decentralized approaches that informed from the bottom up and driven by the co-creation of context."[81] Although most of the manpower processes described in this analysis have an established feedback loop in policy, they are diminished in execution due to current demands and compressed timelines. For example, table of organization and equipment change requests (TOECR) are the established process for commanders to submit requested changes to their structure. Based on ongoing changes to force structure and evolving manpower initiatives, TOECRs have been in a moratorium for the past five years. Additionally, there is no feedback loop on the development/modification of staffing goals and a narrow window to influence the deployment staffing process. The 1st Marine Division recognized the limited opportunities to provide senior leadership and higher headquarters a true depiction of the division's readiness, the actions taken to mitigate risk, and clear actionable items that could improve the strain on division units.

In an effort to maximize resources and achieve unity of effort, the division's chief of staff enforced standardization of briefs to the commanding general and higher headquarters, including DRRS-MC reporting. The intent was for all subordinate units to use the same language and standard of measurement to allow the staff to consolidate information and look for trends, critical shortfalls, and ineffiencies across the division. Standardization created efficiency and ensured that the staff was working on the right problem sets and/or communicating with the responsible organizations to address them.

Within the division staff, the G1 (personnel) and G3 (operations) were consistenly planning and synchronizing efforts to relieve the readiness impact on subordinate units. The division G3 understood that, if deploying units did not meet their deployment staffing milestones, there was a direct impact to training readiness. Comparatively, units with higher IA requirements also had degraded leader-to-led ratios and critical high-demand, low-density occupational shortfalls impacting unit cohesion and ability to achieve specific mission essential tasks. In response, manpower milestones were added to the division's training, exercise, and employment plan (TEEP) to create unity of effort and priorities of work in support of deploying units and IA teams. In addition, the division G1 staff instructed operational manpower classes at the executive officer and operations officer courses, providing them an overview of division trends, shortfalls, and upcoming individual augments that would impact their units. The operations and executive officers would see the current state of their battalion's personnel readiness in comparison to adjacent battalions, and the staffing milestone they needed to reach in preparation for their next deployment. The goal was for these officers to understand how different manpower processes impacted their unit and be able to recognize the causes of their personnel shortfalls or degradation of manpower readiness. Through education, the units began to clearly articulate their shortfalls or degradation of readiness in their organizational briefs/reports. With that information, the division G1 could verify the root cause, identify unit trends that required a Manpower Management Division solution, or shift GFM requirements to a less affected unit.

In the absence of a Service-level program that facilitates the manning, staffing, and sourcing of all manpower requirements, the 1st Marine Division G1 staff created their own ad hoc

[81] *Design and Planning: Insights and Best Practices Focus Paper*, 1st ed. (Suffolk, VA: Deployable Training Division, Joint Staff, 2013), 6.

system. They designed and developed a Microsoft Access database that captured all tasked requirements and determined manpower availability by filtering out committed and nondeployable personnel from the assigned population. The database was designed specifically to support decision making; it operationalized G-3 planning and informed update briefs to the commanding general. While effective, the database was not automated and therefore was time-consuming to manage. It required four Marines and a combined 80 hours per week to maintain the database.

The combination of actions taken by the division staff was integral to improving unit readiness, however, those actions did not resolve the systems that caused the readiness problems. Furthermore, the solutions that were implemented are temporary in nature, unfunded, and unsustainable. The division staff faces similar revolving personnel turnover issues as their subordinate units. During the summer of FY17, more than 80 percent of officers turned over, including the commanding general.[82] Consequently, the staff is no less competent or experienced and must relearn the lessons of the previous staff to positively manage division manpower resources.

From the top of the Marine Corps organization to the battalion or squadron, leaders at all levels recognize the symptoms of the problem and are attempting to resolve the issue at their level and through their perspective. As the problem precipitates down to the operating forces, the impact is felt at a greater rate. The strain for the same manpower resources manifests itself most significantly at the MSC level and below. The amalgamation of the high turnover ratios, compressed deployment timelines, and growing unstructured manpower demands ultimately places the burden on unit commanders and increases the risk unit commanders must absorb to accomplish their mission. The risk that comes with low personnel readiness further increases when combined with myriad operational and administrative training requirements and low material readiness. The comprehensive picture of the effects is not captured in current readiness assessments. Unfortunately, this type of analysis typically only occurs after there is a mishap or serious misconduct in a unit. Regardless, the Marine Corps has the leadership, expertise, and information necessary to improve current processes and systems to relieve that burden, optimize the force, and balance supply and demand.

RECOMMENDED SOLUTIONS

> The future fight will involve rapidly changing and evolving technologies and concepts, which will force us to be more agile, flexible and adaptable.[83]

Military readiness is a stated national priority. With a renewed focus on modernization and the resources required to improve readiness, the time is now for the Marine Corps to invest in a Service-level plan that resolves institutional capability gaps—from equipment to personnel and training.[84] The relevancy of the Marine Corps is not in question, so long as the Service maintains the capability and capacity to fulfill strategic and Service-level objectives. The following lines of effort (LOE) provide a recommended approach to begin discussions on how best to improve and sustain manpower readiness, while concurrently providing relief to the operating forces and supporting establishment.

- LOE 1. Accountability and registration of all Service demand.
- LOE 2. Identify a Service lead.
- LOE 3. Develop a campaign plan and operationalized Service-level manpower TEEP.
- LOE 4. Improve manpower information sharing.

[82] Commanding General, Status of Command, 2.
[83] *Marine Corps Operating Concept,* Concept.
[84] *2018 U.S. Military Strength Index*, 6.

LOE 1. Accountability and Registration of All Service Demand

All operational requirements must be accounted for to accurately understand the demand on the Service. This enables the Marine Corps to prioritize and maximize resources within acceptable risk to force and mission. Accountability would bring transparency and expose the imbalance of available forces to all unstructured manpower demand. It will serve as a forcing function to bring all stakeholders to the table to validate and prioritize all requirements. The Service can then choose to redistribute manpower resources or grow the force through restructuring initiatives. In the past, no platform existed that could provide a means to register all personnel requirements across the Service. With MARFORCOM's newly implemented GFM-A Model, the Marine Corps will benefit from an optimal venue to register and manage all demand, forecast force availability, and improve decision making.

LOE 2. Identify a Service Lead

The sustainable distribution of limited manpower supply for operational requirements must be approached and balanced through a responsible agent and a continuous, accurate, and standardized assessment process that enables risk-based decision making. The Service must identify a deputy commandant to lead and synchronize all facets of manpower readiness and facilitate unity of effort to account for, validate, and prioritize all manpower demand across the Service. Validation and prioritization of those requirements would follow registration of all demand. Inevitably, and most significantly, prioritization will result in requirements beyond the capacity of the Service that will go unfilled. In this light, the Service lead must be able to broker negotiations between the stakeholders and adjudicate the competing priorities to balance the manpower checkbook.

LOE 3. Develop a Service Campaign Plan with Operationalized Service-level Manpower TEEP

The *Force Development Strategic Plan* paved the way to "conceptualize, analyze, and assess the future force."[85] With the Commandant's current direction, stakeholders and their staffs aim to collaborate and support each other; yet, they are also understaffed and overtasked. If there are no well-defined requirements and associated timelines for them to meet, they can only wager their best efforts as time and resources permit. The development of a campaign plan and an operationalized Service-level manpower TEEP will achieve two important objectives: (1) it will provide a strategic and integrated plan with an overarching purpose that balances operational demand against finite manpower resources; and (2) it will assign roles and responsibilities under the cognizance of a lead organization. Moreover, the campaign plan will provide the framework to implement fundamental change where necessary to meet strategic objectives, manage force structure, and align warfighting strategies.[86] Through this campaign plan, the Service can standardize the tasking process, prioritize manpower requirements, and synchronize Service and operational manpower initiatives to optimize resources and facilitate information sharing.[87] Through a Service-level manpower TEEP, stakeholders can plot key events and milestones within their reoccurring processes to reconcile critical information prior to key decision points that have bearing on the force. Planners can then focus attention on critical areas on the TEEP in time and space, where information in one area informs or influences another with predictability.

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[85] *Force Development Strategic Plan*, 3.

[86] *Interim Policy and Procedures for Strategic Manpower Planning and for Development of Manpower Estimates for Defense Acquisition Program*, 1.

[87] *National Security Strategy of the United States of America*, 39.

LOE 4. Improve Manpower Information Sharing

The Marine Corps needs a manpower system that automates and synthesizes manpower data, integrates manpower information to accurately assess trends and ready capabilities, and supports manpower sourcing and decision making. The information all stakeholders need to improve their current risk assessments and projections of force readiness is resident within several Marine Corps authoritative data systems. The Marine Corps needs an automated system that can interface with and synthesize all data elements to support analysis, improve process efficiency, and enable timely decisions throughout all chains of command.[88] The GFM-A Model can fill part of that void if the Service properly resources and prioritizes its development and sustainment. Once the Service has a true depiction of available forces, this information can be tested and validated. With accurate data that reflects Service trends, the Marine Corps will be better informed on what units are most ready at specific times of the year. This improved forecast would support large scale contingency planning and would also provide better options to meet current GFM requests for forces. Furthermore, realistic standards for personnel readiness could be tested during realistic training scenarios for large scale exercises, theater security cooperation events, and Service experimentation initiatives.

CONCLUSION

> For the strength of the Corps is the Marine, and the strength of the Marine is the Corps.[89]

Manpower is the single most important resource that allows the Marine Corps to "fight tonight" at the right time and place. The readiness of the force to perform its statutory functions demands that the Marine Corps take a holistic approach to force readiness that works to resolve the fundamental drivers of manpower deficiencies with a "specific focus on optimization and efficiency across the enterprise."[90] The purpose of this analysis was not to place blame or create division within the institution. Rather, it was to dissect the multiorganizational responsibilities, functions, and processes that impact manpower at the lowest levels and make recommendations to improve manpower readiness across the force. The operational demand for manpower continues to strain the Marine Corps'capacity to resource and there is no indication of relief anytime soon. The Marine Corps needs to balance the manpower checkbook. Assuming no significant increase to Service-level end strength, the Marine Corps has limited options: register all Service demand, prioritize all requirements, and fill only what can be resourced within acceptable risk.

This study has shown that solutions to the manpower problem cannot be effectively solved in isolation between the various stakeholders. More to the point, unilateral manpower solutions without full context of the cause-and-effect relationships of those solutions are counterproductive and exacerbate the problem. The path to resolution is achievable through a well-synchronized strategy that is managed by a Service-led organization vested with the authority to balance current and future demand against the bank of manpower. The synchronization of Service manpower initiatives will promote unity of effort among the stakeholders and prevent force commitments that are unsustainable, further exhaust an already questionable ready bench, weaken combat readiness, and potentially delay the "fight to tomorrow."

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[88] Lance Haun, "Billy Beane and the Science of Talent Management, The Moneyball Way," TLNT, 28 February 2012.
[89] Jones, "Commandant's Guidance," A-4.
[90] Neller, *U.S. Marine Corps Infrastructure Reset Strategy*, 2.

APPENDIX A
TERMS AND ACRONYMS

Assessment: assessment is the continuous monitoring and evaluation of the current situation and progress of an operation. It is the basis for adaptation, keyed to the overall purpose, oriented on the future, and focused on emerging opportunities. Successful assessment requires the commander's situational understanding and their recognition of the difference between planned goals and the situation as it exists. This difference between what was planned and what actually happened becomes the catalyst for decision making, either to correct deficiencies or seize opportunities. An effective assessment process requires four elements:

- A basis for comparisons in the form of planning goals, which include tasks, purpose, conditions, and effects.
- Feedback that allows approximation of the situation as it exists.
- Analysis and synthesis to determine the causes and differences between plans and execution.
- Recommendations for change.

Assigned mission: the mission that an organization/unit is tasked to carry out. Note, an assigned mission also may match the unit's wartime mission (i.e., purpose for which the unit was designed). Global Force Management unit missions are considered assigned missions.

Authoritative data source (ADS): recognized or official data production with a designated mission statement or source/product to publish reliable and accurate data for subsequent use by customers. Note, an ADS may be the functional combination of multiple, separate data sources.

Authorized Strength Report (ASR): 1. The optimal allocation of planned or authorized end strength across the force structure based on Marine Corps staffing precedence order. 2. A reflection of how many billets the Marine Corps can afford to buy. 3.The ASR represents an ideal solution, and the results of this process are published semiannually for the current year, the execution year, and the following 19 out-years.

Available personnel: when calculating the DRRS-MC P-rating, personnel are considered available if they are assigned to a reporting unit, are physically present or can be present within the prescribed response time, and are not restricted from deploying or employing with the unit for any reason.

Billet or position: programmed manpower structure space typically defined by grade and occupation and associated with a specific unit or organization. A billet or position may be funded (authorized) or unfunded (generally called an unfunded requirement).

Deployability: the sum of factors that assess the Marine's medical, legal, contract limitation, physical limitation, future orders limitation, force control, or other factor that precludes the screened Marine from making a specified deployment for the Marine's present or future unit if under orders reported in manpower systems, with acceptable parameters to provide for unit training, deployment, and a transition from service at EAS should the Marine not continue service.

DOTMLPF: doctrine, organization, training, materiel, leadership and education, personnel, and facilities.

Deployment-to-dwell: deployment-to-dwell is the ratio of time a unit, detachment, or individual is operationally deployed to the time the unit, detachment, or individual is in dwell.

Force generation: a Service process that focuses efforts across Headquarters Marine Corps, the SE, and the operating forces toward efficient and effective preparation of designated Marine Corps personnel and units for specific operational deployment/employment.

Force synchronization: a Service process promoting a holistic approach to resourcing validated requirements through identification, deconfliction, and scheduling of Marine Corps forces through forming, organizing, training, and deployment life cycles. Directives issued prior to this order refer to this process as conventional force synchronization and allocation. Force synchronization is the first phase of the Marine Corps force generation process and addresses both Joint (GCC) and Service requirements.

Force deployment: a Joint and Service process for management, scheduling, and oversight of the deployment and redeployment actions for Marine Corps forces and equipment in support of Joint (i.e., GCC) and Service force flow requirements. Force deployment and execution planning actions may run concurrently with force synchronization actions.

Future force implementation plan (FFIP): a plan that drives subsequent actions within the force development process.

G1: Marine Corps component manpower or personnel staff officer (division or higher staff).

Global Force Management (GFM): process to align assignment, allocation, and apportionment of forces to GCCs in support of the *National Defense Strategy* and joint force availability requirements. GFM presents strategic-level planners with comprehensive visibility of the global availability and operational readiness of conventional military forces and a vehicle to quickly and accurately assess the impact and risk of proposed allocation, assignment, and apportionment changes.

Global sourcing: the process used to source IAs wherein the deputy commandant, M&RA, ensures that the Marine Corps total force (active, reserve, operating forces, supporting establishment, and retirees) is resourced for the most qualified Marine to fill a tasked requirement, whether DOD or Service.

Human Resource Development Process (HRDP): as the HRDP owner, deputy commandant, M&RA is responsible for human resources. In meeting its total force military manpower needs, the Marine Corps uses a total force concept. The unified, integrated, cooperative team approach satisfies total force manpower requirements, whether regular or reserve, officer or enlisted, male or female. This total force manpower approach avoids duplication of effort and helps realize economies and efficiencies. The Marine Corps exercises the HRDP to realize this concept through the combined efforts of M&RA, CD&I's Total Force Structure Division (TFSD) and Training and Education Command (TECOM), and Marine Corps Recruiting Command (MCRC).

Individual augment: 1. Any temporarily attached member deployed as an individual (vice as part of a unit or detachment) in a unit or organization that is not a part of their parent command (i.e., a unit or organization that is not a subordinate element to the command they were assigned via permanent change of station/assignment orders).

- Individual Service augmentee (ISA). An individual augment sourced internally within the Service to meet Service-specific requirements and tasks. It is a position established and validated under approved Service procedures for the purpose of satisfying a grouping of tasks, capable of being performed by one individual, for which no authorized position has been established in the unit's manning documents.
- Joint individual augmentation/augmentee (JIA): a JIA is an unfunded temporary manpower requirement (or member filling an unfunded temporary manpower position) identified on a JMD by a supported CCDR to augment Joint Task Force staff operations during contingencies. A JIA will fill task force headquarters requirements; tactical-level deployment is not appropriate for JIA sourcing. Sourcing by JIA is meant to be the last method for obtaining manpow-

er for positions. This includes positions at permanent organizations required to satisfy an elevated mission in direct support of contingency operations.

Intermediate-level commands: include Marine Expeditionary Forces, Marine Expeditionary Brigades (when deployed), Marine Expeditionary Units, Marine divisions, Marine Aircraft Wings, Marine Logistics Groups, regiments, Marine Aircraft Groups, and Marine Expeditionary Force Headquarters Groups.

Line of effort (LOE): LOEs link major objectives and multiple tasks using logic of purpose to focus organizational efforts toward establishing and then achieving operational and strategic institutional goals unity of effort in operations involving multinational forces (MNFs) and civilian organizations, where unity of command is elusive, if not impractical.

Major objective (MO): MOs are clearly defined, attainable goals achieved through execution of critical tasks with measurable outcomes.

Manning: the portion of a unit's T/O&E which, within budgetary constraints, is authorized to be filled with Marines. The ASR determines Marine Corps manning.

Manning precedence level (MPL): MPL prioritizes the allocation of planned and available inventory against T/O requirements.

Marine Corps core competencies: the set of specific capabilities or activities fundamental to a Service or agency role. They define the essential contributions to the overall effectiveness of the Department of Defense and its unified commands. The Marine Corps' core competencies are:

- Conduct persistent forward naval engagement—always prepared to respond as the nation's force in readiness.
- Employ integrated combined arms across the range of military operations, able to operate as part of a joint or multinational force.
- Provide forces and specialized detachments for service aboard ships, on stations, and for operations ashore.
- Conduct joint forcible entry operations from the sea and develop amphibious landing force capabilities and doctrine.
- Conduct complex expeditionary operations in the urban littorals and other challenging environments.
- Lead joint and multinational operations, and enable interagency activities.

Marine Corps Enterprise Integration Plan (MCEIP): the Marine Corps' annually produced, fiscally tethered (through the program objective memorandum or POM), prescriptive plan capturing the objective capabilities analysis conducted across the strategically aligned and Marine Requirements Oversight Council, the approved Marine Corps capabilities base assessment process.

Marine Corps task list (MCTL): a comprehensive list of Marine Corps tasks, doctrinally based, designed to support current and future mission-essential task list development.

Marine Corps Total Force System (MCTFS): the authoritative source for unit personnel status used to determine assigned strength. It also records, processes, and maintains personnel and pay data for all active, reserve, and retired personnel.

Military occupational specialty (MOS): the grouping of duty positions requiring similar qualifications and the performance of closely related duties.

Mission: 1. The task, together with the purpose, that clearly indicates the action to be taken and the reason. 2. In common usage, especially when applied to lower military units, a duty assigned to an individual or unit; a task.

Mission-essential task list (METL): the list of a command's essential tasks with appropriate conditions and performance standards to assure successful mission accomplishment.

Nondeployable personnel: personnel assigned to a reporting unit that are not physically

present, cannot be present within the prescribed response time, or are restricted from deploying or employing with the unit. Note: nondeployable servicemembers degrade a unit's personnel strength. Nondeployable personnel are identified by the types of personnel using nondeployable codes.

Personnel rating (P-rating): a personnel resource rating determined by the lowest percentage between personnel strength and MOS fill.

Personnel tempo (PersTempo): PersTempo encompasses all days that Marines are not afforded a chance to return to their residence or billeting area at their assigned permanent duty station because of military commitments. Deployment or DepTempo and non-DepTempo compose the total sum of PersTempo.

Possessed/on-hand strength: total number of military personnel physically present with an organization, including personnel present for temporary duty.

Readiness: the ability of U.S. military forces to fight and meet the demands of the national military strategy. Readiness is the synthesis of two distinct but interrelated levels:

- *Unit readiness*: the ability to provide capabilities required by the combatant commanders to execute their assigned missions. This is derived from the ability of each unit to deliver the outputs for which it was designed.
- *Joint readiness*: the combatant commander's ability to integrate and synchronize ready combat and support forces to execute their assigned missions.

Military risk: the estimated probability and consequence of the Joint force's projected inability to achieve current or future military objectives (risk to mission).

- *Operational risk (risk to mission)*: reflects the current force's ability to attain current military objectives called for by the current NMS, within acceptable human, materiel, and financial costs. Operational risk is a function of the probability and consequence of failure to achieve mission objectives, while protecting the force from unacceptable losses. This risk subset considers the ability to execute current, planned, and contingency operations in the near term (0–2 years). The normal military planning process allocates enough time and dialogue to develop operational plans that can work in a war or crisis. These plans illuminate risks against known threats or crises. The collective assessment of these plans factors into risk assessment for the CRA, emerging crises, global force management, and other assessments, such as integrated priority lists (IPL). The secretary of defense's interim progress review planning process is one of the methods used to identify risks for future plans. The time-phased force deployment data (TPFDD) for each of these plans serves to identify and limit risk to the force. Plans without a verified TPFDD have more risk. Commanders consider the feasibility of these plans in conjunction with operational concerns to assess risk to a threat adequately.
- *Future challenges risk (risk to mission)*: reflects the future force's ability to achieve future mission objectives during the near and midterm (0–7 years) and considers the future force's capabilities and capacity to deter or defeat emerging or anticipated threats. Future challenges risk is a function of the probability and consequence of failure to meet future mission requirements.
- *Force management risk (risk to force)*: reflects a Service and/or Joint force provider's ability to generate trained and ready forces within established rotation ratios and surge capacities to meet current campaign and contingency mission requirements; force management risk is a function of the probability and consequence of not maintaining the appropriate force generation balance ("breaking

the force"). This risk subset considers the ability to execute plans today (e.g., "fight tonight" on the Korean peninsula) to contingency missions (e.g., potential conflict arising over an economic exclusion zone or a disputed territory) in the near to midterm (0–7 years).

- *Institutional risk (risk to force)*: reflects the ability of organization, command, management, and force development processes and infrastructure to plan for, enable, and improve national defense. Institutional risk is a function of the probability and consequence of the DOD or Services failing to perform established functions. The timeframe associated with this risk subset is much broader. All three time categories—near, mid, and far term—will impact institutional risk (0–20 years). It considers organization and process effectiveness, including the acquisition process, as well as program health, health of the force, and the defense industrial base.

Staffing: 1. The portion of manning to be filled with assignable inventory in accordance with the priorities established by the Commandant. As the HRDP owner, M&RA is then responsible for the staffing of units in accordance with the allowable manning as set forth in the ASR. 2. The objective of the staffing process is to make the optimal match of current assignable inventory to maximize the fill of staffing goals. The output of the staffing process is an individual assignment to a specific billet within a specific command.

Sourcing: actions taken by M&RA, MARFOR, SE, and MCICOM commanders to provide IAs to commanders requesting augmentation.

Table of organization and equipment (T/O&E): a document that prescribes the wartime mission, capabilities, organizational structure, and equipment and personnel requirements for military organizations.

Task organized unit: a temporary grouping of forces designed to accomplish a particular mission. Task organization involves the distribution of available assets to subordinate control headquarters by attachment or by placing assets in direct support or under the operational control of the subordinate.

Total Force Structure Management System (TFSMS): 1. TFMS is an enterprise system that combines manpower and equipment data for the purpose of managing the total force. The primary mission of TFSMS is to serve as the primary data source and business process engine for the activities defined in *Marine Corps Order 5311.1D*. 2. TFMS is the single, authoritative source that documents all force structure requirements and authorizations, including unit descriptive and geographic hierarchy data; billet descriptive and unit relationship data; principal end item (PEI) attributes, including AAOs and Unit AAOs; manning and staffing precedence levels; unfunded requirement quantities; and planned procurement quantities.

Wartime mission: the fundamental mission for which a unit was designed or organized. Wartime, core, and designed missions are the same.

Wartime requirements: doctrinally established requirements needed by type units to fully perform as designed and as part of the total force.

APPENDIX B
STAKEHOLDERS AND MISSION STATEMENTS

M&RA mission statement: 1. The mission of Manpower & Reserve Affairs is to assist the Assistant Commandant of the Marine Corps and the director, Marine Corps Staff, in the execution of the Human Resources Development Process (HRDP) by planning, directing, coordinating and managing the following: manpower assignment, planning, programming and budgeting policies; manpower information systems; military and civilian manpower management and administration; equal opportunity (EO) policies, programs, and activities; civilian personnel human resources management and policy; Marine and family programs; Semper Fit and Exchange services; assignment and distribution of Reserve military assets; and the functions of the Wounded Warrior Regiment.[91] 2. The M&RA Department employs an integrated manpower system across the Service enterprise that attracts, develops, retains, and supports our Marines, their families, and our civilian workforce as they pursue their professional aspirations and personal career goals to provide our commanders, the human "steel" necessary to fight and win the nation's battles.[92]

MCCDC/CD&I mission statement: MCCDC and CD&I fully integrate Marine Corps concepts and requirements-based warfighting capabilities; including doctrine, organization, training, materiel, leadership and education, personnel, and facilities to ensure the Marine Corps is properly organized, trained, and equipped now and in the future.[93]

PP&O Department mission statement: the Plans, Policies and Operations Department serves as the focal point for the interface between the Marine Corps and the Joint and combined activities of the JCS and the unified commanders in chief, and various allied and other foreign defense agencies; is responsible for coordinating the development and execution of Service plans and policies related to the structure, deployment, and employment of Marine Corps forces in general and is the Commandant's principal staff agency for the development and articulation of a wide spectrum of concepts, plans, and policies; and to direct and supervise execution and/or implementation of those policies and operational matters to include ground task force (MAGTF) matters; combat readiness; security matters; amphibious and prepositioning matters; the structure (combat element [CE] and ground combat element [GCE]), employment, and combat requirements of the FMF and certain base and station structures; and special operation/low intensity conflict matters, as well as directing the counternarcotics effort.

MARFORCOM mission statement: commander, U.S. Marine Corps Forces Command (COMMARFORCOM), commands active component (AC) Service-retained operating forces; executes Marine Corps force generation actions across the AC/RC components in provisioning of joint capable Marine Corps forces, and directs deployment planning and execution of Service-retained operating forces in support of combatant commander (GCC) and Service requirements; serves as commanding general, Fleet Marine Forces, Atlantic (FMFLANT) and commands embarked Marine Corps forces; coordinates Marine Corps-Navy integration of operational initiatives and advises commander, U.S. Fleet Forces Command (USFF) on support

[91] *FY17 Manpower and Reserve Affairs (M&RA) Table of Organization Report* (Quantico, VA: Total Force Structure Management Division, 2017), 2.
[92] *Organization of the United States Marine Corps,* MCRP 1-10.1 (Washington, DC: Headquarters Marine Corps, 2015), 2-1.
[93] *FY17 Marine Corps Combat Development Command (MCCDC) Table of Organization Report* (Quantico, VA: Total Force Structure Management Division, 2017), 2.

to Marine Corps forces assigned to U.S. Navy ships, bases, and installations; and conducts Service-directed operational tasks as required.[94]

1st Marine Division mission statement: the 1st Marine Division is a multirole, expeditionary ground combat force employed as the ground combat element of the I Marine Expeditionary Force. It may provide task-organized forces for assault operations and such operations as may be directed. The 1st Marine Division must be able to provide the ground amphibious forcible entry capability to the naval expeditionary force and to conduct subsequent land operations in any operational environment.

[94] *FY17 Plans, Policies and Operations Department Table of Organization Report*, 2.

APPENDIX C
LINES OF EFFORT

The *Force Development Strategic Plan's'* lines of effort "provide an organization-wide focus on the MCCDC/CD&I priorities established to most effectively achieve the Commandant's force development objectives."[95] It "depicts actions required to develop the future Marine Corps and manage the current Marine Corps are closely linked and addressed by a number of directives. The general framework of designing the force, building the force, preparing the force, generating the force, and employing the force are supported by the actions necessary to resource and assess the force."[96]

The LOEs and framework are missing the relationships to the other deputy commandants that are part of generating the force and the directives that govern their processes.

Table 1. Recommended summary of Service sourcing requirements

Reg. Category	Reg. Originator	Reg. Validator	Sourcing Coordinator	Requirement & Sourcing/Tracking Tools	Final Approval Authority
CCDR Operations	CCDR	JS J-35N	JS J-35S, DC PP&O, MARFORCOM	JCRM, LOGBOOK, USMC Force Synch PLAYBOOK GFMAP, MCBUL 3120	SecDef via SDOB
JIAs	CCDR	JS J-35N, JS J-1	JS J-35S, DC M&RA, MARFORCOM G-1	eJMPAS/JMDs, MFC JIA USMC Force Synch PLAYBOOK, MRTM, GFMAP, GFM-A	SecDef via SDOB
CCMD/Joint Exercises	CCDR	JS J-35S	MARFORCOM Joint & Service Training	JTIMS, USMC Force Synch PLAYBOOK MCBUL 3120, GFM-A	JS
ISA	Marine Corps Commands & Organizations	DC PP&O, DC M&RA	DC M&RA, MARFORCOM	MSG TRAFFIC, MRTM, GFM-A	CMC
MAGTF Augmentation	Operating Forces	MARFORs, DC PP&O	DC M&RA, DC PP&O, MARFORCOM	USMC Force Synch Playbook, GFM-A	CMC
Service Training	Operating Forces	DC PP&O	MARFORCOM Joint & Service Training	USMC Force Synch Playbook	CMC
Conventional Forces ISO MARSOC	USSOCOM, MARSOC	DC PP&O	DC PP&O, MARFORCOM	JCRM, GFMAP, USMC Force Synch Playbook	SecDef via SDOB
COMREL	USMC Communication	DC PP&O	MARFORCOM	MSG TRAFFIC, USMC Force Synch Playbook	CMC
Testing & Evaluation	MCWL, MCSC, MCOTEA	DC PP&O	MARFORCOM Joint & Service Training	USMC Force Synch Playbook	CMC

[95] *Force Development Strategic Plan* (Quantico, VA: Marine Corps Combat Development Command 2015), 11.
[96] *Force Development Strategic Plan*, 45.

BISOG	Operating Forces	DC PP&O	MARFORCOM, USFFC, OPNAV	USMC Force Synch Playbook	CMC
FAP	Installations	DC I&L, DC PP&O, MAR-FORCOM	DC I&L, MAR-FORCOM	GFM-A	CMC
Other	Other Government Organizations	DC PP&O	DC PP&O, MAR-FORCOM	USMC Force Synch Playbook	CMC

Source: *MCO 3120.12, Marine Corps Global Force Management (GFM) and Force Synchronization* (Washington, DC: Headquarters Marine Corps, 2015), 3-1.

APPENDIX D
DRRS-MC RECOMMENDED CHANGES TO NONDEPLOYABLE CATEGORIES

Tables 2 and 3 are the categories used to calculate the P-rating for monthly DRRS-MC reports. Table 4 provides recommended modifications to nondeployable categories to give a more accurate assessment of deployable personnel when a unit calculates their assigned mission.

Table 2. DRRS-MC deployable personnel categories
On duty in a billet that serves the overall mission of the command, including personnel attending local command schools
Temporary additional duty (TAD)
Fleet Assistance Program (FAP)
Terminal leave voluntary request to transfer FMCR (not at Service limit)
Annual leave
Deferred hostile fire
Restricted as result to nonjudicial punishment
Assigned but not departed for next duty station (PCS)
Insufficient security clearance
Exceptional family member
Request retirement
Retirement approved (voluntary request, not at service limits)
Request resignation
Resignation approved

MCO 3000.13A, Marine Corps Readiness Reporting, Appendix A, Amplifying Guidance, table A-1.

Table 3. DRRS-MC nondeployable personnel categories
Medical
Medically intermediate personnel
Not medically ready personnel
Administrative
End of active service (EAS) within 7 days
Home awaiting orders (PEB)
Mandatory retirement within 90 days
Awaiting administrative separation disposition by separation authority other than for expiration of enlistment or fulfillment of service obligation
Unauthorized absence
Absentee or deserter
Captured or prisoner of war
Missing in action
Sole surviving son or daughter
Hazardous area restrictions
Undergoing primary MOS training/school
Humanitarian transfer or temporary additional duty
Hardship discharge approved

Legal
Confined, awaiting action by higher authority
Confined, awaiting trial by general court-martial
Confined, serving sentence from general court-martial
Involuntary hold beyond EAS as a court-martial prisoner
On leave, awaiting results of appellate review
In the hands of civilian authorities

MCO 3000.13A, Marine Corps Readiness Reporting, Appendix A, Amplifying Guidance, table A-1.

Table 4. Additional nondeployable categories for assigned mission
On dwell 1:1 [1]
On dwell 1:2 [2]
End of Active Service—cutoff for deployment [3]
Fleet Assistance Program (FAP) [4]
Terminal leave voluntary request to transfer FMCR (not at Service limit)[5]
Assigned, but not departed for next duty station (PCS)[5]
Insufficient security clearance[5]
Request retirement[5]
Retirement approved (voluntary request, not at service limits)[5]
Request resignation[5]
Resignation approved[5]

[1] The secretary of defense's goal for operational deployment-to-dwell is 1:2; the operational deployment-to-dwell ratio threshold is 1:1. Secretary of defense approval is required to deploy a unit, detachment, or individual to deploy with a 1:1 ratio or less. An individual may voluntarily waive their deployment-to-dwell threshold submitting an administrative action form (NAVMC 10274) to the first general/flag officer in the chain of command of the parent organization.

[2] PersTempo refers to the amount of time servicemembers serve on official duty at a location or under circumstances that make it infeasible for them to spend off-duty time in the housing in which they reside. The secretary of defense has tasked the Service to set "measurable thresholds on PersTempo and collect reliable data to monitor PersTempo."

[3] When a unit has an assigned GFM mission, there is an EAS cut of determined by MMIB that feed the unit's deployment staffing plan. Marines must have prescribed time on contract to be considered deployable for that battalion.

[4] If the study conducted by PP&O identifies FAP billets that are critical to maintain during conduct of MCO, they should be subtracted from the available population.

[5] Categories highlighted in red are currently considered deployable personnel when calculating the P-rating for both core and assigned mission.

Source: *ALMAR 026/01, Marine Corps Deployment Tempo (DEPTEMPO) Policy Guidance* (Washington, DC: Headquarters Marine Corps, 12 May 2008).

Training Millennial Soldiers for Intercultural Communication Competence

By Major Angela Sutton, New Zealand Army[1]

INTRODUCTION

In a country full of civil unrest and heading toward independence, there sits a small district with no infrastructure, no electricity, houses made of mud and straw, and only word of mouth for news. Citizens of this district live in fear of militia and armed soldiers raiding their village, killing their families, and burning their houses. They do not speak English; yet, to add to their stress, a large English-speaking military unit arrives and occupies their village. Militaries worldwide are faced with this situation all too often; the way in which the military engages and interacts with the local population is key to the success of their mission and the safety of the villagers. The ability to communicate effectively across cultures is a vital skill of any soldier in today's world.

Interpersonal communication has been an essential part of building relationships since the start of time. The way in which individuals interact with each other and within society is key to understanding one another and building rapport. This task becomes increasingly difficult when engaging with people from another culture. The lack of a shared language and cultural traits makes it even more important for people to possess well developed interpersonal skills. The New Zealand Army interacts on a regular basis with people from many different cultures and environments, and soldiers are required to develop relationships with different people to achieve their mission. A significant portion of New Zealand's Army personnel deploying on operations are from the millennial generation or Generation Y—those born between 1978 and 1997. This generation, also referred to as the "net generation" or the "tethered generation," has grown up with technology and relies heavily on it for everyday life.[2] This reliance on technology is to the detriment of other key soft skills required to work in today's society.

Evidence suggests that millennials have a decreased ability to effectively communicate interpersonally, which has and will continue to have negative effects on the New Zealand Army. The chapter discusses how the reliance on technology has contributed to this negative effect and concludes with recommendations for an interpersonal communication training package that draws from best practices used in successful programs around the world.

THE EMERGENCE OF TECHNOLOGY AND GENERATION Y

Generation Y has grown up with technology; they have seen the change from home computers

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[2] Don Tapscott, *Grown Up Digital: How the Net Generation Is Changing Your World* (New York: McGraw Hill, 2009), 16.

to laptops through to personal mobile devices, such as smart phones. This development and the ability to be connected at all times has shaped this generation's values, attitudes, and beliefs.[3] The generation, often referred to as "generation me," is not afraid to share their entire life via the internet; some claim millennials have multiple identities, or the ability to renew and modify their identity easily.[4] They have complete lives within social media websites, often communicating with friends they have never met face-to-face.

Research conducted into millennials' social media use identified both positive and negative impacts. The positive impacts include a sense of community, means to socialize, sense of optimism, resourcefulness, and increased self-esteem.[5] However, the dark side of this usage can have a negative impact on their psychological, emotional, and physical well-being as well as their social development.[6]

Growing up "bathed in bits" has made them great multitaskers; most millennials can quite comfortably conduct numerous different activities at once, easily shifting focus from one task to the next. This ability to switch focus faster does not make them better thinkers than members of previous generations or make them able to think critically.[7] This reliance on technology is actually degrading the generation's ability to think critically within a situation. This generation would rather "google" than think about the issue; that, in itself, has a negative impact on the military when soldiers are presented with a situation that they need to solve without technology.[8] In addition to degraded thinking skills, the millennials suffer from a lack of traditional interpersonal communication skills, and the effects are felt throughout society. Communication and social interaction skills are defined as a set or sequence of behaviors that a person exhibits or can exhibit, for example, asking questions or making eye contact. Whether these skills are perceived to be appropriate, effective, and successful is a matter of competence.[9]

HISTORICAL OVERVIEW OF INTERCULTURAL COMMUNICATION IN THE NEW ZEALAND ARMY

One of the key outputs of the Army is peacekeeping. This requires soldiers to engage with different personnel from various cultural backgrounds. Historically, New Zealand has excelled in this area, engaging with different cultures and building relationships comes easily to most New Zealanders who come from a culturally diverse country.[10] In 1999, the New Zealand government sent a battalion-size force to East Timor, Southeast Asia, as part of a United Nations authorized multinational force named International Force East Timor (INTERFET) to restore peace and security to the country. This commitment lasted from 1999 to 2002, seeing New Zealand naval, air, and land forces deploy to support INTERFET and then United Nations Transitional Administration in East Timor (UNTAET). The force initially deployed to fight a conventional war, if required. As the operation progressed and peace was restored, the force was redistributed to adapt to the task.[11]

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[3] John Palfrey and Urs Gasser, *Born Digital: Understanding the First Generation of Digital Natives* (New York: Basic Books, 2008) 21.

[4] Palfrey and Gasser, *Born Digital*, 21.

[5] Jim A. Ruth, "An Examination of the Impact of the Big Five Personality Traits and Work Environment on the Leadership Behaviors of Millennial Generation Employees" (PhD diss., Capella University, May 2015), 2.

[6] Ruth N. Bolton et al., "Understanding Generation Y and their use of Social Media: A Review and Research Agenda," *Journal of Service Management* 24, no. 3 (2013): 245–67, https://doi.org/10.1108/09564231311326987.

[7] Tapscott, *Grown Up Digital*, 106.

[8] Tapscott, *Grown Up Digital*, 115.

[9] John O. Greene and Brant R. Burleson, eds., *Handbook of Communication and Social Interaction Skills* (Mahwah, NJ: Lawrence Erlbaum, 2003), 99.

[10] *Foreign Affairs* (Wellington, NZ: New Zealand Labour Party, 2017), 2.

[11] Anthony Hayward, *East Timor: A Case Study in Human Intervention*, Occasional Paper 2003/2 (Upper Hutt, NZ: Military Studies Institute, 2003), 3.

The mortar platoon was reorganized as a civil military affairs (CMA) platoon during the second rotation. The commander of the fifth rotation (NZBATT 5), Lieutenant Colonel Anthony M. Hayward, identified the key to success in this situation was to bridge the gap between military and the local population by using the CMA platoon.[12] They had received limited language and cultural training during predeployment training. The platoon was made up predominantly of Generation X soldiers (born mid-1960s to early 1980s), coming from an era where smartphones did not exist, the internet was not in everyone's living room, and communal living was a way of life. Soldiers shared bedrooms, common rooms, and living spaces, spending time playing sports and games or watching television together to pass time. This is an extreme contrast to Generations Y and Z (born mid-1900s to mid-2000s), who tend to revert to their cyber network of friends at any opportunity.

The dawn of the digital era occurred during the late 1980s early 1990s, making millennials digital natives and older generations immigrants. Generation X are often referred to as digital immigrants as the digital age took hold during this generation's childhood.[13] Generation X soldiers grew up in families and a society where spending time together and interacting with people was the norm, and interpersonal skills were well refined due to the upbringing and requirement to engage face-to-face with people. Generation X adapted the new technology into their lives as it advanced. This group of soldiers that formed the CMA platoon of NZBATT 5 were highly successful in the tasks set out for them. As stated by Lieutenant Colonel Hayward, potentially overachieving what was required, the unit was able to engage face-to-face with the local community, a community where English was not spoken and where a traditional home was made of mud.

The Generation X soldiers were able to build relationships with villagers and gain trust, aiding in the development of the local district.[14] The unit identified and completed a variety of tasks, always in conjunction with the local community. Tasks included rebuilding classrooms, medical clinics, constructing village notice boards, repairing and upgrading village water points, running a district football competition, and running training for the local communities. All of these tasks were led by soldiers who did not necessarily have the hard skills required but had well developed soft skills that allowed them to interact with the different cultures, build rapport and trust, and get the local community to assist willingly.[15] Lieutenant Colonel Hayward identified that, although the tasks the unit conducted were not necessarily military, they went a long way to rebuild the district and bring peace and security to the country—the overall mission of the force.

LITERATURE REVIEW

Preview

With the established background into the types of employment the New Zealand Army has historically faced and will continue to face, this chapter will look at the millennial soldier, their characteristics, and their reliance on technology; further, it will hone in on their lack of interpersonal communication skills. The chapter will then look at how this increased reliance on technology and lack of interpersonal skills have a negative impact on mission success and the development of intercultural competence within the military. The chapter continues by examining what other organizations, schools, and militaries are doing to address the communication issue of Generation Y and concludes with a recommendation for the New Zealand Army to ensure

[12] Hayward, *East Timor*, 9.

[13] David D. Burstein, *Fast Future: How the Millennial Generation Is Shaping Our World* (Boston, MA: Beacon Press, 2013), 57.

[14] Burstein, *Fast Future*, 12.

[15] Burstein, *Fast Future*, 13.

that Generation Y and Z soldiers are appropriately trained and mentally equipped to engage with a variety of cultures face-to-face in the future.

Millennial Characteristics

Neil Howe and William Strauss describe generations as a cohort group of people whose length approximates the span of a phase of life and where peer personality defines boundaries.[16] Basically, a generation is a group of people who come of age at a similar time and who have shared life experiences. There are currently four generations that make up the workforce: Baby Boomers, Generation X, Generation Y, and Generation Z. Each generation has its own set of characteristics and values, which often collide between the groups. Generation Y, also referred to as millennials, the net generation, and the echo boomers were born between 1978 and 1997, coming of age in some way at the turn of the millennium. Currently the largest generation in the United States, they are different from any previous generation as they grew up in an age where technology and the internet were readily accessible. They are bathed in bits, owning numerous mobile devices from laptops to iPhones and iPads, they have the ability to surf the web, take photographs, and get GPS coordinates or update their social activity anywhere, anytime.[17] Generation Y experienced significant world events during their upbringing, which shaped the way they view the world today. They grew up with the Gulf War, the terrorist attacks of 9/11, the Iraq and Afghanistan wars, mass school shootings, and the Exxon Valdez oil spill. This seemingly unlimited access to limitless amounts of information is what has led to the "smartest" generation characterization.[18]

Lynne C. Lancaster and David Stillman have studied the millennials and identified seven trends that make up Generation Y: parenting, entitlement, meaning, great expectations, the need for speed, social networking, and collaboration.[19] Similar trends were identified by Diane E. Spiegel, where she explains helicopter parents in her book *The Generation Y Handbook*. The *helicopter parent* is one who pays extremely close attention to their children to the point of interfering in their work, college, and professional relationships.[20] According to Spiegel, the millennials have grown up with this style of parenting and expect their leaders and supervisors to take over this role, constantly giving them feedback and coaching.

Social networking is a key aspect of the net generation that is causing concern worldwide. The millennials have grown up with information available in an instant, and this has taught them to communicate differently from previous generations. They post, chat, make friends, and blog about all sorts of topics without ever meeting people face-to-face.[21] Jean M. Twenge acknowledges these traits and suggests that smartphones are destroying a generation. She looks at Generation Z, which she refers to as the *iGen* and suggests that they are addicted to their devices, which is causing higher rates of depression and suicide.[22] Statistical data has spiked with regard to this generation feeling lonely, not spending time with friends, and not going on dates. Twenge notes that the addiction to smartphones has created a generation with limited experience in face-

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[16] Neil Howe and William Strauss, *Generations: The History of America's Future, 1584 to 2069* (New York: William Morrow, 1991), 60.
[17] Tapscott, *Grown Up Digital*, 15.
[18] Tapscott, *Grown Up Digital*. 16.
[19] Lynne C. Lancaster and David Stillman, *The M-factor: How the Millennial Generation Is Rocking the Workplace* (New York: HarperCollins, 2010), 6.
[20] Diane. E. Spiegel, *Gen Y Handbook: Applying Relationship Leadership to Engage Millennials* (New York: Select Books, 2013), 20.
[21] Lancaster and Stillman, *The M-factor*, 8.
[22] Jean M. Twenge, "Have Smartphones Destroyed a Generation?," *Atlantic*, September 2017, 58–65.

to-face interaction and persistent struggles to engage interpersonally.[23] Chief executive officer and founder of Facebook, Mark Zuckerberg identified that social media was taking over people's lives. He announced changes to Facebook in January 2018 that cost him financially. The changes will ensure people use Facebook for "meaningful interactions," his intent being to bring people together.[24]

Millennials' Lack Interpersonal Skills

There is no debate that millennials are technologically savvy, and this brings many positive aspects to the workplace. However, this tech savviness brings some negative aspects to the workplace as well. A survey conducted by PricewaterhouseCoopers identified that this technologically savvy generation avoids face time, with 41 percent surveyed saying they prefer to communicate at work via a device, as opposed to face-to-face or over the phone.[25] This observation is echoed by Giles Slade in *The Big Disconnect*.[26] Slade explains how technology is making the world a lonely place. Although it does not necessarily target millennials alone, it identifies that the reliance on technology in society is to the detriment of face-to-face engagement and relationships. Slade also states that the digital evolution in our brain is increasing social isolation and the ability to seek out interpersonal relationships, which is causing an increase in depression and a society that depends heavily on technology for companionship.[27]

Michael Diercksen et al. predicted that there would be a decline in interpersonal skills due to the heavy reliance on smartphones.[28] This lack of interpersonal skills has a negative effective in the workplace, such as relationship building, the transfer of knowledge, and open work discussions.[29] This lack of personal communication skills or *soft skills* has been identified throughout numerous studies. Bruce Tulgan, author of multiple books regarding soft skills training, concludes that there is an "ever widening" soft skills gap in the workforce brought in with young employees.[30] Lindsey Pollack, author of *Becoming the Boss*, also states that face-to-face interaction does not come naturally to Generation Y, as they were bought up around technology. She provides a guide for millennials in leadership positions with one chapter dedicated to communication.[31] Meola conducted research and identified the same issue and recommended Equine Assisted Learning (EAL) for millennials. The recommendation is for millennials to participate in training with horses to help develop their self-awareness, self-confidence, leadership, and communication skills. She believes that this will teach millennials the soft skills required to fit into the workplace.[32]

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[23] Twenge, "Has the Smartphone Destroyed a Generation?"

[24] Matt Weinberger, "Mark Zuckerberg Just Made a Sweeping Change to Facebook that Will Affect 2 Billion People and Tons of Businesses," *Business Insider*, 12 January 2018.

[25] *Growth Reimagined: Prospects in Emerging Markets Drive CEO Confidence*, PWC 14th Annual Global CEO Survey (London: PricewaterhouseCoopers, 2011), 8.

[26] Giles Slade, *The Big Disconnect: The Story of Technology and Loneliness* (Amherst, NY: Prometheus Books, 2012), 237.

[27] Slade, *The Big Disconnect*, 237.

[28] Michael Diercksen et al., "Generational Differences in Use of Social Media in Today's Workplace," *Psychology Research* 3, no. 12 (2013): 762–71.

[29] Amanda L. Kick et al., "How Generation Z's Reliance on Digital Communication Can Affect Future Workplace Relationships," *Competition Forum* 13, no. 2 (1 July 2015): 216.

[30] Bruce Tulgan, "Bridging the Millennial Soft Skills Gap," *Government Executive* (2015): 1.

[31] Lindsey Pollack, *Becoming the Boss: New Rules for the Next Generation of Leaders* (New York: HarperCollins Publishers, 2014), 120.

[32] Cheryl C. Meola, "The Effects of an Equine Assisted Learning Supervision Intervention on Counselors'-in-Training Performance Anxiety, Counseling Self-Efficacy, and Supervisory Working Alliance" (PhD diss., East Carolina University, 2017).

Negative Impacts on Mission Effectiveness

The increased reliance on technology by millennials comes at a cost, specifically a decreased ability to communicate in person. This lack of basic skills is having a negative impact on work forces and militaries worldwide. The authors of "Military of Millennials" identify how millennials are a generation of knowledge sharers, which could be harmful to the military, operations, and to Generation Y's subordinates. The authors characterize millennials as technologically savvy, open minded, able to multitask but suggests they are unprepared for command.[33] This concern is also felt within the U.S. Coast Guard, where they have noticed that there is a heavy reliance on technology to communicate, often circumnavigating the chain of command.[34] In a military organization that operates within chains of command, this trait will have negative impacts on operations.

Major Andrew B. Stipp writes about his observations as a company commander in "Leading Soldiers With—Not Primarily Through—Communication Technology." Stipps's soldiers would rely on their cell phones as their "power bases" and not engage in face-to-face interaction. He would ban cell phones during work hours to encourage soldiers to develop the necessary communication skills to deal with real life situations, such as the one he found himself in when having to tell a soldier's mother that the boy had passed away, a task that could only be done face to face.[35]

The amount of time millennials spend online masks the fact that they have a deficit in interpersonal skills and the ability to manage and negotiate conflict. This will affect the military's ability to do its job of winning hearts and minds, a key role for New Zealand's soldiers on operations.[36] Lieutenant Colonel Robert M. Hill echoes this and states how interpersonal engagement is an indispensable warrior skill. He argues that today's world is a culture of engagement requiring good interpersonal communication skills to survive. The warrior of today must operate in the human domain and must engage with other cultures interpersonally to succeed.[37] Colonel McFarland supports this and highlights the need for cultural education. He addresses the fact that mission success is often significantly affected by a soldier's ability to interact with local individuals and communities.[38] The Department of Defense has identified the importance of intercultural competence with regard to improving mission effectiveness and has established culture centers around the United States for all branches of Service. The Defense Language and National Security Education Office offers a website to share all services, training, and educational resources.[39] Dozens of intercultural communication books have emerged during the past several decades to acknowledge the importance of this essential skill. Inherent to intercultural communication competence is being able to interact effectively and appropriately verbally as well as nonverbally.[40] In the realm of leadership, researchers with GLOBE (Global Leadership & Organizational Behavior Effectiveness) surveyed thousands of managers and CEOs in 62

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[33] Art Fritzson et al., "Military of Millennials," *Strategy + Business*, 2007, 4.

[34] Cdr Darcie Cunningham, USCG, "Now Hear This—Millennials Bring a New Mentality: Does It Fit?," U.S. Naval Institute *Proceedings* 140, no. 8 (2014): 338.

[35] Andrew Stipp, "Leading Soldiers with—Not Primarily Through—Communication Technology," *Military Review* 95, no. 6 (1 November 2015): 101.

[36] Fritzson et al., "Military of Millennials," 4.

[37] Robert Hill, "Interpersonal Engagement: The Indispensable Warrior Skill," *Military Review* 95, no. 5 (September–October 2015): 50.

[38] Col Maxie McFarland, USA (Ret), "Military Cultural Education," *Infantry* 94, no. 3 (2005): 40.

[39] Defense Language and National Security Education Office website, accessed 11 February 2018.

[40] Stephen Holmes, *Intercultural Communication and Dialogue Process: An Attempt at Clarification and Synthesis* (Berlin: International Society for Diversity Management, 2007): 4 ; Greene and Burleson, *Handbook of Communication and Social Interaction Skills*; and Daniel Druckman and Johns A. Swets, eds., *Enhancing Human Performance: Issues, Theories, and Techniques* (Washington, DC: National Academies Press, 1988).

different societies to examine attributes of leadership, and they identified that good communication skills are key to leadership effectiveness and are valued universally.[41] The importance of intercultural communication competence has been identified in studies worldwide and serves as a reminder that this capability needs to be deliberately trained and developed regardless of age or career field.

Current Practices to Manage Millennials

As previously mentioned, many organizations that have identified the lack of interpersonal communication skills in millennials have suggested training, such as equine assisted learning programs or cultural training. The United Kingdom's Ministry of Defence has produced a guide that highlights the importance of interpersonal communication for leaders. The guide emphasizes the need to be understood and have good nonverbal communication and negotiating skills. It underscores the need for a leader to develop themselves and others; leaders should build teams and empower their soldiers, all traits that require good personal communication skills.[42] The Romanian armed forces have identified the same issue and have investigated ways in which to best train their soldiers for stability and support operations. They require their soldiers to be have good intercultural communication competence to be successful.[43]

The need for generational culture training has been identified by the U.S. Air Force as well. In her report *Gaining the Edge*, Lieutenant Colonel Kay A. Smith reviews the different generations and recommends that Air Force recruitment personnel conduct generational cultural training to better understand and recruit millennials.[44] Lieutenant General Michael A. Vane identifies a similar need for the U.S. Army, suggesting that cultural awareness training and negotiation training is conducted for the millennial generation.[45]

Civilian organizations also have identified the issue and provide a variety of training to overcome the lack of interpersonal communication skills seen in today's society, with training packages designed and developed to specially target the millennial generation.[46] The U.S. Marine Corps considered that everyone communicates but few connect. To get more Marines to connect, Captain John M. Bailey suggests the Marine Corps conduct interpersonal skills development training while at The Basic School, Marine Corps Base Quantico, to overcome some of the challenges that millennials are facing. The author suggests that the Marine Corps Recruiting Command's *Marine Corps Communication, Coaching and Counselling* (MC4) training package be implemented.[47]

IMPACTS ON MISSION EFFECTIVENESS FROM THE RELIANCE ON TECHNOLOGY

Reliance on technology is not limited to Generations Y and Z; many generations have some sort of reliance on technology. The difference with Generation Y and Z is that this reliance has been with them since birth; therefore, unlike the older generations, they have had no time to

[41] Robert J. House et al., eds., *Culture, Leadership, and Organizations: The GLOBE Study of 62 Societies* (Thousand Oaks, CA: Sage, 2014), 1.
[42] *Developing Leaders: A British Army Guide*, 1st ed. (Surrey: Royal Military Academy Sandhurst, 2014), 18.
[43] Polixenia Olar, "The Development of the Intercultural Communication Competence of the Romanian Militaries Participating in Stability and Support Operations—the Main Goal of the Military Institution" (working paper, National Defence University, 1 May 2013).
[44] Kay A. Smith, *Gaining the Edge: Connecting with the Millennials* (research report, Air War College, Air University, 2008), 18.
[45] Michael A. Vane, "New Norms for the 21st Century Soldier," *Military Review* 91, no. 4 (July 2011): 16.
[46] Roy Saunderson, "Sharpening Soft Skills with Situational Learning," *Training* 54, no. 5 (September 2017): 62.
[47] John M. Bailey, "Interpersonal Skill Development," *Marine Corps Gazette* 100, no. 7 (July 2016): 10.

develop the necessary basic soft skills to adapt to a situation where technology is not available or when required to engage face to face. This lack of soft skills affects not only work forces but also schools and society. Relationships are a key aspect of any workforce, and the inability for millennials to build and develop relationships has been noted. One of the key reasons for this inability to build relationships is a lack of interpersonal communication skills. If employees and supervisors do not engage in effective communication, performance may suffer and conflict may rise. The other issue in the workforce is that millennials do not have the soft skills or emotional intelligence to see how they are being perceived by other generations as they continually look at their smartphones. Being able to communicate effectively is key in the work place as it is the only way to share knowledge between generations and employees.[48]

The effects of technology and millennials is affecting schools as well. The emotional attachment to smartphones prevents students from focusing in the classroom, and their inability to communicate face-to-face is having a detrimental effect on learning from older generational teachers. The millennial student's primary communication skills rely on text or email as opposed to face-to-face engagement, therefore traditional lecture-style teaching is not going to appeal to millennials. Some schools have taken a "flipped classroom" approach to make the most of their time with millennial students. They provide the course material electronically then hold a Socratic-method style class, where students are forced to discuss and share their thoughts, assisting the development of the interpersonal communication skills as well as their academic ability.[49]

There are also negative side effects felt throughout society and communities. Face-to-face engagement has declined. People often waste time on the internet or their smartphone without positive purpose, surfing the web, watching YouTube, and playing games. This is often at the expense of quality family time, attending events, or being physically active and playing sports. Current research suggests that those age 18–33 years are prone to feelings of anxiety and inferiority by being exposed to friends' social media feeds. The fear of missing out (or FOMO) is becoming more prevalent as people constantly check social media and realize they missed out on an event. Psychologists suggest this could be a form of cognitive distortion that leads people to believe that their friends do not like them.[50] Additional negative effects felt throughout society are the rise in cyber crimes, particularly cyber bullying, and in numerous cases this has led to children committing suicide. Although technology has advanced the world and been a large player in globalization, the negative effects are not only being felt in the workforce. Societies, schools, and militaries are currently dealing with the dark side of the net.

SKILLS REQUIRED FOR SOLDIERS OPERATING IN A MULTICULTURAL ENVIRONMENT

For a CMA element or any military element to engage and interact with members of another culture, the soldiers require good soft skills. The primary criteria for intercultural communication competence are appropriateness, following relational and social expectations and norms, and effectiveness, achieving one's goals. Mindfulness is another important aspect when communicating across cultural boundaries. The person must be mindful of their own cultural communication assumptions, cognitions, and emotions while becoming attuned to the other culture's assump-

[48] Kick et al., "How Generation Z's Reliance on Digital Communication Can Affect Future Workplace Relationships," 216.

[49] Lindsey A. Gibson and William A. Sodeman, "Millennials and Technology: Addressing the Communication Gap in Education and Practice," *Organization Development Journal* 32, no. 4 (Winter 2014): 63.

[50] Justin White, "Research Finds Link between Social Media and the 'Fear of Missing Out'," *Washington Post*, 8 July 2013.

tions, cognitions, and emotions.[51] To achieve intercultural competence, research indicates that there are five key components an individual must master: motivation to communicate, an appropriate amount of cultural knowledge, appropriate and effective communication skills, sensitivity, and character.[52]

An individual must be *motivated to communicate* in person, face-to-face. The person must want to engage and not do so due to their role in the military. Motivation is one of the key competencies and the easiest to understand. The person must be motivated to go outside their own personal boundaries when engaging with other cultures and must be enthusiastic to understand and communicate.

The second key element is the ability to *acquire and understand cultural knowledge*, also known as *cultural metacognition*. Culture is an integrated system of socially acquired values, traditions, language, rules, and behaviors within a society.[53] The individual must have a good understanding of not only their own culture but that of the community they are engaging with. Acquiring new cultural knowledge requires an individual to be self-aware, to conduct their own learning, and to be adaptable. Cultures can be learned and shared; one of the best ways to understand a culture is to be immersed in that culture. By being immersed in the community, the soldier will have learned first-hand the beliefs and values of that population, something that is key to information operations.[54]

With an understanding of the culture, the soldier must possess the third component, communication skills, to be interculturally competent. *Communication skills* refer to the ability to be able to listen, observe, interpret, analyze, and apply certain behaviors to a particular situation. Good communication skills in one culture do not necessarily mean that those skills will be good in another culture. The effective communicator must be able to adapt their skills as appropriate to interact effectively with someone from a different culture. The lack of communication skills identified in the millennial generation will hinder its members from being interculturally competent, especially if they spend more time looking at screens than at people, unless these skills are developed.

The fourth component is *sensitivity*. With the motivation, knowledge, and skills the individual needs to have the sensitivity to apply these appropriately. Sensitivity in relation to cultural interactions involves the individual being flexible, empathetic, patient, curious about the other culture, comfortable with others, and open to diversity. The soldier must be sensitive to others and also to the culture itself. They must be tolerant of ambiguity and not get frustrated when an encounter or behavior seems strange or different to their own culture. A truly sensitive communicator will move beyond the basics and display a positive attitude toward the group that is different from their own.[55]

The final component that displays intercultural competence is character. *Character* is a combination of qualities that distinguishes one person from another. A person to be of good character generally displays traits, such as integrity, honesty, loyalty, self-sacrifice, accountability,

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[51] Stella Ting-Toomey, "Intercultural Conflict Competence as a Facet of Intercultural Competence Development: Multiple Conceptual Approaches," in *The Sage handbook of Intercultural Competence*, ed. Darla K. Deardorff (Thousand Oaks, CA: Sage, 2009), 104.

[52] Natasa Bakic-Miric, *An Integrated Approach to Intercultural Communication* (Newcastle upon Tyne: Cambridge Scholars Publishing, 2012), 53.

[53] Vane, "New Norms for the 21st Century Soldier," 18.

[54] *Insurgencies and Countering Insurgencies*, FM 3-24/MCWP 3-33.5 (Washington, DC: Department of the Army, 2014), 3-4.

[55] Bakic-Miric, *An Integrated Approach to Intercultural Communication*, 54.

and self-control.[56] If a person is perceived to be of bad character, the chance of success when communicating will be limited.

To be a competent communicator across different cultures, an individual must possess all five key components. As identified, Generation Y soldiers do lack the interpersonal communication skills to be interculturally competent; fortunately for the millennial and mission success, this component can be trained.

RECOMMENDATIONS

What Skills Are Required?

Of the five key components required to possess intercultural communication competence, the key component significantly lacking in the millennial generation is communication skills. The other four components can be trained through various predeployment trainings; however, communication skills need to be mastered early and developed throughout a soldier's career. Based on the work of Brian H. Spitzberg and William R. Cupach, it is recommended that soldiers be required to be trained in five components of interpersonal communication: alter centrism, coordination, composure, expressiveness, and adaption.[57]

Alter centrisms are those behaviors that show that the soldier is interested in, concerned about, and paying attention to the person they are interacting with.[58] This is a skill that will take time for some millennials to master, as their tendency is to multitask with technology and personal communication, often coming across as not paying attention or focused on the person they are engaged with. Appropriate body language, maintaining eye contact, asking questions, and active listening are all indictors that someone is paying attention to another. The millennial can be taught all these skills.

The second communication skill that should be trained is *conversational coordination*, or the ability to make conversation flow. This requires the communicator to create smooth initiation, conclusion, and transitions between conversation topics. They must avoid interruptions, provide feedback cues, and transition with ease between themes.[59] Being able to ensure that a conversation flows smoothly is a key skill that must be trained in order to allow for a relaxed encounter that does not feel forced or unwanted.

The third communication aspect that millennials must be trained in is composure while conversing with those from other cultures. The soldier should reflect calmness and confidence in their demeanor, avoiding ticks, twitches, and nervous movements but appearing relaxed and comfortable in the environment.[60] A soldier who is composed while communicating will come off as self-confident, assertive, and in control of the situation, making the local population feel at ease and relaxed.

The fourth aspect, expressiveness, must be trained but employed with giving consideration to the local culture. *Expressiveness* is the ability to adjust one's vocal tone and pitch, use appropriate gestures, smile, and display both verbal and nonverbal feedback during the engagement.[61] Being able to effectively express oneself during an engagement where the same language is not spoken is a key skill for soldiers to gain trust and build rapport with the local population.

The final aspect of communication skills that millennial soldiers must master in order to have

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[56] Jim Rohn, "Rohn: 6 Essential Traits of Good Character," *Success*, 9 October 2016.
[57] Brian H. Spitzberg and William R. Cupach, *Interpersonal Communication Competence*, Series in Interpersonal Communication, vol. 4 (Beverly Hills, CA: Sage, 1984), 384.
[58] Spitzberg and Cupach, *Interpersonal Communication Competence*, 384.
[59] Spitzberg, and Cupach, *Interpersonal Communication Competence*, 385.
[60] Spitzberg, and Cupach, *Interpersonal Communication Competence*, 385.
[61] Spitzberg, and Cupach, *Interpersonal Communication Competence*, 385.

intercultural communication competence is adaptation. *Adaptation* involves different aspects, the first being that the soldier is able to subtly change their behavior to be like that of the culture they are immersed; the ability to mirror the cultural behaviors and norms. The second aspect of adaption is the ability for the soldier to keep their verbal and nonverbal actions consistent while maintaining personal alter centrism, coordination, composure, and expressiveness. To be fully proficient at intercultural communication the soldier must be able to maintain a balance between their own goals and behaviors with that of the other person, so as not to be egocentric.[62] To communicate effectively and appropriately across cultures, millennial soldiers must be trained and proficient in these skills. Once developed, these skills must be maintained through ongoing training and education.

How to Train These Skills

The Corps identified that Marines working at recruiting stations required additional skills to engage with and recruit American youths, the Generation Y and Z of society. In consultation with previous recruiters, recruiter instructors, recruiter school instructors, and national training team members, the Marine Corps developed and implemented the Marine Corps Communication and Consulting (MC3) package, a four-day professional training program designed to leverage and enhance the communication and sales skills of Marine recruiters. The MC3 package is broken down into two main parts: communication skills and consulting skills. The effective communication skills aspect teaches essential soft skills required in all Marines and soldiers. The module is broken down further into "build rapport" and "listen with purpose."[63]

MC3 defines building rapport as developing a relationship through interpersonal skills to facilitate trust and an honest exchange of information. MC3 stresses that it is important to build rapport immediately and keep doing so during the engagement. The guide has a subsection of building rapid rapport where they teach Marines to look for visual cues to build rapport quickly. This could be a sports team on the person's T-shirt, food they are eating, or an item they are carrying. MC3 states that to build rapport, you must find common ground, demonstrate Corps values, and match and mirror. The recruiters are taught about what is not appropriate while building rapport, such as inappropriate words, humor, or sexual references, intimidation, and sounding robotic.[64]

The ability to *match and mirror* someone's gestures, stance, and mannerisms puts people at ease. Research suggests that if someone mirrors another's actions, the person being mirrored feels like they have something in common and it becomes easier to like the new person, building trust and rapport subconsciously.[65] Building rapport is an essential basic skill for anybody that lives and works in a community, and it is even more important for soldiers who deploy to another country with a different cultural background and different language. The ability to build rapport with the local population will help develop trust and develop relationships when challenged with the language barrier and time constraints. The second key aspect of communication that MC3 teaches is *listen with purpose*.

Marines are taught to focus attention to gather information and build relationships in order to ensure understanding. Listening with purpose should be conducted throughout the engagement. MC3 teaches four key areas: listen to understand, listen for facts and feelings, listen to

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[62] Spitzberg, and Cupach, *Interpersonal Communication Competence*, 385.

[63] "Sales," Marine Corps Recruiting Command.

[64] *Marine Corps Communication and Consulting: Tactical Coaching Guide* (Washington, DC: Headquarters Marine Corps, 2011), 22.

[65] Judith A. Reiten, "The Use of Nonverbal Synchrony in Creating Trust and Rapport in a Culturally Diverse Therapeutic Setting" (PhD diss., Alliant International University, California School of Professional Psychology, 2006), 46.

build trust, and observe body language.[66] The individual must listen to understand, to ensure the message they are receiving is the same as the message that is being sent. Often soldiers make assumptions and fail to clarify or confirm what they have heard, leading to miscommunications, errors, and on operations, potentially the loss of life. Being an active listener and confirming the message is a key skill to have when operating in a multicultural environment, where words, phrases, and gestures often have different meanings.

When engaged in conversation, the listener should ensure they are listening for facts and feelings. This is key when attempting to ellicit information for a military operation. The listener should listen actively, this is another way to build trust with the speaker. While listening the soldier also must observe the body language of the speaker, looking for clues about how they feel, so the soldier can respond accordingly. The course explains how physical distractions, personal biases, snap judgments, and thinking ahead are bad traits of a good listener and should be avoided. Although these soft skills appear simplistic, they go against many of the millennial's characteristics, and learning these skills may be difficult for a generation that multitasks, is ever surrounded by distractions, and needs information immediately.[67]

The second half of MC3 is directed at sales and consulting; however, the skills taught—purposeful conversation skills—are relevant for the growth and development of the interpersonal communication skills of the millennials. The "consultative selling skills" is broken into six parts: engage, explore, enable, gain commitment, respond to objections, and respond to disinterest.[68] The *engagement* aspect is the ability to open a conversation to align an agenda and value of the conversation. The way in which MC3 teaches to engage is by transitioning to business, stating the agenda and why it is important, and by testing for yes, a means to ensure that the listener buys into the conversation and agrees with what you have said.[69]

The *explore* component focuses on asking questions to understand needs and motivators and to gain a comprehensive and shared understanding of the needs and motivators. This is done by asking questions—both open and closed questions—to explore the needs and motivators of the other person. Often the explore part of a conversation can fail when a soldier asks too many of one type of question, asks random questions, or talks more than questions and listens.[70] The explore aspect of an engagement is key when dealing with a different culture. By exploring what motivates the individual or what their needs are, the soldier can better understand their culture.

The third aspect is *enable*. This element is about addressing the needs and motivators identified while exploring.[71] Once identified, the soldier can then demonstrate how the military unit can create the desired change. This could be anything from the security of a village to safe drinking water. The fourth aspect of MC3, *gain commitment*, is more relevant to recruiting; however, this aspect could be modified for New Zealand's purposes to obtaining buy in or support from the other person. This is important for a military to ensure that the villages they are located in actually support them being in that location.

The fifth and sixth elements—*respond to objections* and *respond to disinterest*—are again aimed at a potential recruit, however, the skills taught are relevant for millennials to learn.[72] It is important that when dealing with rejection or disinterest, the soldier asks questions to understand, that they respect the opinion of the other party, and that they state the value of continuing to

[66] *Marine Corps Communication and Consulting*, 25.
[67] *Marine Corps Communication and Consulting*, 25.
[68] *Marine Corps Communication and Consulting*, 29.
[69] *Marine Corps Communication and Consulting*, 30.
[70] *Marine Corps Communication and Consulting*, 33.
[71] *Marine Corps Communication and Consulting*, 37.
[72] *Marine Corps Communication and Consulting*, 43.

converse. The soldier should then go back to the explore element. The six elements of MC3 consultative selling skills are all key soft skills that should be taught to the millennial soldiers in order for them to get buy in from local people of another culture while on military operations.

The "build rapport" aspect of MC3 is the crucial training required for millennials to develop alter centrism, coordination, composure, expressiveness, and adaption skills to make them effective communicators in today's society. The two parts of MC3 blend together as the soldier is required to use the communication skills to then engage, explore, and ultimately gain commitment from the local population. Although these skills will aid the soldier while communicating across cultures, they are also basic skills that will assist them in every engagement they have face-to-face, either in a work, social, or family environment.

The New Zealand Army currently does not specifically teach interpersonal communication skills during its initial training courses. Leadership skills are taught, including "self-lead"; however, neither of these courses cover the interpersonal communication skills required for millennial soldiers.[73] The MC3 training package should be modified slightly and taught throughout the New Zealand Army. For enlisted soldiers, the initial communication aspect should be taught as soldiers enter recruit training. The package should be taught in the classroom and scenarios should be played throughout the recruit training to further develop the basic skills. Once the soldier is on their first leadership course, they should be taught the second aspect—consultative selling skills. The skills taught in this module will aid the soldier in leadership roles but also on military operations while engaging with different and often multiple cultures. For officers, the complete package should be taught during their first year of training at Officer Candidate School (OCS) in the classroom and scenarios should be played throughout the year in order to develop and enhance these basic interpersonal communication skills.

CONCLUSION

In summary, this chapter looked at a historical example of a New Zealand military operation and highlighted the importance of the civil military affairs element and its ability to engage with the local population, which was found to be a key reason the mission succeeded. The chapter then reviewed the characteristics of the millennial generation, highlighting their reliance on technology and accompanying lack of interpersonal communication skills, along with implications. The chapter examined different ways in which other organizations are managing deficient interpersonal skills among millennials. In addition to its positive impacts on society, technology has also created serious negative impacts. Intercultural communication competence was also discussed, along with the skills required for soldiers to thrive in a culturally complex environment. The chapter closed by identifying the particular skills that should be required training for millennials with a recommendation for incorporating MC3 to teach those skills.

Generation Y and Z make up a significant proportion of the modern military; these are generations raised with ever-present technology at their fingertips, which often isolates them from navigating the complexities of face-to-face interaction. They often have groups and friends online they have never met in person. Due to this reliance on technology and declining face-to-face social interaction, the generation has not acquired many basic interpersonal communication skills. They prefer to engage with their smartphones as opposed to people standing next to them. This lack of traditional communication skills is having negative effects worldwide across corporate, military, and civil society. Research has recommended various methods for managing

[73] "All Arms Enhanced Recruit Course Data Sheets," Land Operations Training Centre, New Zealand Army, September 2017; and "NZ Commissioning Course RF," Land Operations Training Centre, New Zealand Army, October 2015.

the lack of soft skills in millennials, and many organizations are implementing diverse training packages and communication methods.

For an organization such as the New Zealand Army, which conducts military operations around the world from the Pacific to the Middle East, a soldier must not only be able to communicate in person with their peers, but they also must possess intercultural communication competence, or the ability to understand and engage with different cultures without disrespecting or offending the person. This comes predominantly through a soldier's ability to communicate appropriately and effectively with mindfulness. Soldiers must utilize alter centrism, coordination, composure, expressiveness, and adaption while communicating. These skills are not automatic for the millennial generation.

To ensure that the New Zealand Army consists of soldiers capable of communicating across different boundaries, it should implement the Marine Corps MC3 training package into recruit and officer training and then continue to develop these skills throughout the soldiers' or officers' careers. By investing time in training millennials to communicate effectively and appropriately, the New Zealand Army will reap the benefits when deployed to an environment where success depends on civil military interaction. These basic skills will set up the warriors of today and tomorrow for success as they attempt to win the hearts and minds of a nation in disarray.

The Casualty of Truth

by Major Craig W. Thomas II, U.S. Marine Corps[1]

INTRODUCTION

> No amount of propaganda can make right something that the world knows is wrong.
>
> ~ President Barack H. Obama[2]

The idea that truth dispels lies is powerful. It is the standard the West advocates for judging Russian propaganda and disinformation campaigns. A false sense of security occurs when democratic nations unearth facts and identify falsehoods in Kremlin narratives. Assuming audiences will reject implausible story lines once a truthful counternarrative is presented fails to account for the real intentions of Russian propaganda and disinformation campaigns.[3] In today's world, where facts are less important than narratives and people feed on emotion rather than discussion, Russia understands that truth can be blurred, shrugged off, drowned out, and questioned.[4] The Kremlin is no longer trying to persuade foreign audiences that its governance is right; rather, it seeks to create an alternate reality showing Western societies with untrustworthy governments, fake news producing media outlets, and ignorant citizens chiding one another about opposing views. This Moscow-crafted vision suggests all information is tainted, biased, and used to manipulate the masses. The underlying message: no one can be trusted. When truth becomes a casualty, democracies begin to die.

Since 2014, Russia has annexed Crimea, threatened Eastern Ukraine, interfered in a U.S. presidential election, established a second Russian military base in Syria during the country's civil war, and executed war games near the Baltics.[5] All of these actions involved massive overt and covert information operations that rearranged facts and stressed alternate truths to legitimize Kremlin actions on the domestic and international stages. Like any country, Russia seeks

[1] Maj Thomas is a graduate of MCU's Command and Staff College. This paper won second place the Secretary of Defense National Security Essay competition for academic year 2017–18.

[2] "Full Transcript: President Obama Gives Speech Addressing Europe, Russia on March 26," *Washington Post*, 26 March 2014.

[3] Keir Giles, *Russia's "New" Tools for Confronting the West—Continuity and Innovation in Moscow's Exercise of Power* (London: Chatham House, Royal Institute of International Affairs, 2016), 36–37.

[4] David Patrikarakos, *War in 140 Characters: How Social Media Is Reshaping Conflict in the Twenty-first Century* (New York: Basic Books, 2017), 264.

[5] Graeme P. Herd, "Hybrid Conflict 2.0: Targeting the West," *Per Concordiam, Journal of European Security and Defense Issues*, no. 7 (2016): 9; and Luis Martinez, "Russian Build-Up Continues at Base in Syria, Causing Concern among US Officials," *ABC News*, 9 September 2015.

to defend itself and increase its economic growth. Still, Moscow has plans to restore elements of the Soviet empire around its borders, to reestablish its world power status, and to challenge America's hegemony.[6] Presently, Russia's armed forces could not win a military fight against the United States and North Atlantic Treaty Organization (NATO) allies. Thus, it relies on information operations to pursue an aggressive foreign policy without engaging in physical war.[7]

Adapting traditional Soviet techniques of subversion and destabilization, today's Russian government conducts consistent, sophisticated information warfare against its adversaries. These information campaigns are successful because the Kremlin has created a mass-media ecosystem where Russian propaganda and disinformation masquerade as legitimate news, obfuscate facts, and erode faith in objective reporting. This self-supporting, complex media system consists of state-run media outlets, cyber troops, and automated algorithms or "bots." Through the manipulation of traditional and social media, Moscow's leaders introduce narratives that are highlighted and discussed by media outlets with ties to the Kremlin and then reinforced online via news and social media forums. These messages are delivered to target audiences at a rapid rate, in large quantities, and with reoccurring themes. While Russia conducts information warfare in different regions of the world for various aims, its three overarching goals are to weaken the United States' influence as a world power, cause disunity among U.S. allies, and convince Western societies their politicians and media are corrupt, manipulative, and pawns of an elite class.[8]

SOVIET MINDSET: PROPAGANDA AND DISINFORMATION ARE TOOLS OF NATIONAL POWER

To appreciate the success of Moscow's information warfare, one must understand Russian president Vladimir Putin's government benefits from more than a century of Soviet and Tsarist leaders honing the art and science of propaganda, political warfare, and disinformation.[9] Even before the 1917 Russian Revolution, the Bolshevik organizers led by Vladimir Lenin described world politics as "a continuing state of conflict or struggle."[10] This mind-set is distinctly different from that of the United States, which believes international relations are conducted differently in times of peace and war. Knowing Russia views foreign policy through a permanent lens of warfare reveals why the methods used to accomplish political objectives could include everything from diplomacy and propaganda to disinformation and assassination. All manner of tactics is viable when waging war for one's country.[11]

In the 1950s, the Soviet government started using the phrase "active measures" to describe overt and covert techniques to influence foreign governments and their populations.[12] Examples include manipulation or control of the media, written or oral disinformation, use of front organizations, purchasing agents of influence, secret radio broadcasts, and support of proxy forces and

[6] Herd, "Hybrid Conflict 2.0," 9–10.
[7] *Hearing before the Select Committee on Intelligence of the U.S. Senate,* "Disinformation: A Primer in Russian Active Measures and Influence Campaigns, Panel I," 115th Cong., 1st sess. (30 March 2017), 22, hereafter "Disinformation."
[8] Ivana Smolenova, "The Pro-Russian Disinformation Campaign in the Czech Republic and Slovakia," *Per Concordiam, Journal of European Security and Defense Issues*, no. 7 (2016): 28.
[9] Steve Abrams, "Beyond Propaganda: Soviet Active Measures in Putin's Russia," *Connections: The Quarterly Journal* 15, no. 1 (Winter, 2016): 7.
[10] Richard H. Shultz and Roy Godson, *Dezinformatsia: Active Measures in Soviet Strategy* (McLean, VA: Pergamon Press, 1984), 1.
[11] Shultz and Godson, *Dezinformatsia*, 1–2.
[12] Shultz and Godson, *Dezinformatsia*, 15.

terrorist organizations.[13] Throughout the Cold War, the Russian Politburo integrated these active measures into everyday government activities and launched long-term campaigns to weaken adversaries.[14] These endeavors exalted the Communist Party as the premier form of government and condemned perceived deficiencies within democratic nations such as corruption, failing foreign policies, or being an unreliable ally. John N. McMahon, former deputy director of the Central Intelligence Agency, expounds on the Soviet's devious practices of international relations:

> Active measures are an unconventional adjunct to traditional diplomacy. They are quintessentially an offensive instrument of Soviet policy. Specifically, they are intended to influence the policies of foreign governments, disrupt relations between other nations, undermine confidence in foreign leaders and institutions, and discredit opponents.[15]

McMahon's description of an adversary who aggressively and consistently, even during times of reduced tensions or cooperation, wields propaganda and active measures to systematically weaken the United States was provided to the U.S. Congress in 1982.[16] If the past is prologue, it should come as no surprise similar testimonies cautioning Congress of Russia's active measures to subvert the West are emerging again 35 years later.[17]

Dezinformatsia, or disinformation, is a phrase coined by the Soviets in the initial years of the Cold War and describes "a non-attributed or falsely attributed communication, written or oral, containing intentionally false, incomplete, or misleading information that seeks to deceive, misinform, and/or mislead the target."[18] Covert disinformation can take numerous forms, such as forged documents, international front organizations, and bribed or blackmailed agents of influence. During the four decades of chilled hostilities, the Communist Party of the Soviet Union (CPSU) conducted these veiled actions to reinforce overt propaganda narratives or policy objectives.[19] Picking up where the Soviets left off, the Russians are leveraging twenty-first-century technologies and communication habits to bring disinformation campaigns into the homes, schools, and businesses of their adversaries. With 95 percent of North America having access to the internet, the Kremlin has loaded cyberspace with phony news stories, websites, and social media accounts that support Russian rhetoric and divide Western societies.[20]

Moscow's current success producing and promulgating propaganda can be traced to the first Russian Communist Party leader Lenin and his underground newspaper, *Iskra* (spark).[21] Well before Lenin became head of the Soviet government, the paper's first issue was published in 1900, and was named after a single-line poem by Alexander Odoevsky, "from a spark a fire will flare up."[22] This was precisely Lenin's intent: to stoke a class struggle and ignite the population's outrage with the current government. Lenin's skillful application of propaganda demonstrated that tailored communication can inform and educate key audiences, which leads to influence

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[13] *Hearings before the Permanent Select House Committee on Intelligence*, "Soviet Active Measures," 97th Cong., 2d sess. (13–14 July 1982), 31, hereafter "Soviet Active Measures"; and Thomas Boghardt, "Operation INFEKTION: Soviet Bloc Intelligence and Its AIDS Disinformation Campaign," *Studies in Intelligence* 53, no. 4 (2009): 1.
[14] Abrams, "Beyond Propaganda," 8.
[15] "Soviet Active Measures," 32.
[16] "Soviet Active Measures," 31.
[17] "Disinformation."
[18] Shultz and Godson, *Dezinformatsia*, 194.
[19] Shultz and Godson, 111.
[20] "World Internet Usage and Population Statistics," Internet World Stats, last updated 31 December 2017; and Jim Rutenberg, "RT, Sputnik and Russia's New Theory of War," *New York Times*, 13 September 2017.
[21] Shultz and Godson, *Dezinformatsia*, 34.
[22] Ted Widmer, "Lenin and the Russian Spark," *The New Yorker* (April 2017): https://www.newyorker.com/culture/culture-desk/lenin-and-the-russian-spark.

over them. Enlightening the Russian people with propaganda became a cornerstone within the Bolshevik political party. A Soviet propaganda poster from the 1920s features Lenin encouraging a productive society: "All power to the Soviets! Peace to the people! Land to the peasants! Factories and mills to the workers!"[23] The CPSU significantly expanded the role of propaganda from educating their citizens to promoting communism around the globe for their own benefit to agitate, isolate, and discredit opponents.[24] While today's Russian Federation employs propaganda and disinformation just as its predecessors did, it no longer intensely labors to persuade international audiences that Russia is good. Instead, it seeks to cause turmoil, alienation, or incite anger in the masses. Once shocked, disillusioned, or united in rage, pockets of the international community may be more willing to support or tolerate Putin's increasingly aggressive nationalism.[25]

KREMLIN MASS MEDIA: "TRUST NO ONE"

Today's Russia places a premium on disseminating its message to a worldwide audience. With a $1.4 billion-a-year propaganda machine at home and abroad, the Kremlin boasts it can reach 600 million people across 130 countries in 30 languages.[26] This mass media ecosystem includes television news networks, radio stations, websites, bots, and troll farms. The flagship organization pumping out Russian-crafted narratives to the international community is a broadcast network called RT, formally known as Russia Today. Founded in 2005 and headquartered in Moscow, RT has sister news channels in Washington, DC: London; and Paris, respectively called RT America, RT UK, and RT France. Additionally, the station broadcasts in Spanish and Arabic and posts content in German for the RT Deutsch website. This 24-hour news network aspires to look and act like prominent worldwide media outlets BBC and CNN, but should not be considered an actual independent news agency. RT is at least 99 percent funded by the Russian government, and its leadership is closely tied to and controlled by the Kremlin.[27] RT's lack of management transparency underscores an absence of journalistic mainstays; that is, there is no accuracy of reporting, editorial independence, accountability, and diversity of opinions.[28] When former U.S. secretary of state John F. Kerry labeled RT as Russia's "propaganda bullhorn," he was not using strong enough language to warn audiences of the news network's consistent dealings in disinformation.[29]

In 2014, two RT on-air news personalities quit the company, citing they could no longer work for a media organization that laced its news coverage with half-truths and lies to twist reality in the Kremlin's favor.[30] "We are lying every single day at RT," said Sara Firth, a former British RT reporter, during an interview with *Time* magazine. She said, "There are a million different ways to lie, and I really learned that at RT."[31] When the network is accused of lying or not presenting the whole picture, RT leadership simply responds with, "We're no less balanced or

[23] Sovfoto, "Soviet Propaganda Poster from the 1920s," Getty Images, 2 January 2013.
[24] Shultz and Godson, *Dezinformatsia,* 34; Meirion Harries and Susie Harries, *Soldiers of the Sun: The Rise and Fall of the Imperial Japanese Army* (New York: Random House, 1991), 139–40; and "Soviet Active Measures," 32.
[25] Patrikarakos, *War in 140 Characters*, 143.
[26] Benjamin Ziff, "Countering Disinformation through a Free Press," *Hampton Roads International Security Quarterly* no. 35 (2016): 35.
[27] Elena Postnikova, "Agent of Influence: Should Russia's RT Register as a Foreign Agent?," *Atlantic Council*, 1 September 2017, 11.
[28] Postnikova, "Agent of Influence," 9.
[29] Brett LoGuirato, "John Kerry Just Gave Russia a Final Warning," *Business Insider*, 24 April 2014.
[30] *Hearing before the Committee on Foreign Affairs House of Representatives*, "Confronting Russia's Weaponization of Information," 115th Cong., 1st sess. (15 April 2015), 13, hereafter "Confronting Russia's Weaponization of Information."
[31] Alex Altman, "Russian Television under Spotlight after Malaysia Airlines Crash in Ukraine," *Time*, 22 July 2014.

impartial than reports of other news organizations."[32] RT's website claims its coverage provides a different view of the news and challenges its audience to question convention:

> RT creates news with an edge for viewers who want to Question More. RT covers stories overlooked by the mainstream media, provides alternative perspectives on current affairs, and acquaints international audiences with a Russian viewpoint on major global events.[33]

Another way to view RT's mission is from the lips of its CEO, Vladimir Putin, who envisioned an international news organization "that wouldn't just provide an unbiased coverage of the events in Russia but also try, let me stress, I mean—try to break the Anglo-Saxon monopoly on the global information streams."[34]

Putin's drive to deliver different news perspectives takes advantage of Western journalism and pluralism. Democratic societies expect their independent media to present all sides of an issue, so people can draw their own conclusions based on facts.[35] With the West's emphasis on balanced reporting, Kremlin narratives, regardless of plausibility, are presented to American audiences by their own news outlets. Thus, the old adage, "there must be two sides to every story," turns into airtime or word space repeating Russian messages when in reality there might not be a second side to the story.[36] Elizabeth Wahl, an RT America news anchor, was tired of delivering fraudulent news and resigned on live television at the conclusion of her 5 March 2014 broadcast. That evening, Wahl appeared on CNN discussing her dramatic departure from the Russian news network. She said, "The objective of RT has been to promote Putinist propaganda, to promote the conflict as Putin wants us to see, and to bash the US and make it look like we're the bad guys."[37] A year later, Wahl testified before Congress about Russia weaponizing information. She shared accounts of her time at RT, where stories smearing America were given priority and stories clashing with Russia's foreign policy agenda were prohibited. If outside news threatened to implicate Russia with negative behavior, RT would push alternate stories or conspiracies to obscure facts and confuse the public.[38] While RT is pushing, and to some extent fashioning, stories that portray America in decline and disarray, Western media gives voice to Russian propaganda, even if the news networks label it as such.

The second most popular Russian-government financed news agency is Sputnik, which specializes in websites, newsfeeds, radio broadcasts, and a photograph database where it sells photos, videos, and infographics.[39] Like RT, it engages audiences worldwide using the same pro-Moscow, antidemocratic, and "you can't trust anyone" narratives.[40] Sputnik, named after the first satellite shot into space in 1957, has regional offices in Washington, Beijing, Paris, Berlin, London, and Cairo. Launched in 2014, Sputnik content is offered in 30 languages with its radio broadcasts available online and on FM and DAB/DAB+ frequencies.[41] Dmitry Kiselyev, Russia's most popular TV personality and CEO of Sputnik's parent company, proclaimed

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[32] John Daniszewski and David Bauder, "Head of Russian Outlet RT Says US Foreign Agent Order Hurts," AP News, 22 January 2018.
[33] "About RT," RT, accessed 27 January 2018.
[34] "Putin Talks NSA, Syria, Iran, Drones in RT Interview," RT, 13 June 2013.
[35] Giles, *Russia's "New" Tools for Confronting the West*, 34; Edward Delman, "When Is a TV Channel a Foreign Agent?," *Atlantic*, 22 April 2015.
[36] Giles, *Russia's "New" Tools for Confronting the West*, 34–35.
[37] Liz Wahl, "New Cold War?," Piers Morgan Live, CNN, 5 March 2014.
[38] "Confronting Russia's Weaponization of Information," 13.
[39] Patrick Savage, "Russian Social Media Information Operations," American Security Project, October 2017, 4; "About Us," Sputnik, accessed 9 February 2018.
[40] Neil MacFarquhar, "A Powerful Russian Weapon: The Spread of False Stories," *New York Times*, 28 August 2016.
[41] "About Us," Sputnik.

"the age of neutral journalism was over" at the Soviet Information Bureau's 75th anniversary. Elaborating further, he said if the West believes Russian news agencies promote propaganda, then Western journalists should look at their own reporting, because it is propaganda too.[42] The charge that American media dispenses propaganda attempts to turn the argument into a mudslinging "he said, she said" situation. Western journalists are left defending themselves with the ideals they feel differentiate them from state-run media: impartiality, plurality of opinions, willingness to challenge government and business elites, and the ability to concede points after close examination of the issues.[43] Yet, when Russian and American leaders claim that U.S. media engages in propaganda or fake news, it deteriorates the public's confidence in objective reporting.[44] When people believe the media incapable of reporting truth, it weakens the ability of the press to hold governments and influential corporations accountable for their actions. The Kremlin uses this to its advantage.

Sputnik and RT go to great lengths to find, shape, manufacture, and then amplify news that clears Russia of wrongdoing, distorts facts, distracts audiences, and incites anger.[45] Sputnik White House correspondent Andrew Feinberg explains in a self-penned article how the Russian news agency's motto, "Telling the Untold," involves reporting stories with untrue narratives designed to show the U.S. government as hypocritical, corrupt, and unfit to condemn other countries' moral failings. During his five months at Sputnik, Feinberg's editor pushed him to ask the press secretary questions that—clearly or indirectly—progressed Kremlin messaging. Feinberg dreaded asking these questions because their topics ranged from nonsense to conspiracy theories. He recalls being told to ask if President Donald J. Trump's proposed budget cut, one that included foreign aid sent to Ukraine, was related to "corruption" in Ukraine's government. Feinberg knew full well there had been no credible evidence of such corruption, and the decrease in aid was a result of across-the-board cuts to the State Department and other agencies. But his boss was looking for any scrap of wording that would disparage the Ukraine government. He offers another example of being ordered to ask a Russian propaganda question: Did the White House or U.S. intelligence community plan to review "new-found data" from a retired professor at the Massachusetts Institute of Technology (MIT) who theorized the chemical weapons attack on civilians in Syria by the Bashar al-Assad regime had, in fact, been committed by Syrian rebels? This was after the U.S. government determined the Syrian military dropped the sarin gas via airplane and Russia assisted with trying to cover up the facts. The only other news agency that gave coverage to the retired MIT professor's theory was RT. Feinberg concluded that

> I began to realize that Sputnik's mission wasn't really to report the news as much as it was to push a narrative that would either sow doubts about situations that weren't flattering to Russia or its allies, or hurt the reputation of the United States and its allies.[46]

Propaganda from Kremlin-run media outlets ranges from highlighting Russian culture to promoting Russian foreign policy interests and peddling negative stories that portray the United States in decline and saturated with chaos and crime.[47] Recent RT headlines show the variety

[42] MacFarquhar, "A Powerful Russian Weapon."
[43] Mark Galeotti, "The West Is Too Paranoid about Russia's Information War," *Guardian*, 7 July 2015.
[44] Andrew Blake, "Putin's Party Accuses U.S. Media of Interfering in Russian Election," *Washington Times*, 19 May 2017; and Michael Collins, "Trump Scolds 'Fake News Media' over Reporting of Russian Meddling in 2016 Election," *USA Today*, 17 February 2018.
[45] John Pollock, "Russian Disinformation Technology," *MIT Technology Review* 120, no. 3 (May/June 2017).
[46] Andrew Feinberg, "My Life at a Russian Propaganda Network," *Politico Magazine*, 21 August 2017.
[47] J. M. Berger, "Here's What Russia's Propaganda Network Wants You to Read," *Politico Magazine*, 23 August 2017.

of stories: "Futuristic Moscow Bridge Recognized as International Masterpiece," " 'Show of Impotence': Anti-Russia Sanctions Futile, Only Harm US Business–Moscow," and "Record Breaking Drop in Trust for US Institutions, Below China." Americans need to understand that RT and Sputnik's news coverage of the United States is going to have either a negative connotation or use political and social issues with loaded language and emotionally charged words to pit Americans against each other. There are no stories suggesting America is doing well or making any positive contributions to the world. To help educate Americans that RT is not an independent news organization but an extension of the Russian government, the U.S. Department of Justice required RT America to register as a foreign agent. Under the Foreign Agents Registration Act, RT America can still broadcast in the United States, but has to label their American coverage as "on behalf of the Russian government."[48] While this requirement may enlighten U.S. cable viewers of RT's allegiance, it does not affect news segments streamed online or passed around on social media.

Russian propaganda, just like Soviet propaganda, is designed to damage America's credibility as a world leader, diminish its democratic governance, and further divide Americans over political issues.[49] Common anti-American themes directed to global audiences include:

- the United States seeks power and control to direct the world,
- U.S. involvement in other countries' internal affairs causes global strife,
- the United States is in decline and its days as a superpower are dwindling, and
- U.S. foreign policy has failed in Iraq, Afghanistan, and Syria, giving rise to terrorist organizations and states.[50]

An RT News advertisement from 2009 asks audiences, "Does taking a conflict into population centers define terrorism, or modern urban warfare?"[51] The military figure in the advertisement appears to be a U.S. Marine and the poster suggests America's actions in the Middle East could be on par with those of the terrorists.

Russian information/disinformation tactics used within America to incite internal conflicts include:

- discrediting the U.S. government to erode trust in democracy;
- supporting both far-left and far-right movements to agitate tensions across the political spectrum;
- undermining trust in Western media by blurring the lines between fact, fiction, and disinformation; and
- using social media as a force multiplier to saturate online forums with Kremlin narratives.[52]

Left unchecked, these messages and campaigns can alienate the United States from its allies and breed distrust among Americans and their government, media institutions, and each other. To be considered successful, Russia's methodical use of propaganda and disinformation does not need to cause the crumbling of America like that of the Union of Soviet Socialist Republics (USSR) at the conclusion of the Cold War—it only needs to trigger enough dissension within

[48] Natalka Pisnia, "Why Has RT Registered as a Foreign Agent with the US?," BBC News, 15 November 2017.
[49] "Disinformation," 3, 46.
[50] Ivana Smolenova, "The Pro-Russian Disinformation Campaign in the Czech Republic and Slovakia," *Per Concordiam, Journal of European Security and Defense Issues*, no. 7 (2016): 27–28.
[51] "Russia Today News: Question More," Chris Rawlinson | Adspiration, 18 December 2009.
[52] Peter Pomerantsev and Michael Weiss, "The Menace of Unreality: How the Kremlin Weaponizes Information, Culture and Money," *Interpreter*, 22 November 2014, 6; and Giles, *Russia's "New" Tools for Confronting the West,* 28.

the country to undermine the West's ability to take action against the Kremlin if and when it decides to pursue aggressive foreign policy objectives.[53]

KREMLIN TROLLS IN CYBERSPACE: REINVENTING REALITY AND REINFORCING RUSSIAN NARRATIVES

Russia's overt propaganda campaigns are reinforced and spread to the far corners of cyberspace by the pervasive actions of *trolls* (or paid social media users) and *bots* (or automated software that collects and/or spreads information online), which leverage social media and news agencies "to plant, disseminate and lend credibility to disinformation."[54] With the proliferation of mass media and instantaneous communication, the Kremlin understands the twenty-first century key battlegrounds for influence are in virtual communities:

> In the information age, digital media are becoming the main—and for a growing number of young people, the only—channel for political information and communication. They are the primary space for political activities, where citizens receive political information, shape their political views and beliefs, and have the opportunity to influence the processes related to functioning of power.[55]

Through testing and experimenting, the Russian government learned that impacting mass consciousness online required human capital. They enlisted writers, graphic artists, and social media experts to engage in direct dialogue with people on the internet. Known as "Cyber troops," a phrase coined by the Oxford Internet Institute. These hired personnel use the interconnectedness of social media to reshape reality and manipulate public opinion.[56]

In late 2013, the world was introduced to the Internet Research Agency (IRA) in Saint Petersburg, Russia. What began as a modest venture with only enough employees to fill two offices bloomed into a full-fledged enterprise flooding four floors with social media specialists, internet operators, and content managers.[57] Regardless of the job title, the work was straight forward, pay was generous, and all one had to do was click, like, share, comment, and post information on the topics of the day. IRA employees were required to wash, rinse, and repeat the same ideas on the assigned topic on six bogus Facebook accounts, 10 Twitter accounts, and scores of online discussion boards.[58] The mandated subjects ranged from promoting Russian policies to commercial technology, such as the YotaPhone smartphone, and deriding Western and Ukrainian leaders. To help these fake social media accounts appear genuine, political comments were interspersed between posts about cooking, art, and travel. "Our job was to write in a pro-government way, to interpret all events in a way that glorifies the [Russian] government's politics and Putin personally," said former IRA employee Lyudmila Savchuk.[59] Hundreds of people work 12-hour shifts day and night to maintain fake social media accounts; they share posts, memes, and videos

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[53] Galeotti, "The West Is too Paranoid."

[54] Giles, *Russia's "New" Tools for Confronting the West*, 44–45.

[55] Velichka Milina, "Security in a Communications Society: Opportunities and Challenges," *Connections* 11, no. 2 (Spring 2012): 55.

[56] Giles, *Russia's "New" Tools for Confronting the West*, 29; and Samuel Earle, "Trolls, Bots and Fake News: The Mysterious World of Social Media Manipulation," *Newsweek*, 14 October 2017.

[57] Sergey Chernov, "Internet Troll Operation Uncovered in St. Petersburg," *St. Petersburg (Russia) Times*, 18 September 2013; Patrikarakos, *War in 140 Characters*, 141–42; "Everything You Wanted to Know about Trolls but Were Afraid to Ask," Share America, 4 November 2015.

[58] Max Seddon, "Documents Show How Russia's Troll Army Hit America," Buzzfeed, 2 June 2014.

[59] Shaun Walker, "Salutin' Putin: Inside a Russian Troll House," *Guardian*, 2 April 2015; and Marina Koreneva, "Trolling for Putin: Russia's Information War Explained," *Business Insider*, 5 April 2015.

promoting the Kremlin's interests in domestic and foreign policy. For 45,000 rubles (roughly $800 a month), people like Lyudmila "weaved propaganda seamlessly into what appeared to be the nonpolitical musings of an everyday person."[60]

Russia is home to multiple organizations like the IRA that employ hundreds of people to conduct influence operations on behalf of the Kremlin. Known as "Putin's Troll Empire," "The Russian Troll Factory," or "Kremlin Troll Army," these cyber troops consistently update their playbook and alter their tactics depending on audience and environment.[61] Their aim is not persuasion, although they welcome converts; rather, they seek to silence Russian critics, distract audiences with enticing, dramatic stories, and pollute the internet with so much nonsense that it obscures any truth.[62] The troll armies descend into cyberspace using specific interaction techniques ranging from verbal abuse to confusion with disinformation and refined argument.[63] The NATO Strategic Communications Centre of Excellence conducted a study on Russia's paid social media users engaging in cyber information operations as a tool of hybrid warfare. The research sought to understand pro-Russian troll tactics and their success influencing public opinion. The study identified five types of Kremlin trolls: 1) blame the U.S. conspiracy troll, 2) bikini troll, 3) aggressive troll, 4) Wikipedia troll, and 5) attachment/message troll.[64] The trolls are Putin's foot soldiers in the information war and their goal is to make truth a casualty.

The first set of trolls deals in conspiracy theories that ultimately lead to the United States being responsible for whatever disastrous issue is being discussed. This strategy pushes false stories like Ukrainian fighter jets under U.S. direction or a NATO attack on Putin's private plane were responsible for the destruction of Malaysia Airlines Flight 17 over Eastern Ukraine in July 2014.[65] These types of conspiracies assist with crowding the conversation, blurring the facts, and diminishing the credibility of all involved so the audience is left thinking the truth is somewhere between the different narratives. Peter Pomerantsev, senior fellow with the Legatum Institute, says conspiracy theories are a natural fit for Russia's influence campaigns because they act as "a linguistic sabotage on the infrastructure of reason."[66] Additionally, these trolls peddle older conspiracies originating from non-Russian sources, such as the murder of Democratic National Committee (DNC) staffer Seth Rich, which conveniently absolved Russian hackers from being the culprits of the WikiLeaks dump of DNC emails during the 2016 U.S. presidential election.[67] A key building block of Russian propaganda, conspiracy theory trolls share, tweet, and post lengthy texts online enabling the Kremlin to shift blame, plant seeds of distrust in democratic institutions, and further the narrative that the United States is determined to assert its dominance onto the rest of the world.

The second troll category achieves a high rate of interaction with men older than age 45. The bikini troll is appropriately named for the social media user's use of an attractive female profile picture. The idea is straightforward: revealing images of beautiful women catch the interest of men who then follow the profiles or at least peruse the account's previous posts.[68] The bikini

[60] Dmitry Volchek and Daisy Sindelar, "One Professional Russian Troll Tells All," Radio Free Europe, 25 March 2015; and Adrian Chen, "The Agency," *New York Times Magazine*, 2 June 2015.
[61] Bojan Pancevski, "Victim Declares War on Putin's Fake News Trolls," *Times* (UK), 29 January 2017; Neil MacFarquhar, "Inside the Russian Troll Factory: Zombies and a Breakneck Pace," *New York Times*, 18 February 2018; and Daisy Sindelar, "The Kremlin's Troll Army," *Atlantic*, 12 August 2014.
[62] Gordon, "Russia and the Menace of Unreality."
[63] Giles, *Russia's "New" Tools for Confronting the West*, 30.
[64] *Internet Trolling as a Hybrid Warfare Tool: The Case of Latvia* (Riga, Latvia: NATO StratCom Centre of Excellence, 2016), 3, 61–62.
[65] Gordon, "Russia and the Menace of Unreality."
[66] "Confronting Russia's Weaponization of Information," 30.
[67] Berger, "Here's What Russia's Propaganda Network Wants You to Read."
[68] Joel Harding, "Bikini Trolls," To Inform Is to Influence, 30 November 2015.

troll does not overtly preach or push Russian propaganda onto its readers. Instead, it selectively poses questions and muses how examining the circumstances may lead people to see things differently. Comments such as, "Surely it is not only Russia that is bad? The world doesn't work like that—maybe we should look…" eventually circle back to the "blame the U.S." rationale.[69] Not all bikini trolls feature scantily clad women; some show pleasant-looking ladies who claim to be housewives interested in what is going on in the world.[70] To keep appearances of authentic social media accounts, the trolls post information and link to websites covering such mundane subjects as pets and do-it-yourself home improvement projects. Then, trickling into the thread come the posts of disenchantment with U.S. leaders or American foreign policy. Instances include criticizing President Barack H. Obama for lacking respect and class when he chews and spits out gum during official engagements overseas and mentioning that America's actions in Syria support terrorists and kill children with military strikes.[71] Sprinkling negative comments and dissenting opinions against the United States in online social forums hardly seems like a grave threat to America's reputation. Yet, with time and concerted effort, these remarks amass on the internet where they are recorded indefinitely and lie in wait for new people to discover while traversing cyberspace.

While nearly all bikini trolls bait with an enticing profile picture as they pretend to be the everyday citizen from the country being targeted for influence, there are instances of popular bikini trolls that reveal how this strategy can have a larger impact in an overt or covert manner. Anna Chapman, hailed as the most famous femme fatale of our generation, lived in New York City while working for the Russia's Foreign Intelligence Service. As an alleged link in a Russian spy ring, the Federal Bureau of Investigation charged her, along with nine other spies, with "failing to register as a foreign agent."[72] After her arrest and deportation from the United States in 2010, Chapman parlayed her looks, Russian history, and unique story into heavy news coverage and pseudocelebrity status. With social media accounts on all major U.S. platforms and Russia's version of Facebook, VK (*VKontakte*, meaning "In Contact"), Chapman still tweets and posts pictures of herself with updates on her latest endeavors.[73] In 2016, her social media posts began, ever so slightly, espousing Russian propaganda. She still offered fans a constant line of pinups of herself on the beach, dressed up for a night on the town, or posing with cute animals, but the descriptions mirrored the messages of Vladimir Putin and Russia's foreign minister Sergey Lavrov. Notions suggesting "Turkey, the US, everybody else, is at fault," "Russia is innocent and only acts defensively, if at all," and "NATO, the US, the UK, the Baltic States, they are all acting aggressively and Russia is defending itself from Western aggression" appeared alongside her photos in skintight, midriff leather outfits.[74] This bikini troll is real and her followers are being exposed to one-sided narratives that emphasize Russia suffering and subtle pleas for understanding Moscow's actions on the world stage.[75] Whether Anna Chapman is on the Foreign Intelligence Service's payroll once again is a moot point; her current social media interactions ensnare male admirers while gently toeing the Kremlin's party line.

If Anna Chapman is the overt, known troll, then Jenna Abrams was the covert, although

[69] *Internet Trolling as a Hybrid Warfare Tool*, 62.
[70] "Everything You Wanted to Know about Trolls."
[71] Volchek and Sindelar, "One Professional Russian Troll Tells All"; Adam Entous et al., "As US Officials Discussed Options, Russian Trolls Were Busy at Work," *Washington Post*, 26 December 2017.
[72] Cristian Salazar and Tom Hays, "Anna Chapman Dubbed Femme Fatale of Russian Spy Case," *Christian Science Monitor*, 30 June 2010.
[73] Mark Guertin, "What Is VK?: VKontakte Review," Impact Social Media, 7 September 2015.
[74] Joel Harding, "Bikini Trolls, Anna Chapman Edition," To Inform Is to Influence, 7 July 2016.
[75] Joel Harding, "Anna Chapman Has Become a Pathetic Russian Bikini Troll," To Inform Is to Influence, 5 August 2016.

now exposed, troll who for three years gained notoriety for her ultraconservative views on immigration, segregation, and political candidates. People fluent in online social networks may suspect other users as trolls if they encounter indications such as alluring profile pictures, shallow social media histories, messages in broken English, and constant political posts. Jenna Abrams claimed to be an American girl who spoke her mind and believed in common sense. She ran a Twitter profile, a Medium page (a website for writers to publish material), her own website, Gmail account, and GoFundMe page.[76] Her profile picture, as described by one of her followers, was the "sexy nerd in glasses" look.[77] At the height of her online fame, she had more than 70,000 Twitter followers and was featured in articles from major news publications across the globe, such as *USA Today*, *Times of India*, BBC, France 24, Buzzfeed, *New York Times*, Fox, CNN, Black Entertainment Television, and, of course, RT and Sputnik. Abrams flew under the troll radar because she had an online history beginning in 2014 and avoided political posts during her initial year online. A prolific tweeter, "Abrams' account built up an image of a straight-talking, no-nonsense, viral-tweet-writing young American woman" who tackled everything from Kim Kardashian's vanity to the inane issue of "manspreading" on public transportation. Abrams prided herself on being authentic, courageous, and funny.[78]

None of Abrams's supporters, critics, or the media suspected this "American blogger" was a persona created and run by the Kremlin-controlled IRA. In 2016, Abrams's accounts began using Russian-type active measures to spur the divide on issues such as racism and party politics. Both her essay "Why Do We Need to Get Back to Segregation?" and timely tweet in the midst of arguments over brandishing the Confederate flag launched massive debates across cyberspace. The article argued that people of color have gone full circle and chosen to segregate themselves, while the 140-character Twitter post alleged the U.S. Civil War was fought over money and not slavery.[79] As the 2016 U.S. presidential election heated up, so did Abrams's indirect attacks on Hillary Clinton and "common sense" support for Donald Trump. Becoming known as "the darling of the alt-right and the scourge of political correctness in the US," Abrams's online interaction with multiple public figures, such as former National Security Adviser Michael T. Flynn, comedian Roseanne Barr, and the previous U.S. ambassador to Russia Michael A. McFaul, added to her credibility as a real individual expressing her own opinions.[80] For three years, Russian trolls smartly crafted an online identity that appeared to be an American citizen voicing her First Amendment rights; but in reality, these actions furthered Kremlin initiatives to polarize Americans and shape the U.S. political landscape in favor of politicians that Moscow believed were more amenable to Russia's interests.

The third type of troll from the NATO StratCom study is the aggressive troll, which closely resembles the classic internet troll. Merriam-Webster defines *internet troll* as "a person who intentionally antagonizes others online by posting inflammatory, irrelevant, or offensive comments or other disruptive content."[81] While both sets of trolls are known for trying to elicit emotional

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[76] Ben Collins and Joseph Cox, "Jenna Abrams, Russia's Clown Troll Princess, Duped the Mainstream Media and the World," *Daily Beast*, 2 November 2017.

[77] Theantediluvian, "Popular Twitter Personality and 'American Blogger' Exposed as Russian Trolls," AboveTopSecret.com, 2 November 2017; Jenna Abrams, "13yo Girl: One More Illustration of Islam Being a #ReligionOfPeace," Archive Today, 30 June 2016.

[78] Collins and Cox, "Jenna Abrams, Russia's Clown Troll Princess"; and Jenna Abrams, "Our Democracy Has Been Hacked," JennaAbrams.com, 8 November 2017.

[79] Summer Meza, "Jenna Abrams, Alt-Right Hero on Twitter, Was Really a Russian Troll Who Tricked Republicans and Celebrities," *Newsweek*, 3 November 2017.

[80] "Jenna Abrams: The Trump-loving Twitter Star Who Never Really Existed," *Guardian*, 3 November 2017; and Collins and Cox, "Jenna Abrams, Russia's Clown Troll Princess."

[81] "Troll," Merriam-Webster.com.

responses from their targets, the Russian aggressive troll is straightforward with its bellicose comments, and there is no ambiguity on the position it is defending. Unlike the traditional internet troll, who is highly responsive and engages users to drag out any conflict, the aggressive troll is not very responsive, which is most likely because English is not its native language. But what the aggressive troll lacks in specificity it makes up for with insults, threats, and mass postings.[82] Russian-disinformation expert Catherine A. Fitzpatrick explains how trolls hinder informed debate by using obscene dialogue to distract and discourage any real opportunities to discuss the issues. "If you show up at *The Washington Post* or *New Republic* sites, where there's an article that's critical of Russia, and you see there are 200 comments that sound like they were written by 12-year-olds, then you just don't bother to comment," she says. "You don't participate. It's a way of just driving discussion away completely," she adds. "Those kinds of tactics are meant to stop democratic debate, and they work."[83]

The synchronization of aggressive trolls' blunt-force-trauma diatribes may drown out meaningful debate on issues critical of Russia or dissuade the average social media user from joining online discussions, but this tactic does not deter all critics. Prominent Americans such as Senator John S. McCain (R-AZ), former National Security Advisor Lieutenant General H.R. McMaster, and American actor Morgan Freeman have all been targets of Kremlin disinformation campaigns because of their hardline stances on Russia's actions on the international stage. It is not uncommon for Russian leaders and media to lash out against people who publicly condemn their country. The Kremlin troll army follows suit with coordinated defamation and belittling attacks. Senator McCain was very vocal with warnings about Russia's "neo-imperial ambitions" and active-measures "to weaken the United States, destabilize Europe, break the NATO alliance, and undermine confidence in Western values."[84] In recent years, Russia has repaid McCain's vigilance on the Kremlin's foreign policy by banning him from visiting Russia and attempting to entangle him in several conspiracy theories. Then the aggressive trolls unleash memes and posts falsely claiming McCain met with Islamic State (IS) leader Abu Bakr al-Baghdadi to help establish and fund IS in Syria; that Ukrainian cyber hackers discovered videos on McCain's work laptop showing IS executions were staged events; and the Arizona senator's 2017 leave of absence to deal with health issues was a well-timed excuse to lay low due to a "rising scandal" about his involvement in the alleged funding of a Russian-made dossier containing damaging information on presidential candidate Donald Trump.[85] Whenever Russia believes an individual is critical of its foreign policies, the mass media ecosystem is used to discredit and damage his or her personal and professional life.

Always monitoring the pulse of U.S. affairs, Russia is swift to exploit preexisting tensions to alter the outcome in its favor. On 3 August 2017, the Twitter-verse exploded with the message #FireMcMaster. The hashtag and accompanying social media posts called for President Trump to fire National Security Advisor McMaster.[86] This online movement originated in American politics when "alt-right" or alternative-right activists took aim at the lieutenant general for firing National Security Council officials who were ideologically married to the alt-right's ex-

[82] *Internet Trolling as a Hybrid Warfare Tool*, 62.
[83] Sindelar, "The Kremlin's Troll Army."
[84] John McCain, "Statement by SASC Chairman John McCain on Russia's Disinformation Campaign," press release, 31 October 2017.
[85] Ben Collins et al., "Russians Impersonated Real American Muslims to Stir Chaos on Facebook and Instagram," *Daily Beast*, 27 September 2017; and Denise Clifton, "Putin's Trolls Are Targeting Trump's GOP Critics—Especially John McCain," Mother Jones, 12 January 2018.
[86] Natasha Bertrand, "The Knives Are Coming Out for H. R. McMaster," *Business Insider*, 4 August 2017.

treme ideas, which McMaster found contrary to devising national security policy.[87] Despite the anti-McMaster campaign being an internal issue, Russia jumped at the opportunity to amplify it to oust a political player who held beliefs directly opposed to the Kremlin's interests. McMaster, at the time, was one of the few people in the White House who believed the United States should support the NATO and European Union (EU) alliances and maintain a strong Western front.[88] A website project called Hamilton 68, named after Alexander Hamilton's Federalist Paper No. 68, which identified the need for the United States to protect itself from foreign interference, tracks in real time the actions of 600 Twitter accounts believed to be associated with the Russian government and used to push Kremlin messaging. With Russia being anti-EU and anti-NATO, the #FireMcMaster movement was fully supported by Russian trolls and bots and helped push the hashtag to the top of the trending topics on Twitter for three days.[89]

A third example of Russian leadership, media, and aggressive trolls exercising retaliation measures to counter and discredit an opposing figure is the case with American icon Morgan Freeman. In September 2017, the Committee to Investigate Russia—a nonprofit, nonpartisan resource provided "to help Americans recognize and understand the gravity of Russia's continuing attacks on our democracy"—released a two-minute film called "War."[90] The video features Freeman speaking directly into camera, pitching a movie script that details how former KGB officer Vladimir Putin is midstride in exacting vengeance upon the United States for the collapse of the USSR. With one of the most distinctive voices in Hollywood, Freeman explains how Putin uses cyberwarfare and social media to spread propaganda and false information "to convince people in democratic societies to distrust their media, their political processes, and even their neighbors."[91] Freeman states that this is not a movie but real life and Russia is waging a war against the United States. Within days of the video's release, all tiers of the Kremlin's propaganda machine responded in what appears to be a coordinated effort to discount and belittle the American actor. Russian Foreign Ministry public affairs representative Maria Zakharova implied the video was bogus and America was laying a foundation to justify possible future actions just as in 2003 when then-secretary of state Colin L. Powell spoke to the United Nations and presented evidence to build a case that Saddam Hussein had stockpiled chemical weapons.[92] Russian TV personalities discussed the actor, providing commentary to explain his involvement in this "Russophobic" project. Considered theories accused Freeman of being overworked, abusing drugs, and a guest psychiatrist's opinion that the actor's performance smacked of "a Messianic complex resulting from playing God or the president in several films."[93] The aggressive trolls cleaned up with the #StopMorganLie hashtag that accompanied all sorts of tweets, such as "Morgan Freeman: War Whore," "Morgan Freeman must be severe mentally sick," and Morgan Freeman is a "fool" who "lies" and needs to "retire."[94] The Kremlin troll army jumped at the opportunity to juxtapose Freeman's line in the video that "For 241 years, [America's] democracy has been a shining example to the world" with images depicting the heinous treatment of Native Americans,

[87] Bertrand, "The Knives Are Coming Out for H. R. McMaster"; and Graham Lanktree, "White House Officials Brand Alt-Right Attacks on McMaster 'Dishonourable and Disgusting'," *Newsweek*, 14 August 2017.
[88] Lanktree, "White House Officials Brand Alt-Right Attacks on McMaster 'Dishonourable and Disgusting'."
[89] "Russian Bots Tweeting Calls To Fire McMaster, Former FBI Agent Says," NPR, 20 August 2017.
[90] "About Us," Committee to Investigate Russia, accessed 24 February 2018.
[91] "Committee to Investigate Russia: War," YouTube, 18 September 2017, 2:06.
[92] Kyle Swenson, "Why Bashing Morgan Freeman, of All People, Is Suddenly the Rage in Russia," *Washington Post*, 22 September 2017.
[93] "Russia Turns on Morgan Freeman over Election 'War' Video," BBC, 21 September 2017.
[94] Maryfloor, "Morgan Freeman Must Be Severe Mentally Sick #StopMorganLie," Twitter post, 22 September 2017; Dermot Carroll, "Morgan Freeman: War Whore," Twitter post, 1 October 2017; and Alexandr, "Freeman Was a Good Actor, but You Need to Retire. Life Is Not Hollywood, mr.Freeman," Twitter post, 21 September 2017.

African Americans, and Vietnamese villagers during the Vietnam War.[95] Different tweets using the #StopMorganLie mention Hiroshima, Nagasaki, Iraq, and Libya to underscore that the United States' form of democracy is war and destruction.[96]

The fourth set of Russian troll tactics are called Wikipedia trolls. They simply post information pulled from another source like Wikipedia, history websites, or an online almanac to add validity to their points. The information is normally true, but it is devoid of any context.[97] For example, when the U.S. government issues a statement such as "The Iranian regime is the world's leading state sponsor of terror," a Wikipedia troll could respond on social media forums with a factual list, from a reputable website, of the 39 wars and conflicts the United States has been involved with in the twentieth century.[98] Avoiding emotion, this troll usually posts a single comment alluding to U.S. hypocrisy, such as "America should check its own history of causing terror over the last century before it calls out another country," and then presents the selective facts to back up the claim. Without all the amplifying information of why America entered those conflicts, who it was fighting, the reasons for the conflict, and what level of warfare took place, the Wikipedia troll hopes to lure its audience into drawing incorrect conclusions.[99]

Similar to the Wikipedia troll tactic, the final troll examined is called the attachment troll. Its message is short and includes a link or attachment that urges audiences to follow it. These links lead to additional information and should not be confused with a traditional internet troll, who leaves links to inappropriate content or "virus program pages" in an attempt to annoy and aggravate users.[100] Most often, attachment trolls push Russian-produced content, such as clips of news broadcasts, YouTube videos made by "real people" on location, or professionally produced articles and blogs. The troll seeks to educate the audience. The NATO study found that the detection of Wikipedia and attachment trolls are more difficult because their "human content," or actual message, is minimized in favor of pushing more structured content. Thus, people with lower education levels have a higher chance of being influenced by these final two tactics because the information pushed contains elements of truth.[101]

Moscow's cyber troops use these five trolling tactics to shift blame, engender sympathy, attack critics, present facts, and influence audiences. The trolls engage in a variety of ways, from the obvious to the unsuspecting. While they toe the party line and may indoctrinate the unwitting, the true value of Putin's trolls is their ability to trash the information environment with gobs of disinformation and nonsense. This renders conversations based on facts almost impossible. Moscow is not just waging "an information war, but an actual war on information" itself.[102] When information is, or even perceived to be, tainted, manipulated, or obscured, people lose trust and confidence in the institutions involved. Russia does not benefit from the American people trusting or distrusting the Kremlin; Russia could benefit from any strife induced from the American people not trusting their own government.

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[95] @ramon_merkader, " 'For 241 Years a Shining Example for Democracy…' Show These Photos of American Democracy to Your Liar Freeman," Twitter post, 20 September 2017.

[96] Прогре$$ для $ША, Twitter post, 24 September 2017; Павел Алексеевич, "#stopmorganlie," Twitter post, 21 September 2017; and "Russia Turns on Morgan Freeman."

[97] "Internet Trolling as a Hybrid Warfare Tool," 62.

[98] Donald J. Trump, "Statement by the President on the Iran Nuclear Deal," White House, press release, 12 January 2018; and "List of Wars Involving the United States," Wikipedia, 14 April 2019.

[99] "Internet Trolling as a Hybrid Warfare Tool," 62.

[100] "Internet Trolling as a Hybrid Warfare Tool," 62–63.

[101] "Internet Trolling as a Hybrid Warfare Tool," 80.

[102] "Confronting Russia's Weaponization of Information," 7.

CONCLUSION: TRUE LIES

From the beginning of the Cold War to today, Russia's use of propaganda and disinformation to subvert the West is well documented by the U.S. government, academia, and the media. Recently, a CNN reporter examined a Soviet disinformation campaign from 1959 to compare the tactics used by the Russians in the late 1950s to those used during the 2016 U.S. elections. Michael Weiss found that the goals in both cases were to agitate communities, cause protests, and diminish people's faith in Western values; however, Moscow updated its disinformation methods to exploit current technology and communication trends to extend the reach and increase the number of targets exposed to the ruse. Describing the success of these deception operations, the author mentions a line from English poet William Blake's "Auguries of Innocence": "A Truth that's told with bad intent, beats all the lies you can invent."[103] Incorporating slivers of truth into false narratives increases their plausibility and is a strong tactic; it was mastered by the Soviets and is currently a strategy employed by the Kremlin.

In comparison, there are fewer sources examining how Russia spreads countless lies, without regard to the truth, to foul the information space. The *New Yorker's* reporter Adrian Chen has covered Putin's troll army since 2015. In his interviews with Russian journalists and activists, he discovered that the trolls' main goal "was not to brainwash readers, but to overwhelm social media with a flood of fake content, seeding doubt and paranoia, and destroying the possibility of using the Internet as a democratic space."[104] This strategy is also used by RT and Sputnik. Free from the shackles of facts, there is an unlimited supply of compelling stories consisting of fabricated accounts, dramatic soundbites, and outlandish narratives. When Russia's deputy minister of communication was confronted about state-run media presenting completely false news coverage, his response included no denial of the accusation and a simple statement about the public responding to the presentation, style, and content of the material with increased ratings.[105] With a license to lie, continual attempts to redefine reality, and proclamations that all news networks produce biased coverage, Russia is simultaneously furthering its narratives, crowding the information environment with distractions and junk, and damaging public trust in the media to report unvarnished facts. Democracies are weakened when truth cannot be sorted from fiction.

The American people have a right to know that they are targets of manipulation. Their democratic values are under attack, attempts to weaken the U.S. government are underway, and the social and political issues that divide swaths of the country are being amplified to further splinter the nation. The Kremlin's mass media ecosystem is very effective at spreading propaganda and masking disinformation. Russian leaders insert their narrative into the information environment, then state-backed news agencies run it through their channels, followed by cyber troops trolling the internet dispensing variations of the messages, all while supported by automated software generating social media posts. Information circulated in this complex, self-affirming network flows both up and down this messaging food chain. Sometimes rumors are spread by the trolls, then picked up by the media, and ultimately become talking points for Russian leaders. It is important to remember that Moscow does not distinguish between times of war and peace; information warfare is dispersed across the national instruments of diplomacy, economics, and military as an everyday tool to push its political agenda.[106] The mission of RT and Sputnik is not

[103] Michael Weiss, "The Making of a Russian Disinformation Campaign: What It Takes," CNN, 11 October 2017; and William Blake, "Auguries of Innocence," *The Pickering Manuscript* (Rockville, MD: Blackmask Online, 2001), e-book, 14.

[104] Adrian Chen, "The Real Paranoia-Inducing Purpose of Russian Hacks," *New Yorker*, 27 July 2016.

[105] Gordon, "Russia and the Menace of Unreality."

[106] Shultz and Godson, *Dezinformatsia*, 1–2; and *Disinformation*, 31.

to solicit universal approval for the Kremlin and its policies, but to sow discord among Russia's alleged enemies.[107] Finally, online troll factories plot and manage several strategies to magnify and exploit rifts in the "American social fabric where it is most vulnerable, along lines of race, gender, class, and creed."[108] This thriving twenty-first century mass media ecosystem creates environments where propaganda and disinformation blur the lines between fact and fiction and cast doubt on information sources. When the international community is unable to identify the truth, or has presented findings pushed aside as noncredible facts, Russia is emboldened to carry out its confrontational foreign policy.

In 2016, the *Oxford Dictionaries*' word of the year was *post-truth*. It is an adjective that describes circumstances where "objective facts are less influential in shaping public opinion than appeals to emotion and personal belief."[109] The need for such a word points to a gradual shift in modern culture and specifically the nature of politics. If society is inching toward a post-truth age, where facts are becoming immaterial and narratives are fueled by feelings and preconceived convictions, how is truth supposed to counter disinformation and propaganda? Further complicating the notion that truth dispels lies is the fact there are so many lies to counter. In a sea of competing ideas where everyone is skeptical of tainted or biased information, truth is either lost or incapable of setting the record straight. To believe people will always know the truth when confronted with an adaptive ecosystem of lies that creates competing alternate versions of reality is naïve and unhelpful. Russia's employment of propaganda and disinformation in massive volumes on a continuous cycle is just as dangerous as bullets and tanks. If the war on information continues unopposed, truth will become a casualty. In that scenario, integrity wanes, civic duty is devalued, and democracy decays.

The question of how to halt or counter propaganda and disinformation broadcast on television and radio, printed in newspapers, published online, and steeped into the very conversations on our social networks is an important question. Leaders familiar with Russia's information operations, such as former NATO deputy secretary general Alexander Vershbow, believe the answer is not responding with more propaganda, but "with the truth and facts." The West, with time and credibility, can set the record straight.[110] Other leaders such as Geoffrey R. Pyatt, U.S. ambassador to Ukraine, believe rebutting Moscow's multitude of narratives is too time consuming: "You could spend every hour of every day trying to bat down every lie, to the point where you don't achieve anything else. And that's exactly what the Kremlin wants."[111] The two philosophies are not necessarily in opposition to one another, but they illuminate the conundrum of the situation. There is no consensus among U.S. leadership about the severity of this issue or how to address it. A closer look at the disparity between identifying the problem and implementing a solution can be found in the current *National Security Strategy*. The keystone document clearly identifies Russia's intent to use information operations and its mass media ecosystem to subvert Western democracies, discredit the United States' world power status, and influence public opinion around the globe. However, it also states that the United States lacks a concerted plan to combat the problem:

> U.S. efforts to counter the exploitation of information by rivals have been tepid

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[107] Patrikarakos, *War in 140 Characters*, 134.

[108] Tom McCarthy, "How Russia Used Social Media to Divide Americans," *Guardian*, 14 October 2017.

[109] "Post-truth," Oxford Dictionaries, accessed 13 March 2018.

[110] Alexander Vershbow, "Meeting the Strategic Communication Challenge" (remarks at the Public Diplomacy Forum, 18 February 2015, Brussels, Belgium).

[111] "Interview: U.S. Ambassador Geoffrey Pyatt on Euromaidan, Ukrainian Reforms and Kremlin Trolls," *Business Ukraine*, 5 December 2015.

> and fragmented. U.S. efforts have lacked a sustained focus and have been hampered by the lack of properly trained professionals.[112]

Russia will continue conducting information warfare against the American people. The United States must formulate and resource a whole-of-government approach to address this threat. To continue without a strategy to counter the Kremlin's information war leaves truth in the crosshairs and jeopardizes America's international reputation and domestic tranquility.

[112] *The National Security Strategy of the United States of America*, 25, 35.

Pragmatic Pushback
A Strategy to Manage China in the South China Sea

Major Edwin Y. Chua, Singapore Army[1]

> China is a big country and other countries are small countries, and that's just a fact.[2]

On 12 July 2016, an arbitral tribunal constituted under the 1982 United Nations Convention on the Law of the Sea (UNCLOS) invalidated China's historic claims in the South China Sea.[3] China published its claims in 1947 and justified them on the basis of maps and relics that dated back to the Han dynasty in 200 BCE.[4] Despite the tribunal ruling, China has continued its activities in the South China Sea, aggressively exerting control over the waters, expanding its artificial islands, and building military structures on the islands.[5] The actions by the People's Liberation Army (PLA) Navy build on a pattern of aggressive action and "salami-slicing" tactics in the South China Sea.[6] At the same time, China has pursued diplomatic efforts to reduce tensions in the area. In 2002, China signed the Declaration on the Conduct of Parties in the South China Sea (DOC), which committed all states to upholding UNCLOS, to reaffirming freedom of navigation in the South China Sea, to resolving territorial and jurisdictional disputes by peaceful means, and to working toward a "Code of Conduct in the South China Sea" (COC).[7] Chinese president Xi Jinping visited Southeast Asia in October 2013 and highlighted Beijing's intention of establishing a peaceful and stable regional environment through a seven-point proposal to deepen cooperation with the Association of the Southeast Asian Nations (ASEAN).[8] The perception of contradictory Chinese actions has led some observers to conclude that "China's regional diplomacy has a schizophrenic quality."[9] However, China's actions in the South China Sea are consistent with the Chinese government's long-term effort to secure China's economic interests and demonstrate China's growing influ-

[1] Maj Chua is a distinguished graduate of MCU's Command and Staff College. This paper was nominated for the Chairman of the Joint Chiefs of Staff, National Defense and Military Strategy Essay Award for academic year 2017–18.

[2] Yang Jiechi (speech, Association of South East Asian Nations [ASEAN] Conference, 22 July 2010, Hanoi).

[3] *PCA Case No. 2013-19, In the Matter of the South China Sea Arbitration before An Arbitral Tribunal Constituted Under Annex VII to the 1982 United Nations Convention on the Law of the Sea between the Republic of the Philippines and the People's Republic of China* (The Hague, Netherlands: Permanent Court of Arbitration, 2016), 63.

[4] Lee Lai To, *China and the South China Sea Dialogues* (Westport, CT: Praeger Publishers, 1999), 9.

[5] Christina Zhao, "U.S. Blasts Beijing for 'Provocative Militarization' of Disputed South China Sea," *Newsweek*, 9 January 2018.

[6] Robert Haddick, "Salami Slicing in the South China Sea," *Foreign Policy*, 3 August 2012.

[7] "Declaration on the Conduct of Parties in the South China Sea," ASEAN, 4 November 2002.

[8] Philip C. Saunders, *China's Juggling Act: Balancing Stability and Territorial Claims* (Zurich: Pacific Forum CSIS, 2014.)

[9] Saunders, *China's Juggling Act*.

ence and power for both international and domestic audiences. The United States and countries in the regional should adopt a strategy of pragmatic pushback to maintain the peace while shaping China's behavior as a responsible international stakeholder.

While authors such as Robert D. Kaplan and Michael Pillsbury attribute China's actions in the South China Sea to a strategy of gaining regional and global hegemony, maritime history suggests that all states have sought to secure their economic lifelines.[10] Alfred Thayer Mahan, a strategist who was influential in the development of American maritime power, writes that "this protection [of commercial shipping] in time of war must be extended by armed shipping. . . . The need is soon felt of points upon which the ships can rely for peaceful trading, for refuge and supplies."[11] Mahan further argues that manufacturing economies relied on naval power to protect commerce.[12] Currently, the Chinese economy is highly dependent on sea lines of communication (SLOCs) in the South China Sea and the Strait of Malacca, with 82 percent of China's oil imports passing through the South China Sea in 2016.[13] China's manufacturing industries also export US$874 billion worth of goods through the South China Sea.[14] This reliance on the South China Sea led former Chinese president Hu Jintao to label the potential threat to China's economy as the "Malacca Dilemma."[15] From this perspective, the PLA Navy's increased presence in the South China Sea is justified by the need to secure China's SLOCs from interference against real or perceived threats. The importance of economic drivers in China's reasoning also can be seen in how China is trying to reduce its dependence on the South China Sea through the expansion of its port at Gwadar in Pakistan, which is connected by rail to China.[16] Through its Belt and Road Initiative, China is also building a port in Myanmar to bypass the South China Sea and the choke point of the Strait of Malacca entirely.[17] The success of these initiatives could reduce the importance of SLOC security as a driver for China's behavior in the South China Sea.

Beyond securing SLOCs, the growing Chinese economy and China's search for alternative energy sources to sustain its economy could be another factor driving more provocative territorial expansion in the South China Sea. In 2013, a U.S. Energy Information Administration report estimated that the seabed of the South China Sea contained up to 11 billion barrels of oil, which made up 17 percent of the world's remaining recoverable crude oil, and another 190 trillion cubic feet of natural gas in proven and probable reserves.[18] A U.S. Geological Survey analysis in the same report found that the South China Sea could contain up to another 22 billion barrels of oil and 290 trillion cubic feet of natural gas in as-yet undiscovered resources.[19] To support the search for energy, China has invested in deep-water production facilities and sup-

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[10] Robert D. Kaplan, *Asia's Cauldron: The South China Sea and the End of a Stable Pacific* (New York: Random House, 2015), 24; and Michael Pillsbury, *The Hundred-Year Marathon: China's Secret Strategy to Replace America as the Global Superpower* (New York: St. Martin's Press, 2016), 193.

[11] A. T. Mahan, *The Influence of Seapower upon History, 1660–1783* (New York: Dover Publications, 1987), 27.

[12] Seth Cropsey and Arthur Milikh, "Mahan's Naval Strategy: China Learned It. Will America Forget It?," *World Affairs Journal* (March/April 2012).

[13] Sara Hsu, "China's Energy Insecurity Glaring in South China Sea Dispute," *Forbes*, 2 September 2016.

[14] "How Much Trade Transits the South China Sea?," Center for Strategic and International Studies, accessed January 29, 2018.

[15] Marc Lanteigne, "China's Maritime Security and the 'Malacca Dilemma'," *Asian Security* 4, no. 2 (2008): 143, https://doi.org/10.1080/14799850802006555.

[16] Ziad Haider, "Baluchis, Beijing, and Pakistan's Gwadar Port," *Georgetown Journal of International Affairs* 6, no. 1 (Winter 2005): 96.

[17] *China's Engagement in Myanmar: From Malacca Dilemma to Transition Dilemma*, Myanmar Policy Briefing 19 (Amsterdam, Netherlands: Transnational Institute, 2016), 5.

[18] *South China Sea* (Washington, DC: U.S. Energy Information Administration, 2013), 2.

[19] *South China Sea*.

port vessels. By December 2015, China had 57 of such platforms, including 7 platforms that can operate in waters deeper than 3,000 meters.[20] In 2017, China launched two of the world's largest offshore oil exploration platforms, the *Bluewhale 1* and *Bluewhale 2*, which are designed specifically for the South China Sea.[21] The China National Offshore Oil Corporation also announced in 2017 that it was offering 22 oil and gas blocks in the South China Sea for codevelopment with foreign companies.[22] Some of these blocks are in waters claimed by Vietnam, which could raise tensions between China and Vietnam.

Despite these actions, China has a strong impetus not to allow tensions over the South China Sea to escalate to open conflict with countries in the region and the United States. While many commentators noted that President Xi proposed a more proactive, global perspective for China's foreign policy at the 19th Congress of the Communist Party of China, the main emphasis of his report was still domestic. President Xi emphasized that the "principal contradiction" facing Chinese society was between China's "unbalanced and inadequate development and the people's ever-growing needs for a better life," and the urgent imperative of revitalizing the Communist Party to meet those needs if the goal of building a "modern socialist country" is to be met.[23] President Xi also committed the Chinese government to the goal of making China a "moderately prosperous country" by 2020 and a "modern socialist country" by 2049.[24] A major war or conflict over the South China Sea would significantly disrupt these plans.

While China does not seek a major conflict about the region, it still sees it as a useful means to foster national pride domestically and reinforce the legitimacy of the government. Internationally, it is a useful arena to jostle for influence, especially since the Chinese government perceives that the risk of escalation is low. The impetus for Chinese actions in the South China Sea must be placed within the broader context of how the Chinese government aims to reverse the "century of humiliation" and reclaim China's place in the world. In support of this goal, the PLA Navy expelled Vietnamese forces from the Paracel Islands in 1974.[25] In 1988, the PLA Navy fought Vietnamese forces in the Spratly Islands and subsequently occupied six nearby reefs.[26] Throughout the 1990s, the Chinese government awarded oil exploration rights within the South China Sea to a joint venture of the Chinese National Offshore Oil Corporation and the China Petroleum Corporation and granted oil concessions to American oil firms.[27] The PLA Navy also occupied and built structures on Mischief Reef in 1994, prompting protests from the Philippines, and by 2016 had reclaimed more than 3,200 acres of land in the Spratly Islands.[28] The consistency of Chinese involvement in the South China Sea since at least 1974, a period of more than four decades, suggests that these actions are not driven by the specific calculations of any one Chinese leader. Instead of the theory proposed by some commentators that there has been a distinct shift between Deng Xiaoping's "Hide light, nurture obscurity" (韬光养晦) and

[20] Frank Umback, *The South China Sea Disputes: The Energy Dimensions*, RSIS Commentary No. 085 (Singapore: S. Rajaratnam School of International Studies, 2017), 3.
[21] Ma Chi, "China-built Ultra-deep-water Drilling Rig to Set Sail," *China Daily*, 9 November 2017; and Stephen Chen, "China Launches World's Largest Oil Exploration Sea Platform," *South China Morning Post*, 5 March 2017.
[22] Irina Slav, "China Offers Contested South China Sea Oil and Gas Blocks," Oilprice, 24 April 2017.
[23] Bilahari Kausikan, "How to Think about US-China Relations in 2018," Today, 4 January 2018.
[24] Xi Jinping, "Secure a Decisive Victory in Building a Moderately Prosperous Society in All Respects and Strive for the Great Success of Socialism with Chinese Characteristics for a New Era" (speech, 19th National Congress of the Communist Party of China, 18 October 2017).
[25] Chien Chung, "Confidence-Building Measures in the South China Sea," in *The Security Environment in the Asia-Pacific*, ed. Hung-mao Tien and Tun-jen Cheng (Armonk, NY: M. E. Sharpe, 2000), 266.
[26] Chung, "Confidence-Building Measures in the South China Sea."
[27] Chung, "Confidence-Building Measures in the South China Sea," 282.
[28] *Annual Report to Congress: Military and Security Developments Involving the People's Republic of China 2017* (Washington, DC: Office of the Secretary of Defense, 2017), 12.

Xi Jinping's "Strive for achievement" (奋发有为) approach, this historical analysis shows that Chinese leaders from Deng Xiaoping to Xi Jinping have consistently tried to assert Chinese sovereignty in the South China Sea. Any difference in Chinese actions toward the South China Sea could instead be better explained by a careful calculation of the relative strengths and weaknesses of China vis-à-vis other countries in the region. The consideration given to relative power in determining China's assertiveness in the South China Sea is in line with Chinese strategic culture. For example, Sun Tzu's *Art of War* emphasizes in its first chapter that "with many calculations, one can win; with few one cannot."[29] A rising China naturally has more capabilities and resources that can be deployed to enforce what it perceives to be its long-standing historical claims. The Chinese government's current position on the South China Sea issues reflects this perspective of strength.

This consistent stance by the Chinese government over time aligns with its domestic interests, where the South China Sea issue is a useful way for the Chinese government to tap on the narrative of the "century of humiliation" in a positive manner, by demonstrating how China can overcome the past through its newfound national strength. This points to growing nationalistic sentiments in China to reinforce the legitimacy of the government. Alison Kaufman, a China analyst, states that the Chinese government's official narrative is that the "century of humiliation," a period between 1839 and 1949 when China's government lost control of large portions of its territory at the hands of foreigners, ended when the Chinese Communist Party (CCP) won the Chinese civil war and established control of China.[30] The CCP portrays itself as the only modern Chinese political party that could successfully stand up to foreign aggression and regain the territories lost to Western powers and the Japanese when China was weak.[31] This narrative has been consistently invoked by the CCP, most recently during the 20th anniversary of the return of Hong Kong to Chinese rule, when President Xi Jinping said,

> Twenty years ago today, Hong Kong returned to the embrace of the motherland. This ended past humiliation and marked a major step forward toward the complete reunification of China. Hong Kong's return to the motherland has gone down as a monumental achievement in the history of the Chinese nation.[32]

The narrative of humiliation and territory loss also applies to tensions between China and Japan about the East China Sea, where China disputes Japanese sovereignty over the Senkaku Islands. China's actions in the East China Sea mirror its actions in the South China Sea. China staked its claim to the Senkaku Islands in 1970 and has utilized international law to try to justify the claims.[33] Since 2016, China has used both civilian and coast guard vessels to enter the territorial waters around the islands almost daily.[34] In 2013, China unilaterally declared the establishment of an Air Defense Identification Zone (ADIZ) in the East China Sea, which Robert E. Kelly, a scholar at the Pusan National University, suggests was because the CCP hoped to

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[29] Sun Tzu, *The Art of War*, trans. Samuel B. Griffith (New York: Oxford University Press, 1963), 71.

[30] *The "Century of Humiliation" and China's National Narratives: Testimony before the U.S.-China Economic and Security Review Commission Hearing on "China's Narratives Regarding National Security Policy*, 112th Cong. (10 March 2011) (statement of Alison A. Kaufman, China analyst, CNA).

[31] *The "Century of Humiliation" and China's National Narratives*.

[32] Xi Jinping, "Address at the Meeting Celebrating the 20th Anniversary of Hong Kong's Return to the Motherland and the Inaugural Ceremony of the Fifth-Term Government of the Hong Kong Special Administrative Region," (speech, Hong Kong Convention and Exhibition Center, 1 July 2017).

[33] Seokwoo Lee, *Territorial Disputes among Japan, China, and Taiwan concerning the Senkaku Islands*, Boundary and Territory Briefing 3, no. 7, ed. Shelagh Furness and Clive Schofield (Durham, UK: University of Durham International Boundaries Research Unit, 2002), 10.

[34] Reinhard Drifte, *Japan's Security Relations with China Since 1989* (New York: RoutledgeCurzon, 2003), 49.

boost its own internal legitimacy by appearing to challenge Japan.[35] Michael D. Swaine, a senior fellow at the Carnegie Endowment for International Peace, corroborates Kelly's statement in his analysis of Chinese reporting on the establishment of the ADIZ, which contains a narrative of pushing back against Japan's illegal, unjust, and provocative behavior toward China.[36]

Increased reliance on nationalism and the century of humiliation narrative to bolster the legitimacy of the Communist Party could also be a result of slowing economic growth and increasing social tensions in China. From 1978 to 2011, Deng Xiaoping's economic reforms had led to a 10 percent average annual gross domestic product (GDP) growth rate.[37] However, GDP growth has slowed since 2012, which has led to questions about the sustainability of China's economic model. The World Bank has stated that China must make significant policy adjustments for its growth to be sustainable.[38] The difficulty of these reforms was acknowledged by Xi Jinping in his 19th Party Congress report as the "principal contradiction" facing China. Concomitant with slowing growth is an increase in social instability in China, with the total number of mass incidents—public protests or riots—rising from 8,700 in 1993 to 180,000 in 2010.[39] President Xi Jinping has also conducted a strong anticorruption campaign since 2012, and initiated widespread reforms of the PLA, which could contribute to instability within the Chinese Communist Party and the PLA. As such, a strong foreign policy posture would be needed to bolster Xi Jinping's domestic power base by focusing attention on external security rather than domestic matters.[40]

The Chinese government also acts aggressively in the South China Sea because it perceives that the risk of escalation is low as other countries in the region are relatively weaker than China, while the United States has not been consistent in its strategy to balance against China's actions. For example, while there was international protest against China's declaration of an Air Defense Identification Zone in the East China Sea in 2013, there were few tangible repercussions for China. In the South China Sea, regional countries have been unable to effectively balance against the activities of China through regional groupings such as ASEAN, due to the disparate interests of the ASEAN member states. For example, the 2012 ASEAN Summit was not able to issue a consensus joint communique on the South China Sea due to Chinese pressure on Cambodia, the chair of ASEAN that year.[41] Subsequently, the 2016 ASEAN Foreign Ministers Meeting abruptly retracted a statement expressing serious concerns about the South China Sea due to Chinese pressure.[42] Yun Sun, a fellow with the East Asia Program at the Stimson Center, has stated that the Barack H. Obama administration's reluctance to intervene militarily in Syria and Ukraine, as well as attempts to end the wars in Iraq and Afghanistan, had led China to conclude that the United States would not be willing to escalate the situation in the South China Sea.[43] Bronson Percival, a South East Asia expert with CNA, a nonprofit research and analysis organization, also has written that American policy in the region has fluctuated between

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[35] Max Fisher, "Does China ADIZ Take Focus Off 'Real Enemy'?," (Tokyo) *Japan Times*, 1 December 2013.
[36] Michael D. Swaine, *Chinese Views and Commentary on the East China Sea Air Defense Identification Zone* (Washington DC: Carnegie Endowment for International Peace, 2014), 7.
[37] Milton Kotler, "The Next Decade of China's Growth," American Marketing Association, June 2015.
[38] "The World Bank in China: Overview," World Bank, 8 April 2019.
[39] Joseph Fewsmith, "Domestic Drivers of China's Future Military Modernization," in *The People's Liberation Army in 2025*, ed. Roy Kamphausen and David Lai (Carlisle Barracks, PA: Strategic Studies Institute, U.S. Army War College, 2015), 59.
[40] Yun Sun, *China's New Calculations in the South China Sea*, Asia Pacific Bulletin No. 267 (Washington, DC: East West Center, 2014), 1.
[41] "ASEAN Nations Fail to Reach Agreement on South China Sea," BBC, 13 July 2012.
[42] Hannah Beech, "What a Retracted Statement Says about China's Growing Power in the South China Sea," *Time*, 15 June 2016.
[43] Yun Sun, *China's New Calculations in the South China Sea*, 2.

episodes of deep intervention and long stretches of neglect.[44] Indeed, Singapore's ambassador Bilahari Kausikan has noted that "a pivot swings in different directions," and that the metaphor of the "Pacific Pivot" used by the Obama administration was thus an inappropriate choice of words because it underscored the inconsistent attitudes of the United States toward the region. As a result, even as regional countries seek to anchor the United States in the region, they continue to hedge against a possible disengagement by the United States. This could be why they have rebuffed offers by the United States to mediate in the South China Sea disputes, such as Secretary of State Hillary Clinton's offer in 2010 and President Donald Trump's offer in 2017.[45]

A coordinated response toward China must recognize that Chinese claims in the South China Sea have been long-standing, while its actions are based on its perceptions and estimates of domestic support and the possible reaction of external countries. The United States and countries in the region should adopt a strategy of pragmatic pushback to signal a stronger resolve against Chinese actions in the South China Sea, while providing sufficient room for the Chinese leadership to accommodate its domestic considerations of security and nationalism. The domestic economic drivers of Chinese actions in the South China Sea suggest that China's revanchist attitudes will continue as long as it perceives a benefit to doing so. Thus, a strong response against continued Chinese expansionism is required to change the cost-benefit calculation of the Chinese government. At the same time, there is a need to offer pragmatic alternatives, such as joint energy exploration, that take into account the security needs of a growing Chinese economy, as well as allow the Chinese government to portray a win-win solution to incentivize positive behavior by China and shape its rise as a responsible regional and international stakeholder.

Countries in the region and the United States must work together to demonstrate a clear commitment to pushing back against expansionist behavior by China. In support of this effort, the United States should communicate its consistent presence in the region and support for international law and a rules-based order. In response to critiques of the term *Pacific pivot*, the Obama administration adopted the phrase *rebalance to Asia*. which better acknowledges the enduring United States presence in the region.[46] Recent events, such as President Trump's attendance at the 2017 ASEAN Regional Forum in Manila, the Philippines, and Secretary of Defense James N. Mattis's speech at the 2017 Asia Security Summit: Shangri-La Dialogue in Singapore where he affirmed the United States' "enduring commitment to the security and prosperity of the region," are positive signals that America will continue to remain engaged in the Indo-Pacific.[47] These positive developments should be reinforced by the consistent conduct of freedom of navigation operations in the South China Sea, not only by the U.S. Navy, but also with the support and participation of others in the region. Furthermore, clear red lines such as the opposition to the Chinese declaration of an ADIZ in the South China Sea should be communicated. Initiatives to engage other rising powers in the region, such as the revival of the "Quadrilateral" involving the United States, Japan, Australia, and India, increasing bilateral and multilateral maritime exercises in the region, and Singapore's invitation of Prime Minister Narendra Modi to deliver the keynote address at the Shangri-La Dialogue in 2018, should also be welcomed and expanded.[48]

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[44] Bronson Percival, *The Dragon Looks South: China and Southeast Asia in the New Century* (Westport, CT: Praeger Security International, 2007), 128.

[45] Mark Landler, "Offering to Aid Talks, U.S. Challenges China on Disputed Islands," *New York Times*, 23 July 2010; and Bill Hayton, "Trump Is Causing Conflict by Playing Peacemaker," *Foreign Policy*, 14 November 2017.

[46] Richard Weitz, "Pivot Out, Rebalance In," *Diplomat*, 3 May 2012.

[47] James N. Mattis, "Remarks by Secretary Mattis at Shangri-La Dialogue" (speech, Shangri-La Dialogue, Singapore, 3 June 2017).

[48] Tanvi Madan, "The Rise, Fall, and Rebirth of the 'Quad'," *War on the Rocks*, 16 November 2017; and "Indian PM Modi to Deliver Keynote Address at Shangri-La Dialogue Next Year," *Channel News Asia*, 16 November 2017.

Even as the pushback is being implemented, pragmatic steps must be taken to avoid pushing the Chinese government into making an invidious choice between potentially undermining domestic legitimacy and attracting international opprobrium. To do so, win-win solutions should be proposed that take into account China's interests in the South China Sea. The Chinese government has shown a willingness to initiate and agree to joint military exercises as well as joint exploration of resources in disputed waters. In July 2005, China, Japan, and South Korea held their first naval joint search and rescue operation in the East China Sea.[49] In September and November 2006, Chinese and American navies conducted two search and rescue exercises on the West Coast and in the South China Sea.[50] In January 2007, China participated in the first ASEAN Regional Forum maritime security exercise hosted by Singapore.[51] In 2008, China and Vietnam pledged to seek a "fundamental and long term" solution to their maritime disputes and to enhance cooperation in oceanic research, environmental protection, and joint exploration and exploitation of oil and gas resources in the Tonkin Gulf.[52] China has allowed ships from the Philippines to fish in disputed waters after president of the Philippines Rodrigo Duterte avoided publicly pressuring China on the Permanent Court of Arbitration ruling in 2016.[53] In 2017, the Philippines and China entered discussions on a joint energy exploration plan in the South China Sea.[54] At the recently concluded 31st ASEAN Summit Meeting in Manila, China and ASEAN countries also formally announced the start of negotiations on a legally binding "Code of Conduct in the South China Sea" after years of delay.[55] These agreements between China and regional countries point the way toward the success of traditional diplomacy in resolving territorial disputes.

The utility of the South China Sea as an arena for competition works both ways. While China sees competition in the South China Sea as a legitimate way to secure its access to resources for its growing economy, and a useful means to demonstrate its growing influence for domestic and international audiences, a coordinated multinational effort can also use competition and collaboration in the South China Sea to shape China's behavior as a responsible international stakeholder. Such an effort must avoid the perception of being designed to "constrain" China's rise, and thus the engagement of China in areas of shared interest is needed to generate win-win solutions that will mitigate China's adverse reaction to any pushback. Taken together, both pushback against Chinese activities as well as pragmatic engagement of China will encourage positive behavior by China and shape its rise as a responsible international stakeholder.

[49] Li Mingjiang, "China Participates in East Asian Maritime Cooperation: Growing Activism and Strategic Concerns," in *Southeast Asia and the Rise of Chinese and Indian Naval Power*, ed. Sam Bateman and Joshua Ho (New York: Routledge, 2010), 213.
[50] "China Participates in East Asian Maritime Cooperation."
[51] "China Participates in East Asian Maritime Cooperation."
[52] "China-Vietnam Joint Statement," Ministry of Foreign Affairs of the People's Republic of China, 25 October 2008.
[53] Ankit Panda, "South China Sea: Philippine Fishermen Gain Access to Scarborough Shoal after Duterte's China Trip," *Diplomat*, 29 October 2016.
[54] Enrico Dela Cruz, "Philippines to Explore for Oil and Gas with China Near Disputed Waters," Reuters, 28 September 2017.
[55] James Pomfret and Neil Jerome Morales, "South China Sea Code of Conduct Talks to Be 'Stabilizer' for Region: China Premier," Reuters, 13 November 2017.

Shifting Sands
The Moral Dilemma of U.S. Military Intervention in Syria

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In a democratic society such as the United States, moral imperatives play an important but not absolute role in the decision-making process regarding the use of military force to achieve policy goals. Simply put, moral guideposts sometimes pull national leaders in different directions. U.S. intervention in the Syrian conflict is a prime example of this dilemma. Decision makers have vacillated between competing ethical and national security imperatives in determining the U.S. response. Those in favor of intervention inside another sovereign nation point to the moral tragedy of hundreds of thousands killed and the brutality of chemical weapons attacks and terrorism. Conversely, leaders face relentless domestic pressures to avoid excessive casualties from the use of force, particularly when U.S. involvement may not decisively end the killing in what could become a protracted battle. As a result of this policy vacuum, the U.S. response in Syria has been uneven and subject to continuing criticism. In fact, Syria presents a tragic case study in how moral imperatives sometimes clash and contribute to strategic confusion for the United States.

Crucial to any discussion of moral imperatives in guiding U.S. intervention in Syria is the notion of sovereignty. One of the primary catalysts of the conflict was the fracturing of Syrian territorial integrity by rebel groups claiming grievances about abuses by the Syrian government under Bashar al-Assad. For outside actors looking to influence this struggle, however, the UN Charter in Article 2 (4) prohibits the use of cross-border force except in very limited circumstances.[2] The mounting humanitarian catastrophe inside Syria and the inability or unwillingness of Assad's regime to halt the violence forced the international community to scramble for political solutions. Unfortunately for the Syrian people, the UN Security Council found itself deadlocked due to Russian and Chinese opposition to the use of military force and related diplomatic efforts through UN special envoys and the Arab League also proved incapable of ending the mass atrocities.[3]

Policy makers grappling with *jus ad bellum* concerns must consider both moral legitimacy and international law when deciding on the use of cross-border force. Competent or legitimate authority to engage in military intervention is often the most contentious concept in such de-

[1] Mr. Skillin is a graduate of MCU's Marine Corps War College. This paper won the Foreign Area Officers Association Award for International Affairs for academic year 2017–18.

[2] LtCol Ryan Dowdy et al., *Law of Armed Conflict Deskbook, 2015* (Charlottesville, VA: International and Operational Law Department, U.S. Army Judge Advocate General's Legal Center and School, 2015), 31. The generally recognized exceptions are enforcement actions authorized by the UN Security Council and acts of individual or collective self-defense. A separate instance is when a sovereign state consents to cross-border use of force.

[3] Scott Straus, *Fundamentals of Genocide and Mass Atrocity Prevention* (Washington, DC: U.S. Holocaust Memorial Museum, 2016), 154.

terminations. At present, for example, legal scholars are debating the legality of U.S. and allied airstrikes in Syria.[4] In the case of the United States government, ascribing legitimacy to military action has taken precedence over establishing the lawfulness of intervention in Syria.[5] The difficult truth is that international legal doctrine rarely provides clear, unambiguous guidance for policy makers.

Beyond the question of authority, just war theory also requires leaders to ensure military actions cause greater good than harm, an extremely difficult bar to clear in a murky environment like Syria.[6] Perhaps the trickiest dimension of using force for political purposes is avoiding unintended escalation. As the United States has discovered multiple times during the last 50 years, military engagements almost never entail one isolated act but rather a series of progressive and often escalating actions.[7] U.S. military force applied in a given direction, however imperfectly, usually makes a significant difference, but it often generates second- and third-order effects that aggravate the problem. Without understanding or being able to predict these wider effects, it is usually difficult to make an airtight moral argument for intervention.

The moral ambiguity faced by the Obama and Trump administrations with respect to Syria intervention reflects the difficulty in defining a political end state and the interplay of a civil war alongside the rise of a transnational terrorist organization. Given previous experiences with U.S. military action in the Middle East, the decisions to limit U.S. involvement in Syria are understandable. The pursuit of humanitarian and moral imperatives could have led the United States to engage an elusive enemy, to support terrorism inadvertently, to get the nation bogged down in another quagmire, or to commit to a course of action that could have cost the lives of hundreds or thousands of American troops. These are fundamentally moral considerations of the highest order for any commander in chief.

Opinion leaders, ethicists, and scholars are divided over whether the United States could or should have intervened more forcefully and effectively in the early, pre-Islamic State stage of the conflict.[8] A military intervention before all political avenues were exhausted would not have constituted a last resort—another central concept of *jus ad bellum*. Moreover, given the extraordinary complexity of the situation, there was a very low likelihood of victory. Noninterventionist thinking also cautions policy makers about the slippery slope toward widespread involvement in alleviating human suffering elsewhere around the globe. This is the well-worn debate over acting as the world's policeman. For many decision makers, the costs of inaction are often the most morally troubling; but the costs of intervention are incremental, cumulative, and unpredictable. Again, the moral dilemma confronts the leader: to act or not to act; to alleviate suffering or to refrain from making the suffering worse; to avoid the next Rwanda or to avoid the next Iraq?

Moving from the abstract to the concrete, the history of U.S. intervention in Syria demonstrates an evolution of moral thinking across two administrations and the persistent nature of the ethical dilemma. As the Syrian conflict kicked off during the 2011 Arab Spring, the Obama

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[4] The most cited argument that the airstrikes violated international and domestic law can be found at Jack Goldsmith and Oona Hathaway, "Bad Legal Arguments for the Syria Airstrikes," *Lawfare* (blog), 14 April 2018. Several scholars argue that a new international legal norm is emerging as a result of the April 2017 and April 2018 airstrikes. See Monica Hakimi, "The Attack on Syria and the Contemporary Jus Ad Bellum," *EJIL: Talk!* (blog), 15 April 2018; and Charlie Dunlap, "Yes, There Are Plausible Legal Rationales for the Syria Strikes," *Lawfare* (blog), 19 April 2018.

[5] Laurie Blank, "Syria Strikes: Legitimacy and Lawfulness," *Lawfare* (blog), 16 April 2018.

[6] Peter J. Munson, "A Reasonable Hope?: Just Intervention in Syria Requires More than Good Intentions," *War on the Rocks* (blog), 19 February 2014.

[7] Munson, "A Reasonable Hope?"

[8] Sigal Samuel, "What if There Is No Ethical Way to Act in Syria Now?," *Atlantic*, 13 April 2018; and Munson, "A Reasonable Hope?"

administration weighed the evidence and decided Syria's civil conflict in and of itself was not pressing enough in terms of American national security to commit U.S. forces. Above all, the Obama White House sought to avoid a repeat of the experience in Iraq, where the United States found itself mired in a political stalemate and a lengthy counterinsurgency campaign following initial military success. By 2013, Obama elected to arm the Free Syrian Army through a covert Central Intelligence Agency (CIA) program but refused to put ground troops into Syria.[9] The moral and security imperative to prevent American military losses outweighed any ethical consideration of mounting casualties among the Syrian civilian population. Instead, a diplomatic and political process in conjunction with allies constituted the main effort in Syria.

The first major shift in U.S. moral thinking in Syria happened in August 2013 when the Syrian government crossed an infamous red line from President Obama regarding the use of chemical weapons. In a widely publicized attack, pro-Assad forces used deadly nerve agents that killed more than 1,400 civilians in a rebel stronghold just east of Damascus on 21 August.[10] As a retaliatory response, President Obama ordered the preparation of a limited airstrike targeting the Assad regime's chemical weapons program. When describing the attack during a 10 September address to the nation, Obama emphasized how the use of chemical weapons constituted "a crime against humanity and a violation of the laws of war."[11] Notwithstanding this remarkable clarity on chemical weapons, Obama controversially halted the planned airstrikes to allow diplomatic talks with Russia to proceed. The goal was to secure and remove Syria's stockpile of chemical weapons and push the Assad government to accede to the Chemical Weapons Convention (in full, the Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction).

Obama's red line had been the use of chemical weapons, but he invited moral and strategic condemnation by failing to follow through on his threat of military retaliation. More generally, this episode raised the uncomfortable moral question of why deaths from chemical attacks justify military action while a far greater number of deaths from conventional weapons are deemed tragic but unstoppable. Certainly, the indiscriminate nature of chemical weapons attacks, killing civilians and combatants alike, creates a stronger moral imperative to act.[12] In suspending the retaliation, Obama averted immediate conflict but may have created new moral hazards for Western nations to overcome in confronting Assad.

With the dramatic rise of the Islamic State in Syria and the Levant (ISIS) in 2014, the Obama administration engaged more decisively in the Syrian conflict. The administration invoked the controversial justification that Syria was "unable and unwilling" to address the imminent terrorist threat from ISIS, requiring the United States and its allies to take military action in collective self-defense.[13] Political efforts sought to isolate Assad and to establish a global coalition to combat and defeat ISIS. Meanwhile, coalition airstrikes and train-and-equip assistance to the Kurdish-led Syrian Democratic Forces battling ISIS became the key operational means

[9] President Trump ended the covert program in June 2017, tacitly acknowledging its failure to force Assad to the negotiating table. See David E. Sanger et al., "Trump Ends Covert Aid to Syrian Rebels Trying to Topple Assad," *New York Times*, 19 July 2017.

[10] Joby Warrick, "More than 1,400 Killed in Syrian Chemical Weapons Attack, U.S. Says," *Washington Post*, 30 August 2013.

[11] Barack H. Obama, "Remarks by the President in Address to the Nation on Syria" (speech, White House, 10 September 2013).

[12] Samuel, "What if There Is No Ethical Way to Act in Syria Now?"

[13] Tess Bridgeman, "When Does the Legal Basis for U.S. Forces in Syria Expire?," *Just Security* (blog), 14 March 2018.

of combating this terrorist threat. While the broader Syrian conflict raged and provided the backdrop for the rise of ISIS, a narrow counterterrorism definition of U.S. interest governed America's military action. The fact that a coalition was involved lent greater moral legitimacy to the anti-ISIS airstrike campaign, even as scholars debated the underlying legal rationale for such intervention.[14]

As the Assad regime, bolstered by Iran and Russia, regained the momentum on the battlefield in 2015, reports of atrocities mounted and were broadcast globally via traditional and social media. Hundreds of thousands of Syrian civilians perished in the fighting, and millions more fled their homes in the most significant wave of mass migration since the end of World War II. In terms of expressing moral outrage, the United States repeatedly denounced the indiscriminate killing and called for a political settlement to the civil war, but almost exclusively confined its military action to the anti-ISIS fight. One online commentator in 2016 even suggested the U.S. battle against ISIS constituted a more winnable battle against a "lesser evil," even though it risked inadvertently aiding Assad, a far greater mortal threat to the Syrian people in the long run.[15]

Under President Trump, moral condemnation of killing has once again centered narrowly on the Assad regime's use of chemical weapons. On two separate occasions in spring 2017 and spring 2018, the United States employed precision airstrikes against Syrian targets in retaliation for widely reported instances of chemical weapons attacks in rebel-held neighborhoods. The principle of proportionality and just cause appear to have exercised great influence in determining the scale and scope of the U.S. and allied response to these chemical attacks. While the administration went to great lengths to establish the moral legitimacy of the April 2018 airstrikes, there has been virtually no international legal justification offered.[16] In describing the rationale for the attack, President Trump condemned the "evil and despicable" chemical attack by Assad on the village of Douma and stated the world could not allow a repeat of the "specter" of World War I casualties from chemical weapons.[17] Once again, though, the desired end state remains elusive. The limited precision attacks in 2017 failed to deter the use of chemical weapons in early 2018. In a broader, strategic sense, these one-off strikes also failed to alter the overall balance of power or the operational calculus of the Syrian government.

From either a moral or a realpolitik lens, U.S. involvement in Syria has been a failure. If the goal was to stabilize Syria, defeat ISIS, and contain the expansion of influence by a resurgent Iran, the results are mixed at best. U.S. influence is waning, and the American public has little to no appetite for greater military intervention in the Middle East. American inability to identify and stand behind the ever-elusive "moderate opposition" led the nation to seek out the "least bad" groups. Meanwhile, Russia's bold insertion of conventional forces into the conflict in 2015 provided Moscow with significant leverage and credibility in the region. In 2018, Russian and Iranian influence in the Middle East is at a 30-year high, Iraq still teeters in perpetual instability, chemical attacks continue to occur, U.S.-Turkey relations have soured, and Assad grows increasingly secure from his perch in Damascus ruling over the remnants of the Syrian state.

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[14] Federica D'Alessandra, "*Jus ad bellum* in Syria: The Meaning of the U.S. Airpower Campaign," *Human Rights Law Working Group Newsletter*, March 2015.

[15] Christopher J. Finlay, "Just and Unjust Wars in Syria: The Questionable Ethics of Bombing ISIS," *Ethical War* (blog), Stockholm Centre for the Ethics of War and Peace, 16 February 2016.

[16] Blank, "Syria Strikes." Only the United Kingdom proffered a formal legal justification in terms of a "humanitarian intervention."

[17] Donald J. Trump, "Statement by President Trump on Syria" (speech, Diplomatic Room, White House, 13 April 2018).

Finally, in terms of failure to prevent human tragedy, the verdict is clear: an estimated 511,000 Syrians have died during the war since 2011.[18]

U.S. policy makers considering the use of military force to secure policy objectives must confront the likelihood of casualties, the fog of war, the elusiveness of decisive victory in the twenty-first century, and the changing tides of public opinion. In Syria, U.S. policy suffers from a lack of moral coherence and strategic consistency. Airstrikes and small-scale ground offensives have succeeded in pushing ISIS to the brink of defeat in Syria and Iraq. Meanwhile, limited and largely symbolic airstrikes in response to Assad's horrific chemical attacks have failed to stop the broader war or even fully deter the Syrian regime from further chemical attacks. Syria remains as problematic as ever, and American leaders in 2018 possess very few tools or options to improve the situation. If nothing else, this policy dilemma vividly illustrates how moral imperatives explain only part of the outcome when American decision makers wrestle with the use of military force in Syria or elsewhere.

[18] Megan Specia, "How Syria's Death Toll Is Lost in the Fog of War," *New York Times*, 13 April 2018. The UN formally stopped counting deaths after 2016 due to methodological and statistical collection issues, so the only current estimates are from NGOs on the ground.

Russian Reflexive Control and the 2016 United States Presidential Election

by Major Adam Yang, U.S. Marine Corps[1]

In January 2017, the Office of the Director of National Intelligence (DNI) released an unclassified assessment on Russia meddling with U.S. presidential elections in 2016.[2] Shortly after the release of the document, the DNI, James R. Clapper Jr., and other U.S. intelligence chiefs personally provided the assessment to President-elect Donald J. Trump at Trump Tower in New York City. The document asserted that the Russians meddled in the national election, but did not speculate on whether their influence contributed to Trump's electoral victory.[3] Specifically, Russian president Vladimir Putin directed a sophisticated influence campaign to undermine American faith in its democratic processes, shape opinions negatively against Democratic candidate Hillary Clinton, and shape opinions positively in favor of Republican candidate Trump—a candidate they believed would act more favorably in accordance with Russian interests. The Central Intelligence Agency (CIA) and the Federal Bureau of Investigation (FBI) supported this assessment with a high degree of confidence, while the National Security Agency (NSA) had moderate confidence.[4]

The resulting confusion and tension the Russians introduced into the American political environment during and after the election is consistent with Cold War Soviet objectives to undermine Western democracies through active measures, including covert and overt methods to discredit or weaken an opposing government.[5] Today, President Trump and his political allies continue to fend off criticisms of Russian election meddling and defend the legitimacy of his office. The ongoing investigations into Russian activities by the House of Representatives, Senate, and the Department of Justice (DOJ) form the center of a dark cloud that has thrown the American political system into a tailspin.

The manner in which Russia influenced America's most sacred institution is indicative of the information challenges the United States will likely face again in twenty-first-century competition and conflict. In an age of hyperconnected societies and ubiquitous mobile devices, the success of Russian influence activities in 2016 is characterized, more so, by waging widespread disinformation against the American public through social media and, less so, by the need for its

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[2] *Background to "Assessing Russian Activities and Intentions in Recent U.S. Elections": The Analytic Process and Cyber Incident Attribution* (Washington, DC: Office of the Director of National Intelligence, 2017).

[3] *Testimony before U.S. Senate Select Committee on Intelligence of the United States Senate*, 115th Cong., 1st sess. (30 March 2017) (statement of Eugene B. Rumer, senior fellow and director, Russia and Eurasia Program, Carnegie Endowment for International Peace), 1, hereafter Rumer testimony.

[4] *Background to "Assessing Russian Activities and Intentions in Recent U.S. Elections,"* ii.

[5] Keir Giles, *Handbook of Russian Information Warfare* (Rome: NATO Defense College, Research Division, 2016), 24.

cyber forces to overcome technical defenses in cyberspace. Scholars Brandon Valeriano, Ryan Maness, and Benjamin Jensen describe this phenomenon as an evolution in political warfare, where cyberspace is an emergent arena where nations "have begun to attack their enemies' credibility through cyber operations and propaganda spread in comment fields, social media, and cable news broadcasts."[6] In essence, Russian meddling is not simply a story about U.S. elections, but a crucial illustration of how Russia conducted modern information warfare against a democratic nation to support their national interests in peacetime.

This research asserts that Russia introduced chaos and discord into the American political system during the United States presidential elections of 2016, partially, through a technique known as reflexive control. *Reflexive control* uses information to induce a victim to act in a manner that benefits the influencer voluntarily. As part of a larger information warfare strategy, Russia used reflexive control against the cognitive flaws and biases of the American population, the media, and partisan political groups to weaken Western democratic systems. Using the U.S. presidential elections of 2016 as a single crucial case, this research expands understanding of the reflexive control theory by surveying how this technique interacted with three target audiences: the American population as a whole, the U.S. media, and partisan groups.

This study is conducted in five sections. Section one provides an overview of Russian security interests and its strategic aims. Section two discusses Russian information warfare in general and describes the role and functionality of reflexive control as a means within information warfare. Section three illustrates a basic method to analyze reflexive control. Section four provides background information regarding the U.S. presidential election of 2016 and explores how reflexive control may have exploited the cognitive biases of the American public, the media, and partisan organizations. Last, section five offers analytical insights into the theory and practice of reflexive control based on the target audience research of the previous section.

RUSSIAN SECURITY INTERESTS

On 31 December 2015, the Russian Federation issued its national security strategy (NSS) that openly defined its national interests, priorities, strategic objectives, and major tasks in pursuit of these goals. The document is both inward and outward facing, as the topics range from improving national defense, internal state security, economic growth, education, public health, and strategic stability.[7] Based on this NSS, Russia's long-term interests are focused on strengthening national defense through military modernization, securing its territories, improving quality of life, increasing economic competitiveness, and "consolidating the Russian Federation's status as a world power."[8]

However, there are obstacles to these interests. Like the national security strategies of other nations, the Russian NSS of 2015 highlights domestic and international challenges to its ambitions. Internally, Russia is embarking on a path toward restoring "traditional" Russocentric values, closing income disparities, promoting a stronger economy, eliminating corruption, and improving internal security. Externally, Russia continues to view itself at the center of an increasingly hostile international system led by the United States and its Western allies. The Russian NSS states specifically:

> The Russian Federation's implementation of an independent foreign and domestic policy is giving rise to opposition from the United States and its allies, who are seeking to retain their dominance in world affairs. The policy of containing

[6] Brandon Valeriano et al., "5 Things We Can Learn from the Russian Hacking Scandal," *Washington Post*, 9 January 2018.

[7] *The Russian Federation's National Security Strategy of 31 December 2015* (Moscow: President of Russia, 2015).

[8] *The Russian Federation's National Security Strategy of 31 December 2015*, 6.

> Russia that they are implementing envisions the exertion of political, economic, military, and informational pressure on it.[9]

As a matter of pragmatism, Russia remains open to international cooperation with the United States, the European Union, and the People's Republic of China to advance coincidental strategic interests. Russia's juxtaposition of their ambitions against incompatible Western efforts is a familiar tale for security analysts and historians.

The source of Russia's strategic culture is an amalgamation of its historical legacies in managing a multiethnic empire, psychology based on geography, its militarized culture, and even its economic failures from the Soviet era.[10] Given this Russian NSS and the 2014 *Military Doctrine of the Russian Federation*, the European Parliament assessed that Russia continues to view the West as the primary threat to its national interests. Russia frequently blames the West for creating international systems that serve their interests, exploiting its internal weaknesses, and opposing the integration of former Soviet nations under the Russian sphere.[11] Based on the 2015 NSS, Russia's strategy to achieve its national interests in the face of these Western obstacles is unclear. Russia analyst Olga Oliker, from the Center for Strategic and International Studies (CSIS), remarks that the "goals are too lofty, and the implementation plans too vague."[12]

On an individual level, some analysts believe that since Putin assumed office in 2000, Russia's domestic and foreign policies tend to be a reflection of his personal interests and vision for the nation.[13] While serving as president, Putin adeptly concentrated power in his office by appointing loyalists in critical government positions and by eliminating mechanisms for checks and balances once managed by the judiciary and legislative bodies.[14] Other analysts cite a group approach to Russian strategic thinking, defined by Putin and a handful of powerful individuals seeking short-term financial gain that steers Russia's domestic and foreign policies; and this short-sighted approach sometimes comes at the expense of the nation's long-term interests.[15]

Nevertheless, the Putin regime believes that their desired form of governance is incompatible with that of the West and that they must redefine the international system to achieve their interests and ensure their survival.[16] This logic is consistent with Bolshevik strategic thinking and Stalinism. In this realpolitik context, Cold War Soviets perceived that a hostile world surrounded their nation, and to achieve security they had to improve their economy, expand its military-industrial base, and employ a strategy of "defensive expansionism."[17] Subsequently, Soviets reasoned that they had to play a central role in international institutions to influence outcomes for their national interests and to serve as an additional bulwark against Western-led regime change.[18] Russia's modern security perspectives are also born from losing the Cold War,

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[9] *The Russian Federation's National Security Strategy of 31 December 2015*, 4.

[10] Fritz W. Ermarth, *Russia's Strategic Culture: Past, Present, and . . . in Transition?* (Washington, DC: Defense Threat Reduction Agency, 2006), 3–4.

[11] *Russia's National Security and Military Doctrine and Their Implications for the EU* (Brussels, Belgium: EU Directorate-General for External Policies, Policy Department, European Parliament, 2017), 9.

[12] Olga Oliker, "Unpacking Russia's New National Security Strategy," Center for Strategic and International Studies, 7 January 2016.

[13] Olga Oliker et al., *Russian Foreign Policy: Sources and Implications* (Santa Monica, CA: Rand, 2009), 9.

[14] Oliker et al., *Russian Foreign Policy*, 9–11.

[15] Oliker et al., *Russian Foreign Policy*, 4–5.

[16] Paul I. Bernstein and Deborah Ball, "Putin's Russia and US Defense Strategy" (workshop, Institute for National Strategic Studies, National Defense University, August 2015), 2.

[17] Vladimir O. Pechatnov, "The Soviet Union and the World, 1944–1953," in *The Cambridge History of the Cold War*, vol. I, *Origins*, ed. Melvyn P. Leffler and Odd Arne Westad (Cambridge, UK: Cambridge University Press, 2012), 92, https://doi.org/10.1017/CHOL9780521837194.006.

[18] Pechatnov, "The Soviet Union and the World, 1944–1953," 94.

where the collapse of the Soviet Union resulted in the instant loss of its "outer and inner security buffers—the Warsaw Pact and the Soviet Empire."[19] As they retreated from the world stage, Russian leaders believed that losing these long-standing strategic defenses increased its physical vulnerability to the North Atlantic Treaty Organization (NATO) and, politically, its susceptibility to Western international norms and governance.[20]

Today, Russia's foreign policy focuses on improving its economy, restoring its international prestige, and enhancing its security.[21] In response, the U.S. 2018 *National Defense Strategy* (NDS) characterized Russia as a revisionist power due to their desire to shape the world to suit its own interests, while influencing the economic, political, and security decisions of others.[22] Since 1991, Russia's economy has gone through periods of growth and turmoil, largely due to a combination of its command economy adjusting to liberal international markets, reliance on exporting oil and gas, and ill-conceived economic policies.[23] From 1999 to 2008, Russia's gross domestic product experienced a steady growth of 6.9 percent per year before being hit by the global financial crisis of 2008.[24] Despite its slow recovery today, economic sanctions by the West, and weak energy prices, economic analysts still expect Russia to be the fourth largest European economy by 2025.[25] Economic matters are crucially important for Putin because it directly affects national prestige, internal stability, his political validation, and defense spending.[26]

For the Russians, restoring the imbalance with the West also means restoring its international prestige. President Putin's reign over Russia was founded on restoring the nation as a "great power" and reestablishing its dominance in the "former Soviet sphere."[27] As a soft power instrument, Russian leaders view prestige and influence as something they must build and nourish to achieve short-term and long-term strategic objectives.[28] Russia's primary method to boost its image as a great power is to visibly project power, influence, and importance to domestic, regional, and international audiences. Economic prosperity is critically important for domestic stability, as well as an important means for Russia to present itself as a global leader and dominant partner to its former states. Internationally, Russia seeks to play leading roles in major global institutions, such as the United Nations (UN), Commonwealth of Independent States (CIS), and the Eurasian Economic Union.[29] These institutions provide Russia with tangible mechanisms to balance against Western nations that seek to exploit their political and economic weaknesses.[30] By having a central voice on the world stage, Russia believes it can shape international events, reinforce its image as a global power, and create a multipolar environment.

Additionally, Russia's military plays a central role in securing the nation, adding credibility to its diplomacy, and advancing its interests through force. According to Russia's 2014 *National*

[19] Rumer testimony, 2.
[20] Rumer testimony.
[21] See Oliker et al., *Russian Foreign Policy*, 4–5; and *Russia's National Security and Military Doctrine and Their Implications for the EU*.
[22] *Summary of the 2018 National Defense Strategy of the United States of America* (Washington, DC: Department of Defense, 2018), 2.
[23] Jim Nichol, *Russian Political, Economic, and Security Issues and U.S. Interests* (Washington, DC: Congressional Research Service, 2014), 34.
[24] Nichol, *Russian Political, Economic, and Security Issues and U.S. Interests*.
[25] Oliker et al., *Russian Foreign Policy*, xiii; and see Nichol, *Russian Political, Economic, and Security Issues and U.S. Interests*, 34.
[26] Oliker et al., *Russian Foreign Policy*, xiii–ix.
[27] Nichol, *Russian Political, Economic, and Security Issues and U.S. Interests*, 38.
[28] Oliker et al., *Russian Foreign Policy*, 90.
[29] The CIS was created in December 1991 after the dissolution of the Soviet Union and includes Azerbaijan, Armenia, Belarus, Kazakhstan, Kyrgyzstan, Moldova, Russia, Tajikistan, Turkmenistan, and Uzbekistan. The Eurasian Economic Union was created in 2014 by a treaty between Russia, Kazakhstan, and Belarus.
[30] Oliker et al., *Russian Foreign Policy*, 89.

Military Doctrine, the nation assessed that its primary threats are the build-up of NATO forces near its territories, states within its sphere that have threatening political stances, transnational terrorism, and "prompt global strike"—the U.S. concept that enables it to strike anywhere around the globe within an hour with a conventional missile.[31] In response, the military's primary means of securing Russia from these threats are through a combination of conventional military deterrence, nuclear deterrence, and strategic deterrence. Conventional military deterrence is Russia's ability to discourage conflict by being able and ready to inflict unacceptable damage to the adversary.[32] For nuclear deterrence, Russia's arsenal serves both as the central means to deter Western aggression and as an important artifact that supports the prestige of the nation.[33] Strategic deterrence is Russia's active employment of a variety of diplomatic, information, military, and economic means to stabilize political-military environments or to deescalate conflict.[34]

As expected, Russia's conventional and nuclear forces continue to evolve to suit its strategic needs. From the late 1990s to present day, Russia pursued major defense reforms and unprecedented restructuring in line with its economic growth to adapt to its current threats. The overall size of its military forces today is approximately 700,000 personnel. Although this figure is a far cry from the 4 million troops during the Cold War, Russia still retains a larger, superior force compared to the weaker nations in its periphery.[35] Despite fears of a NATO invasion, its military has fundamentally departed from its Soviet model of maintaining a large army, with millions of reservists organized around divisions.[36] For fiscal comparison, Russian defense spending significantly lags behind that of the United States. In 2016, Russia spent approximately $66 billion on defense, whereas the United States spent approximately $521 billion in the same year.[37]

In lieu of only preparing its land army against a large-scale Western assault, Russian leaders have opted to achieve deterrence by developing antiaccess capabilities, maintaining nuclear parity with the United States, deploying forces rapidly to its periphery and using allies for additional ground support, particularly the members of the Collective Security Treaty Organization.[38] Realizing that it cannot compete directly with NATO, Russia prefers to minimize the employment of its conventional forces and use other instruments of national power—such as influence techniques and cyber capabilities—to secure strategic objectives in peacetime or wartime. These strategies are sometimes described as hybrid warfare, gray zone strategies, and new generation warfare. Despite the variance in naming conventions, the central idea is the integrated use of military and nonmilitary tools to pursue national interests.[39]

In sum, Russia's security interests, policies, and strategies reflect a deep level of national insecurity stemming from the West and a desire to correct what they see as post-Cold War injustices. Russian political culture and foreign policies are also shaped by an enduring narrative where the United States and the West seek to undermine Russia by influencing its civil society,

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[31] Polina Sinovets and Bettina Renz, *Russia's 2014 Military Doctrine and Beyond: Threat Perceptions, Capabilities, and Ambitions*, Research Paper no. 117 (Rome: Research Division, NATO Defense College, 2015), 3.

[32] *Russia Military Power: Building a Military to Support Great Power Aspirations* (Arlington, VA: Defense Intelligence Agency, 2017), 23.

[33] Sinovets and Renz, *Russia's 2014 Military Doctrine and Beyond*, 8.

[34] *Russia Military Power*, 23.

[35] Nichol, *Russian Political, Economic, and Security Issues and U.S. Interests*, 29.

[36] *Russia's National Security and Military Doctrine and Their Implications for the EU*, 10.

[37] Rumer testimony; and Department of Defense, "Department of Defense Releases Fiscal Year 2017 President's Budget Proposal," press release, 9 February 2016.

[38] Bernstein and Ball, "Putin's Russia and US Defense Strategy," 3; and *Russia's National Security and Military Doctrine and Their Implications for the EU*, 14.

[39] Christopher S. Chivvis, *Understanding Russian "Hybrid Warfare" and What Can Be Done about It* (Santa Monica, CA: Rand, 2017), 2–3.

encroaching on its borders, and supporting the hostile politics of nations in its sphere.[40] In recent years, Russia employed a variation of this narrative to justify its specific actions against Georgia, Crimea, and Ukraine, claiming they acted only to prevent Western territorial encroachment and foreign impingement on its critical security interests.[41] Since its military cannot compete head-to-head against the West, Russia aims to use a broad array of national tools to place it on equal or better footing in the international community. Despite its relative economic and military weakness compared to the West and China, Russia will relentlessly pursue its interests on all national fronts to satisfy its great power ambitions. Russia's use of information warfare is but one means to achieve its national goals.

MODERN RUSSIAN INFORMATION WARFARE

Historically, Russia has incorporated deception, disinformation, and psychological operations across their political and military activities. Since the Cold War, as a weaker conventional force standing in front of NATO, Russian military doctrine asserted that to create disproportionate operational advantages, it must blend asymmetric and conventional means to obfuscate its own intent and confuse the decision making of adversaries.[42] A former Russian general explained that Russia's modern information campaigns are meant to "weaken the West, to drive wedges in the Western community alliances . . . to sow discord among allies, to weaken the United States in the eyes of the people in Europe, Asia, Africa, Latin America, and thus to prepare the ground in case the war really occurs."[43]

Russian information warfare is a broad concept—where *information* may refer to a tool, a medium, a target, an asset, an activity, or a domain of operations—used in both peacetime and wartime to gain information dominance in support of national objectives.[44] Russian information warfare uses strategic or tactical agencies and state or nonstate actors to support a wide range of objectives. Psychological operations, strategic communications, intelligence, deception (*maskirovka*), electronic warfare, and cyberwarfare are subordinate activities that support information warfare. It is Russia's unique perspective and fluid blending of these seemingly distinct activities that complicates NATO's ability to conceptualize and counter this threat.[45]

Russian military theory in recent years has elevated the preeminence of information warfare. Depending on the aim, Russia conceptually divides information warfare into two types of major activities: information-psychological and information-technical. The former focuses on influencing a target behavior and attacks the cognitive domain. The latter concept encapsulates the degradation, denial, or manipulation of technical systems that transmit, process, or store information.[46] In addition to its mutual support relationship with conventional tactics, the Russians also believe that information warfare can be used to achieve strategic objectives on its own accord.[47] According to NATO, ranging from greatest impact to least impact, Russian information warfare supports the achievement of five major objectives: strategic victory, reflexive control, permissive environment, subversion, and defensive operations.[48]

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[40] *Russia's National Security and Military Doctrine and Their Implications for the EU*, 2–4.
[41] *Russia's National Security and Military Doctrine and Their Implications for the EU*.
[42] Emilio J. Iasiello, "Russia's Improved Information Operations: From Georgia to Crimea," *Parameters* 47, no. 2 (2017): 59.
[43] Iasiello, "Russia's Improved Information Operations," 63.
[44] Giles, *Handbook of Russian Information Warfare*, 6–7.
[45] Giles, *Handbook of Russian Information Warfare*, 7.
[46] Timothy L. Thomas, *Russia Military Strategy: Impacting 21st Century Reform and Geopolitics* (Fort Leavenworth, KS: Foreign Military Studies Office, U.S. Army Training and Doctrine Command, 2015), 305–6.
[47] Giles, *Handbook of Russian Information Warfare*, 16.
[48] Giles, *Handbook of Russian Information Warfare*.

First, strategic victory is the highest operational ambition for Russian information warfare. Victory occurs when information warfare activities achieve geopolitical objectives on its own or with minimal conventional military support. Strategic victories entail the attainment of national political, economic, and military objectives in peacetime or in preparation for war. Following this logic, the ultimate ambition of information warfare is to induce regime change on a target nation without armed intervention.[49]

Second, a more prevalent expectation of information warfare is the attainment of reflexive control. Scholar Timothy L. Thomas explains that reflexive control "occurs when the controlling organ conveys (to the objective system) motives and reasons that cause it to reach the desired decision, the nature of which is maintained in strict secrecy."[50] In practice, this means that the influencer provides information in a manner that causes its target to react in an expected fashion, and by doing so, the decision made is favorable to the influencer and unfavorable to the victim.[51] Thus, reflexive control is both an objective for information warfare and a means to control outcomes in support of larger goals. The sophistication of reflexive control lies in the ability of the influencer to understand and exploit the moral, psychological, and environmental factors that shape a target's decision-making process.[52] Thomas further explains that reflexive control manipulates the personality of an individual or group based on their "specific psychology, way of thinking, and professional level of training."[53] Following the idea of psychological vulnerability, reflexive control exploits flaws in the decision-making process of individuals or groups, and those flaws are essentially cognitive biases or cognitive errors.[54]

The third objective of Russian information warfare is to create a permissive environment. In a permissive environment, Russia enjoys foreign public support for its actions and successfully minimizes the impact of public criticisms. With this condition in place, Russia hopes for an increased probability of success for its activities, ideologies, and interests, and a decreased probability of resistance and negative sentiment from the international community.[55] This primarily means their goal is to create a permissive environment through disinformation and selected presentation of facts to distort public perspectives. This research adopts Czech scholar Lawrence Martin-Bittman's (a.k.a. Ladislav Bittman) definition of *disinformation* as "a carefully constructed false message leaked into an opponent's communication system to deceive the decision-making elite or the public."[56] Furthermore, Russians view disinformation as not necessarily a tool to convince a target, but more as a means to paralyze decision making temporarily or to sow doubt and fear.[57]

Fourth, information warfare can support subversion (a.k.a. active measures). Scholar Thomas Rid explains that active measures "are semi-covert or covert intelligence operations to shape an adversary's political decisions. Almost always active measures conceal or falsify the source—intelligence operators try to hide behind anonymity, or behind false flags."[58] Active measures may consist of influencing the policies of foreign governments, undermining confi-

[49] Giles, *Handbook of Russian Information Warfare*, 18.
[50] Timothy L. Thomas, "Russia's Reflexive Control Theory and the Military," *Journal of Slavic Military Studies* 17, no. 2 (2004): 241, https://doi.org/10.1080/13518040490450529.
[51] Timothy L. Thomas, "Russian Views on Information-Based Warfare," *Airpower Journal*, no. 155 (1996): 32.
[52] Thomas, "Russia's Reflexive Control Theory and the Military," 241–43.
[53] Thomas, "Russia's Reflexive Control Theory and the Military," 245–46.
[54] Natalie Minton, "Cognitive Biases and Reflexive Control" (thesis, University of Mississippi, May 2017).
[55] Giles, *Handbook of Russian Information Warfare*, 22–23.
[56] Jon White, "Dismiss, Distort, Distract, and Dismay: Continuity and Change in Russian Disinformation," *Institute for European Studies Policy Brief*, no. 13 (2016): 1.
[57] White, "Dismiss, Distort, Distract, and Dismay."
[58] *Hearings before U.S. Senate Select Committee on Intelligence of the United States of America*, 115th Cong., 1st sess. (30 March 2017) (statement of Thomas Rid, professor of security studies, Kings College), 1–2, hereafter Rid testimony.

dence in leaders and government institutions, disrupting relations between nations, and weakening state and nonstate opponents.[59] To maximize tactical effectiveness, active measure operations tend to exploit an adversary's societal weaknesses and drives wedges into sensitive social, political, or cultural divisions to corrupt its target.[60]

Conversely, the last information warfare objective is defensive measures. Domestically, Russia seeks to prevent its domestic populace from accessing information that it deems contrary to its interests; and through this isolation, it sets a condition for Russian leaders to manipulate civilian perceptions of national or international affairs in a manner that supports their interests.[61] During the Cold War, the Soviets would disseminate disinformation through state-run newspapers and jam frequencies that carried Voice of America and Radio Free Europe from the West. Today, Russia mimics these information control traditions by filtering the internet, blocking access to specific internet protocol addresses, and controlling the state-run media.[62]

Of note, the Russians view cyber operations as component or enabler of information warfare. As an activity, it supports both the information-technical and information-psychological aspects of information war to achieve the larger goal of information dominance.[63] The distinct aspects of cyberspace operations and information operations tend to be a Western view on how to operate in these spheres.[64] On the contrary, Russian activities in cyberspace support the broader competition in the information space; and with this operational perspective and strategic preference, its cyber operations tend to be strategically focused, more persistent, and aimed at achieving long-term political objectives.[65]

Today, NATO is concerned with Russia's hyper-emphasis on using information to exploit social vulnerabilities, weaken institutions, and undermine the legitimacy of foreign governments.[66] Immediately after Russia's invasion of Ukraine in 2015, NATO's Supreme Allied Commander Europe, Air Force Ggeneral Philip M. Breedlove, commented that Russia waged "the most amazing information warfare blitzkrieg we have ever seen in the history of information warfare."[67] Russian television producer Peter Pomerantsev said that Russia's information blitzkrieg against Ukraine "doesn't just deal in the petty disinformation, forgeries, lies, leaks, and cyber-sabotage usually associated with information warfare. It reinvents reality."[68]

General of the army and chief of staff of the Russian Federation Armed Forces, General Valery V. Gerasimov—lead military and operational planner of the Russian Federation—is frequently cited by the West as providing the intellectual and operational genesis for proposing this new way of Russian information-driven warfare.[69] During a published speech in February 2013, Gerasimov asserted that "wars are no longer declared," and that "the role of nonmilitary means of achieving political and strategic goals has grown, and, in many cases, they have exceeded the power of force of weapons in their effectiveness."[70] Gerasimov's focus on the role of information

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[59] Giles, *Handbook of Russian Information Warfare*, 24.
[60] *"Soviet Active Measures": Forgery, Disinformation, Political Operations*, Special Report no. 88 (Washington, DC: U.S. Department of State, 1981), 1–4.
[61] Giles, *Handbook of Russian Information Warfare*, 29–30.
[62] White, "Dismiss, Distort, Distract, and Dismay," 2–3.
[63] Michael Connell and Sarah Vogler, *Russia's Approach to Cyber Warfare* (Arlington, VA: CNA, 2017), 5.
[64] Giles, *Handbook of Russian Information Warfare*, 7–9.
[65] Connell and Vogler, *Russia's Approach to Cyber Warfare*, 2.
[66] Giles, *Handbook of Russian Information Warfare*, 77.
[67] Giles, *Handbook of Russian Information Warfare*.
[68] Giles, *Handbook of Russian Information Warfare*.
[69] Charles K. Bartles, "Getting Gerasimov Right," *Military Review* 96, no. 1 (2016): 30.
[70] Valery Gerasimov, "The Value of Science Is in the Foresight: New Challenges Demand Rethinking the Forms and Methods of Carrying out Combat Operations," *Military Review* 96, no. 1 (2016): 24.

and nonmilitary activities during the color revolutions in Eastern Europe and the Arab Spring lead him to conclude that information asymmetry can generate strategic political outcomes comparable to that of conventional warfighting.[71] In addition to influencing foreign decision makers or their populations, the exploitation of information plays a central role in reducing the combat power of adversaries before a war even begins.

Thus, from a Russian perspective, its forces can and should engage in information warfare in peacetime to lay the groundwork for strategic victory or to shape the environment for military engagement.[72] The Military Academy of the General Staff of the Armed Forces of Russia distinguishes Russian information warfare from Western information operations by asserting that Russia wages information warfare constantly during peacetime to prepare for war, whereas the West views information operations as tactical activities conducted during hostilities.[73] The fact that Russia is in a constant state of information competition gives the country an advantage over the West in the form of experience, feedback, and practice of its tactics. The techniques on display in Estonia, Georgia, and Ukraine are a manifestation of years of tactical evolution in this arena. Based on the outcomes of Russia's war with Georgia and the annexation of Crimea, Russia is further convinced that information warfare can achieve or aid in achieving favorable strategic outcomes, even against stronger opponents.[74]

METHOD

Using the 2016 U.S. presidential election as a single crucial case, this research seeks to enhance an overall understanding of reflexive control by exploring how the Russians leveraged this information warfare practice against three distinct target audiences: the American public, the U.S. media, and political partisans. Because reflexive control causes a target to act in a voluntary manner by exploiting its moral, psychological, and personal characteristics, this research seeks to illuminate the potential cognitive biases that caused these target audiences to respond accordingly.[75] While examining the three target audiences, this research will identify the components of reflexive control, including the desired effect, the delivery means, the message, and the potential cognitive factors (or biases) related to the target audience.

Since modern Russian information warfare blends active measures, cyber activities, and reflexive control techniques into a holistic operation, the target audience case studies will likely touch on various subjects related to other components of information warfare. Background information regarding the 2016 election will highlight the interconnectedness of these factors. However, the primary focus of this research aims to expand understanding of reflexive control, primarily by revealing how the decision process flaws of individuals and groups make them susceptible to this technique. After discussing the components of reflexive control for each target audience, this chapter highlights practical insights on the use of reflexive control.

RUSSIA AND THE 2016 U.S. PRESIDENTIAL ELECTION

Russian Objectives

Russia meddled in the 2016 U.S. presidential elections to achieve both long-term and short-term strategic objectives. As mentioned in the previous section, the ultimate interest of the Russian state is regime survival. To improve its power and prestige, Russia aims to weaken Western

[71] Gerasimov, "The Value of Science Is in the Foresight," 24–26.
[72] Giles, *Handbook of Russian Information Warfare*, 11.
[73] Giles, *Handbook of Russian Information Warfare*, 4.
[74] Iasiello, "Russia's Improved Information Operations," 59.
[75] Thomas, "Russia's Reflexive Control Theory and the Military," 241–42.

nations and their liberal ideologies over time. This framework supports Russia's zero-sum approach to international relations, where a decline in an adversary's power and influence translates into an increase of relative power and influence for their nation.[76]

Strategically, Russia sought to disrupt the U.S. political system, undermine the prestige of the nation, and reduce its international influence to advance its long-term interests. Internally, the ensuing chaos in the U.S. political system during and after the elections also enabled Russian leaders to exploit its discord for domestic purposes. In essence, the Kremlin aimed to manufacture a false equivalency, where Russian leaders could now conveniently highlight the chaos in the U.S. political system to justify their own political environment to domestic audiences.[77] In the near term, Russia sought to disparage Hillary Clinton, undermine her electability and harm her political credibility in case she was elected. Additionally, some reports indicate that Putin may have had a vendetta against Clinton from her time as U.S. secretary of state. Putin blames Clinton for releasing the Panama Papers that revealed the offshore accounts of Russian oligarchs and for encouraging protests inside Russia in 2011 and 2012.[78] To achieve these long-term and immediate effects, Russia waged an information war that focused on inflicting chaos in the American political system.

Russia's Information War: Summary of Major Activities

The Russian influence campaign during the presidential elections relied on a combination of reflexive control, active measures, strategic communications, disinformation, and cyber—overtly and covertly—to disrupt the U.S. political system. The complexity of this enterprise is reflected by the ongoing investigations and discoveries by U.S. intelligence agencies and the Department of Justice on how these seemingly disparate activities interacted with each other to influence the American population. Though the exact timing of when this influence operation began is unclear, the Office of the Director of National Intelligence (DNI) states with high confidence that President Putin authorized these activities nonetheless.[79]

In 2014, the Russians, in part, initiated the information war against the United States through a Russian limited liability company registered as the Internet Research Agency (IRA). The IRA played a crucial and persistent role before and during the presidential campaigns. Some of their major activities include creating false U.S. personas on social media, operating social media pages to reinforce opinions of certain audiences, stealing American identities to link with unwitting American citizens on social media, buying political advertisements with stolen identities for use on social media, staging political rallies, and even communicating with unwitting officials in the Trump campaign.[80] The fact that the IRA combined cyber-influence operations with active measures indicates the sophistication of their enterprise and the likelihood of it being directed by the Kremlin.

Sometime in the summer of 2015, the FBI closely monitored Russian cyber activities targeting the Democratic National Committee (DNC) and notified them of breeches by September of the same year. The FBI warned DNC officials that their systems were sending information back to Russia that likely included politically relevant communications, emails, and documents;

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[76] Giles, *Handbook of Russian Information Warfare*, 24.

[77] Rumer testimony, 5.

[78] Brandon Valeriano et al., *Cyber Strategy: The Evolving Character of Power and Coercion* (New York: Oxford University Press, 2018), 134. For more on the Panama Papers, see *The Panama Papers: Politicians, Criminals, and the Rogue Industry that Hides Their Cash* (Cape Town, South Africa: ANCIR, Code for Africa, 2015).

[79] *Background to "Assessing Russian Activities and Intentions in Recent U.S. Elections,"* 2.

[80] *United States v. Internet Research Agency LLC et al.*, 18 U.S.C. §§ 2, 371, 1349, 1028A (D.D.C., 2018).

however, DNC leadership failed to heed the warnings of Russian cyber espionage seriously.[81] By spring 2016, Russian hackers managed to find the personal email of Clinton's campaign chairman John Podesta. That spring, Podesta inadvertently clicked on a spear-phishing email requesting that he change his password. As a result of this oversight, Russian hackers—presumably an element of either "Cozy Bear" or "Fancy Bear" who gained access to DNC systems in 2015—now had access to Podesta's email account. As one may expect from the personal emails of someone in Clinton's inner circle, Podesta's account housed sensitive and politically embarrassing conversations that would haunt Clinton for the remainder of her campaign.[82]

As Clinton and Trump headed into their final months leading up to the election, the Russians increased the sophistication of their attacks by coordinating information releases with Wikileaks and other false hacktivist personas, such as DCLeaks.com and Guccifer 2.0. These organizations either broadly publicized the victim's data for public consumption or distributed it directly to media outlets to amplify the effect of damning information.[83] In July 2016, days before the Democratic National Convention, Wikileaks publicized nearly 20,000 DNC emails, which uncovered their preference for candidate Clinton over candidate Bernie Sanders. For the Russians, this release tarnished Clinton's reputation and forced the removal of her friend and ally, DNC chairperson Debbie Wasserman Schultz, from her office. This email leak became a turning point for the media, as they shifted their attention away from the leaked emails of questionable origin and toward the scandal itself.[84]

In October 2016, the Russian information warfare campaign directed negative media attention away from candidate Trump in grand fashion. That month, the media acquired an *Access Hollywood* video where Trump admitted to lewd sexual activities during the filming of a television show. To attenuate the damning political fallout, Wikileaks, which continued to receive hacked documents from Russians, publicized 20,000 more of Podesta's emails.[85] From an influence perspective, the timed release of these emails shifted the media's attention away from the Trump campaign and the politically damning *Access Hollywood* tape. Once again, the media's focus on the source of the information was minimal.

On social media throughout 2017, the IRA used Facebook to promote pro-Trump, pro-Hillary, and respective anticandidate rallies across the nation to drive a deeper wedge between the highly politicized American public. Although the Russians preferred candidate Trump, their larger goal was to publicly destabilize the American political environment, giving the world full view of a polarized American society in the months leading into the elections. On the ground, Russian active measures even coordinated with unwitting Americans to bolster Trump rallies and events, while discouraging minority groups from voting for Clinton.[86]

The overall impact of the Russian active measures and cyber efforts can be viewed from two perspectives. In the short term, Russia's preferred candidate became the president, but they failed to gain recognition for the annexation of Crimea, failed to eliminate U.S.-backed sanctions related to their actions in Ukraine, and lost two consulates in America.[87] In the long term, Russia can be viewed as achieving some strategic goals. Since Trump's election, U.S.-NATO relations

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[81] Jim Sciutto, "How One Typo Helped Let Russian Hackers In," CNN, 27 June 2017.
[82] Sciutto, "How One Typo Helped Let Russian Hackers In."
[83] *United States v. Internet Research Agency LLC et al.*, 2–3.
[84] Tal Kopan, "WikiLeaks Releases More DNC Emails Near Eve of Election," CNN, 6 November 2016.
[85] Marshall Cohen, "Access Hollywood, Russian Hacking and the Podesta Emails: One Year Later," CNN, 7 October 2017.
[86] *United States v. Internet Research Agency LLC et al.*, 21–23.
[87] Greg Miller et al., "Doubting the Intelligence, Trump Pursues Putin and Leaves a Russian Threat Unchecked," *Washington Post*, 14 December 2017.

has frayed and Putin gained a counterpart that is more pro-Russia compared to Clinton. As one senior U.S. official stated, for Russia, this operation was "more than worth the effort."[88]

Target One: The American Population

The U.S. DNI stated that the Russian influence campaign sought to undermine U.S. faith in the democratic process, denigrate candidate Clinton, and harm her overall electability.[89] Though U.S. intelligence officials and the Department of Justice both acknowledged Russian influence on the American public in general, they do not specify on exactly whom or exactly when it occurred. Thus, this case study assumes the American population, in general, was the primary target. Based on the Department of Justice report on the IRA, this research assumes that the Russian influence campaign began with the hack of the DNC in the summer 2015 and ended with the presidential election of Trump in November 2016.

To achieve information effects against American voters, the Kremlin combined the actions of the IRA (mostly through social media platforms such as Facebook, Twitter, YouTube and Instagram), Russian state media agencies such as Russia Today (RT) and Sputnik news, and active measures to "sow discord" in the "U.S. political system."[90] To amplify social and political tensions, the IRA and Russian troll farms used fabricated American personas to purchase and inundate American social media platforms with polarizing political advertisements and fake comments. To sharpen their message, the Russians followed a simple rule: intense focus on the internal divisions of the nation. Scholar Thomas Rid reinforces this viewpoint by explaining that the most effective active measures and disinformation campaigns use "an adversary's existing weakness against himself . . . [to] drive wedges between pre-existing cracks: the more polarized a society, the more vulnerable it is—America in 2016 was highly polarized, with myriad cracks and fissures to drive wedges into."[91]

The messages created by the Russians focused on polarizing themes related to race, religion, police brutality, terrorism, and the fitness of both candidates. To drive these messages deep into the minds of voters and social media feeds, the IRA leveraged various social media platforms to gain a wider audience and flooded those respective systems on an unimaginable scale. In a hearing with Congress in November 2017, Facebook reported that it had discovered 470 accounts and 3,000 political ads related to the IRA. Those 470 accounts created more than 80,000 pieces of original content, and in total, Facebook estimated that the IRA reached 126 million people.[92] Google identified 18 YouTube channels created by the IRA, and Twitter has notified 1.4 million of is actual users that they had retweeted, quoted, replied to, or mentioned a comment from fake accounts linked to the IRA.[93] These figures continue to rise as the U.S. federal investigations and social media company internal investigations of Russian meddling are ongoing.

Evidently, the Russians used social media as a primary means to exploit the minds of more than a 100 million Americans. If the Russian goal was to sow discord by exploiting and deepening existing social fault lines, several cognitive biases coincide favorably to the Russian blitzkrieg of information, particularly repetition and confirmation bias. First, in terms of repetition, various social science researchers indicate that repeating a message over time increases the be-

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[88] Miller et al., "Doubting the Intelligence, Trump Pursues Putin and Leaves a Russian Threat Unchecked."
[89] *Background to "Assessing Russian Activities and Intentions in Recent U.S. Elections,"* ii.
[90] *United States v. Internet Research Agency LLC et al.*, 4.
[91] Rid testimony, 2.
[92] Issie Lapowsky, "Eight Revealing Moments from the Second Day of Russia Hearings," *Wired,* 1 November 2017.
[93] Lapowsky, "Eight Revealing Moments from the Second Day of Russia Hearings"; "Update on Twitter's Review of the 2016 U.S. Election," *Twitter* (blog), 19 January 2018.

lievability and acceptability of the message.[94] Facebook, of note, automatically feeds a user with additional ads of a similar nature if they were to "like" a certain ad or comment, which presumably increases the repetition of similar messages.[95]

Alternatively, the IRA may have also considered the use of a wide menu of divisive messages to exploit an individual's confirmation bias, one of the most studied cognitive impulses by psychologists. Psychology professor Richard S. Nickerson states that confirmation bias is a process where "one selectively gathers, or gives undue weight to, evidence that supports one's position while neglecting to gather, or discounting, evidence that would tell against it."[96] The ubiquity of cognitive bias in people, in general, reinforces Rid's assertion that Russian disinformation during the U.S. election was particularly acute. Not only did the Russians flood (repetition of a message) social media with targeted advertisements, social media algorithms directed similar content to users that would have hardened their positions on decisive issues.

Thus, given this cursory discussion of psychological vulnerabilities, this research postulates that reflexive control is a tactically sound strategy when influencers possess the ability to flood a medium with numerous messages, which in turn allows it to exploit an array of cognitive vulnerabilities for multiple audiences. The Russians and the IRA seem to have adopted a low cost "barrage" of information approach, which fits neatly into the notion of their immediate goal to sow discord by exploiting the polarized nature of current American politics.

Target Two: The U.S. Media

To expand understanding of reflexive control, this research also examines the U.S. news media, in general, as a target of Russia's information campaign to provide insights on how one may cause an institution or corporation to act voluntarily in a manner that is beneficial to the influencer. Two examples exemplify how Russia reflexively controlled the U.S. news media to distract public attention from other issues (the effect): once in July 2016 prior to the Democratic National Convention, and once in October 2016 following the public release of the scandalous *Access Hollywood* recording of candidate Trump. Wikileaks released the stolen DNC emails to the media in both incidences.

In the former example, Russia sought to distract public attention away from the fact that Russian cyber actors compromised DNC server's months before, and to channel the media and public attention on the political controversies that would smear Clinton's candidacy. Tangentially, the information released had a bonus effect of reinforcing Putin's domestic narrative that the U.S. political system is also corrupt, which deflects attention from the political problems inside Russia.[97] In the latter example, a month before voters could cast their ballots, Russia used Wikileaks to release thousands of emails from Clinton's campaign chairman, John Podesta, again to distract the public's attention from Trump's remarks about women. Social scientist and influence scholar Anthony Pratkanis explains that, when influencing audiences, an influencer creates distractions to "deamplify" an audience's response to a message or event that runs counter to their original intent.[98]

As for reflexive control and media, Russia illuminated the fact that there are unique ingrained

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[94] Anthony R. Pratkanis, "Social Analysis: An Index of Tactics," in *The Science of Social Influence: Advances and Future Progress*, ed. Anthony R. Pratkanis (New York: Psychology Press, 2007), 48.
[95] Philip Bump, "The Key Question about Facebook Political Ads: Who's Seeing Them?," *Washington Post*, 6 September 2017.
[96] Richard S. Nickerson, "Confirmation Bias: A Ubiquitous Phenomenon in Many Guises," *Review of General Psychology* 2, no. 2 (1998): 175.
[97] Rumer testimony, 5.
[98] Pratkanis, "Social Analysis," 46.

institutional practices that caused the U.S. news media to cover the email leaks, which distracted the American public from its illegal cyber activities and from Trump's flaws, journalistic balance and the desire to generate viewership. First, scholars have discovered that the media's norm for journalistic balance—the desire to present both sides of an argument with equal weight to eliminate reporting bias—can be a form of information bias because it can provide equal weight to an underdeveloped argument or idea.[99] Accordingly, Clinton and her ardent supporters have lambasted the media for providing too much coverage of her emails at those critical times, especially during Trump's comments on women, that in turn created a false equivalence in the mind of the public between her minor emails versus Trump's politically damning remarks about women.[100]

Subsequently, a media organization's need to boost viewership and attract advertising dollars is another potential institutional behavior that fell victim to Russian reflexive control. In the current age of regular cable news, print news, social media, and other forms of digital media (e.g., podcasts, blogs, user-generated content, live streams, etc.), the average American citizen is bombarded with information and news options. Thus, to attract precious viewers and advertising dollars, major media organizations are hyperfocused on constructing news stories, narratives, and presentating angles to capture wider audiences or to sell the most magazines and newspapers.[101] Competition is keen for eyeballs and dollars, and due to the political intensity of this particular campaign between two well-known candidates, Nielson reported that approximately 84 million viewers watched Clinton and Trump's first presidential debate on television—the most ever in presidential history. Online streams accounted for nearly 34 million views of the same event.[102]

Thus, when Wikileaks released Clinton's emails at those specific times of the election, cyber expert Laura Galante asserts that the media could not do anything but report the irresistible details that Clinton officials never intended the public to consume.[103] Although Clinton and her supporters preferred that the news media not cover her emails, more than likely, Trump supporters were happy to see their opposing candidate maligned, perhaps to support their confirmation bias. Of note, the DNI assessed with high confidence that the Russian Main Intelligence Directorate (*Glavnoye Razvedovatel'noye Upravlenie* or GRU) provided DNC emails directly to Wikileaks.[104] Theoretically, Russia passing materials to Wikileaks and then to the media at a critical time demonstrated that information can be used to manipulate the institutional tendencies of the news media for journalistic balance and to attract viewership. The fact that media organizations have ideological viewpoints, moral codes, journalistic ethics, and professional standards signifies that they too have ingrained responses that could be manipulated by sophisticated Russian influencers who understand reflexive control.

Target Three: Political Partisans

The U.S. presidential election is the highest level of political competition in America and one of the most-watched political events in the world. Clinton represented the potential installment of the first female president in American history, and Trump was the savvy New York businessman who represented conservative values and defended forgotten Americans from economically be-

[99] Maxwell T. Boykoff and Jules M. Boykoff, "Balance as Bias: Global Warming and the U.S. Prestige Press," *Global Environmental Change* 14, no. 2 (2004): 127, https://doi.org/10.1016/j.gloenvcha.2003.10.001.
[100] Jack Shafer, "The Case Against Journalistic Balance," *Politico,* 13 September 2016.
[101] Richard Paul and Linda Elder, *The Thinkers Guide for Conscientious Citizens on How to Detect Media Bias and Propaganda in National and World News* (Tomales, CA: Foundation for Critical Thinking, 2006), 17.
[102] Merritt Kennedy, "Clinton-Trump Showdown Was the Most-Watched Presidential Debate Ever," NPR, 27 September 2016.
[103] Laura Galante, "How (and Why) Russia Hacked the U.S. Election," TED Talk, May 2017, video, 9:34.
[104] *Background to "Assessing Russian Activities and Intentions in Recent U.S. Elections,"* 3.

leaguered areas across the nation. In recent years, the 24-hour news cycle and ubiquity of social media has intensified political competition between presidential candidates. Russian reflexive control targeted individuals and groups to elicit a voluntary response that benefits itself.

Due to the high-stakes circumstances of political competition, the Russians may have unintentionally exploited a reflexive cognitive bias known as *competitive arousal* from individuals and groups that benefitted from Russia's pro-Trump activities. The idea of competitive arousal relates to the consequences involved with embracing maxims such as "doing whatever it takes to win" and "winning at all costs." Competitive arousal states factors such as rivalry, social facilitation, time pressures, and desire to be first can emotionally impair decision making.[105] Competitive arousal draws attention to how the pursuit of winning is a cognitive bias, fueled by emotion and adrenaline, which can drive decision makers (or groups) to prioritize winning while simultaneously neglecting or overlooking the costs of their actions.[106]

For the Trump campaign, one indication of competitive arousal occurred when Trump asked Russia to "find" Clinton's emails during a campaign event. This particular statement drew harsh criticisms from the Clinton campaign as well as other U.S. national security officials on the dangers of this comment. As a matter of clarification or regret, Trump campaign officials immediately walked back the statement. Trump supporter Newt Gingrich said that the media over-focused on Trump's "joke" about Russian hacking, and Trump's running mate, Michael R. Pence assured the public that Russia would face harsh consequences if they ever committed this cybercrime.[107] Subsequently, Donald Trump publicly praised Wikileaks for releasing Clinton's emails after the *Washington Post* released Trump's *Access Hollywood* tape on at least five separate occasions.

Another instance of competitive arousal may have emerged in September 2016 when President Barack Obama's administration warned key congressional leaders of Russian meddling in elections. Obama hoped to issue a bipartisan statement condemning Russia and appeal for states to accept federal support to combat Russian cyber activities. This effort was largely thwarted by Republican Senate majority leader Mitch McConnell (R-KY) whose "partisan ambitions outweighed every other consideration."[108] Ostensibly, the actions by Trump and the Republican Party seems consistent with the theory that intense rivalries and time pressures can cause individuals or groups to make decisions that may be unhelpful for their own cause in the long run.

REFLEXIVE CONTROL INSIGHTS

The first study explained how the Russians used the IRA to flood American social media with inflammatory posts and political advertisements to incite chaos in the nation. With the general goal of disrupting the political system and lesser goals of supporting Trump and disparaging Clinton, the Russians distributed a wide assortment of messages that amplified the existing fractures across American society. This method is a hallmark of active measures and signifies the additional complexities of Russian involvement in the presidential elections. The tactic of providing a barrage of polarizing messages to induce reflexive responses from millions of Americans is surprisingly sound due to its broader end state of introducing political disruption. This example also identified two potential cognitive vulnerabilities—susceptibility to message repetition and confirmation bias—as likely cognitive weaknesses in individuals that the Russians targeted. At a minimum, Russia demonstrated that social media is a powerful tool that state actors can manip-

[105] Gillian Ku et al., "Towards a Competitive Arousal Model of Decision-making: A Study of Auction Fever in Live and Internet Auctions," *Organizational Behavior and Human Decision Processes* 96, no. 2 (2005): 89–91, https://doi.org/10.1016/j.obhdp.2004.10.001.

[106] Deepak Malhotra et al., "When Winning Is Everything," *Harvard Business Review* 86, no. 5 (2008).

[107] Michael Crowley and Tyler Pager, "Trump Urges Russia to Hack Clinton's Email," *Politico,* 27 July 2016.

[108] Steve Benen, "McConnell's Response to Russian Attack Is Back in the Spotlight," MSNBC, 19 February 2018.

ulate to support strategic ends. Conversely, nations with a free press and open communication systems must not discount the fact that exposure to social media may increase the susceptibility of its citizens to influence and manipulation from adversaries.

The second study on the U.S. news media illustrated how reflexive control can potentially manipulate institutions. The U.S. media, as a general establishment, has professional norms, biases, and practices that inform its actions so that it may attract viewers.[109] Through Wikileaks as an intermediary, the Russians directly fed the media information and disinformation at critical periods to attract or distract public attention. As a potential consequence of this approach, the influencer becomes somewhat dependent on the efficacy of the intermediary to carry out its mission, which may be positive or negative. By 2016, Wikileaks had already established itself as an entity that supposedly champions government transparency. In this regard, Russia picked a highly efficient intermediary. As a matter of attribution, Russia may also have reduced the likelihood of groups discovering its involvement, however short-lived, in meddling with the American political system. By using an intermediary, Russia may have created just enough time needed to continue its influence activities in a time-sensitive period.

The third study focused on a partisan group (the Trump campaign as a microexample) and explained how competitive arousal as a cognitive flaw may induce a party to commit activities that benefit themselves without rational consideration of consequences. For an influencer practicing reflexive control, this example highlights how institutions under time pressures, duress, or competition may have exploitable cognitive conditions. Assuming that the Russians did not pass information or instructions directly to the Trump campaign, this particular example highlights how secondary audiences may consume the information in the environment and act positively in favor of the influencer. On the contrary, there could also be instances where secondary audiences reflexively respond in a manner that is counterproductive to the intent of the influencer. Overall, the reflexive responses of the three target audiences examined in this research reinforce the notion that reflexive control can target the cognitive biases, cognitive flaws, and standard behaviors of both individuals and entities.

Finally, the efficacy of the Russian influence campaign during the 2016 elections is admittedly difficult to measure due to the fact that the DNI did not list measures of effectiveness for American politics and because the Kremlin continues to deny involvement with anything related to the U.S. presidential elections. Additionally, as Timothy Thomas notes, there is an inherent secrecy to the intent of an influencer using reflexive control against its victim. At a cursory glance, the Russians appeared to have achieved their end state by increasing the polarization of the American people. In a Gallup poll conducted after the November 2016 presidential election, 77 percent of Americans perceived the nation is "divided on the most important values, while 21% believed it is united and in agreement." This perception of social division is the highest in recorded history by Gallup. In contrast, after Obama's second presidential victory in 2012, 69 percent perceived the nation was divided, while 29 percent believed the country was united and in agreement.[110] Perhaps a more telling tale of political discord gains focus over time. Exactly one year into his presidency in 2017, the Trump administration's White House staff experienced 37 percent turnover rate—the highest of any American president. The second highest administrative turnover rate was Ronald Regan with 17 percent.[111] Indeed, measuring the effectiveness of Russian influence activities on this election is challenging and beyond the scope of this research.

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[109] Paul and Elder, *The Thinkers Guide for Conscientious Citizens on How to Detect Media Bias and Propaganda in National and World News*, 2–9.

[110] Jeffrey M. Jones, "Record-High 77% of American Perceive Nation as Divided," Gallup, 21 November 2016.

[111] Ezra Klein, "Why There's So Much Chaos in the Trump Administration," Vox, 13 February 2018.

CONCLUSIONS

This research improves understanding of Russian reflexive control by examining its employment during the 2016 U.S. presidential elections—a single crucial case. Reflexive control is both an end and a mean and part of the broader array of techniques within Russian information warfare to advance its national interests. It expands reflexive control literature by examining how the Russians used this technique to exploit the cognitive biases and flaws of three distinct target audiences: the U.S. population, U.S. news media, and political partisans. By examining the potential cognitive biases of these target audiences, this chapter demonstrates how reflexive control may: 1) influence large populations through social media and varied messaging, 2) influence institutions by exploiting their particular biases and norms of behavior, and 3) use intermediaries to influence the behavior of an audience.

Additional research into reflexive control can further explore institutional and group biases and their susceptibility to influence. Organizations with strong professional codes may be optimal targets for influence due to their predictability and ethical biases. The fact that reflexive control targets the preexisting psychological conditions of a target lends itself to be a flexible tool for an array of audiences and audiences of different sizes. Open information societies, such as those in the West, may be especially vulnerable to reflexive control due to wide public exposure to social media and other information platforms, which provides an influencer many avenues to pollute the information environment with selective information or disinformation.

Because reflexive control targets cognitive vulnerabilities and preexisting psychological conditions, future studies focused on defensive measures should examine methods to train or inoculate individuals (and groups) from falling for their decision-making flaws. This cognitive defense approach should be complementary to both technical measures (i.e., firewalls and deep packet filtering) and administrative measures (i.e., stricter terms of service for social media and user reporting of violations).

By exploiting the cognitive biases of groups and individuals, Russia undermined the U.S. political system to boost its own prestige and offer its domestic audiences a false equivalency based on the problems within American society. Russia took advantage of open social media systems and the free press to exploit division in American society. Their means were not sophisticated, but they were highly effective in deepening the divisions of an already polarized American society. American security officials must take heed on both the technical and psychological aspects of Russian information warfare and reflexive control. A deeper understanding of reflexive control is but one piece of the puzzle for the United States to protect itself against Russian political warfare in an information age.

Artificial Intelligence
Demystifying the Craze and Sharpening the Competitive Edge of America's Warfighting Force

by Major Austin M. Duncan, U.S. Marine Corps[1]

> A new and frighteningly complex world of conflict and technology and the inevitable deadly dilemmas we will face in twenty-first-century wars demand that we pay more attention to the issues that will confront us, before it is too late to control them.[2]

Artificial intelligence (AI) stands at the forefront of strategic competition in the business sector and national security. Rapid technological advances in AI continue to break barriers at an astonishing rate, and it is a generally accepted consensus AI will dramatically affect how we live in the twenty-first century. The likes of Alan M. Turing, Ray Kurzweil, and Elon Musk have long fantasized about the impact of artificial intelligence, but significant technological advances are now making AI a reality in many facets of life, from health care to gaming. Of particular importance, recent studies highlight the strategic and transformative potential of AI with regard to military affairs.[3] Some scholars are already predicting artificial intelligence is the seventh revolution of military affairs.[4] When recently posed a question if AI is changing the character or nature of war, former secretary of defense James N. Mattis replied, "I'm certainly questioning my original premise that the fundamental nature of war will not change."[5]

Luckily, the United States has considered the integration of AI to support defense for several years. Even the Pentagon's "Third Offset Strategy" is built on the premise of AI and automation to assure U.S. military superiority.[6] The problem, however, is that the United States is not the only country incorporating AI and automation to win wars. Near-peer adversaries such as China and Russia are also exploring the application of AI in war, as are several less formidable opponents. Discreetly, evidence of an artificial intelligence arms race between major military

[1] Maj Duncan is a Marine Corps Gray Scholar and a distinguished graduate of MCU's Command and Staff College. This paper won the LtGen Edward W. Snedeker Award of the Armed Forces Communications and Electronics Association for academic 2017–18.

[2] Robert H. Latiff, *Future War: Preparing for the New Global Battlefield* (New York: Alfred A. Knopf, 2017), 15.

[3] Greg Allen and Taneil Chan, *Artificial Intelligence and National Security* (Cambridge, MA: Belfer Center for Science and International Affairs, Harvard Kennedy School, 2017); Andrew Ilachinski, *AI, Robots, and Swarms: Issues, Questions, and Recommended Studies* (Arlington, VA: CNA, 2017); and M. L. Cummings, *Artificial Intelligence and the Future of Warfare* (London, UK: Chatham House, Royal Institute of International Affairs, 2017).

[4] F. G. Hoffman, "Will War's Nature Change in the Seventh Military Revolution?," *Parameters 47*, no. 4 (Winter 2017–18): 20.

[5] James N. Mattis, "Press Gaggle by Secretary Mattis En Route to Washington, D.C." (speech, 17 February 2018).

[6] Robert O. Work, "Remarks by Deputy Secretary Work on Third Offset Strategy" (speech, Brussels, Belgium, 28 April 2016).

powers is emerging.[7] The question is no longer *if* AI will dominate warfare but *when*. As stressed by the *Marine Corps Operating Concept* and the *National Defense Strategy*, the evolving character of war demands the exploitation of technology to maximize speed and focus, or the nation risks catastrophic defeat.[8] As AI revolutionizes national security, scholars and warriors alike must anticipate the conceptual and operational opportunities and challenges of the future operating environment driven by AI.

This chapter explores the impact of artificial intelligence within warfighting and the Department of Defense (DOD). The first section asserts that AI is poorly understood and explores the various definitions and fields of study to establish a baseline for research, concluding that AI needs a new brand for the future. The second section introduces competing theories of victory for AI integration in warfare by using competitive advantage literature to evaluate U.S. and Chinese strategy. The third section builds on the first two by providing recommendations for U.S. policy and the DOD to sharpen their competitive edge.

Artificial intelligence will undoubtedly transform the battlefield, perhaps generating a revolution of military affairs.[9] However, specific outcomes are not deterministic.[10] As is the case with most revolutions or nascent technologies, it is difficult to predict in advance exactly how AI may evolve or impact every domain. This fact should not dissuade the exploration of a broad spectrum of possibilities. The purpose of this study is not to provide definitive implications, but rather highlight the changing character of war and prompt dialogue between professionals for either implementation or future research. Critiques, counterarguments, and provocative opinions enrich the discussion and generate tempo for progression.

ARTIFICIAL INTELLIGENCE: DEMYSTIFYING THE CRAZE AND BRANDING FOR THE FUTURE

> A brand is the sum of the good, the bad, the ugly, and the off-strategy.[11]

AI is poorly understood. The complexity and constant evolution of AI befuddle common understanding. Moreover, there is no universal definition of AI because leading scientists and engineers cannot agree on the parameters.[12] The term *AI* is routinely used interchangeably with descriptors such as big data, autonomy, machine learning, human-machine teaming, and deep learning.[13] Such generalizations are not helpful, playing into the fictional portrayal of superhuman robots in the near future. More important, the obfuscating language limits the synchronization of research and application. Using different terms as synonyms is incredibly dangerous, particularly in light of budgeting and time constraints in a large bureaucratic institution such as the DOD. Meaningful discussions on AI first require a shared understanding of what AI is and is not.

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[7] Julian E. Barnes and Josh Chin, "The New Arms Race in AI," *Wall Street Journal*, 2 March 2018.

[8] *Warfighting*, MCDP 1 (Washington, DC: Headquarters Marine Corps, 1997) states that of all consistent patterns we can discern in war, there are two concepts of universal significant in generating combat power: speed and focus; and *Summary of the 2018 National Defense Strategy of the United States of America: Sharpening the American Military's Competitive Edge* (Washington, DC: Department of Defense, 2018), 3.

[9] Hoffman, "Will War's Nature Change in the Seventh Military Revolution?," 20.

[10] Robert O. Work, "Foreword," in *Department of Defense: Artificial Intelligence, Big Data, and Cloud Taxonomy* (Washington, DC: Govini, 2017), 2–5.

[11] Scott Bedbury as quoted in Alex Wipperfürth, *Brand Hijack: Marketing Without Marketing* (New York: Portfolio, 2005), 41.

[12] *Preparing for the Future of Artificial Intelligence* (Washington, DC: Executive Office of the President, National Science and Technology Council, and Committee on Technology, 2016), 6.

[13] Sydney J. Freedberg Jr., "Centaur Army: Bob Work, Robotics, & the Third Offset Strategy," Breaking Defense, 9 November 2015.

Artificial Intelligence as an Application

Artificial intelligence is commonly defined as the theory and development of computer systems able to perform tasks that normally require *human intelligence*, such as visual perception, speech recognition, decision making, and translation between languages.[14] This definition is inherently oversimplified—what exactly is "human intelligence?"[15] In 2018, there are "intelligent" thermostats, vacuum cleaners, and home security systems, but these technologies pale in comparison to unmanned vehicles capable of discerning and engaging targets with minimal human control. Moreover, the bar by which intelligence is measured changes drastically over time and is open for debate. Though human intelligence seems like a natural benchmark, "matching human ability is only a sufficient condition, not a necessary one."[16] Many systems already exceed human intelligence on varying parameters. Thus, measuring AI against a benchmark of human intelligence may unduly bind the research and application. Conversely, holistic human intelligence or consciousness remains unrivaled by artificial or biological creations regarding the human brain's ability to comprehensively sense, analyze, and synthesize information. This is not to say the feats of IBM's computer Deep Blue (chess) and Google's AlphaGo (go) are not impressive—they are incredibly impressive—but those applications of AI are still niche compared to the breadth of daily human activities.

Artificial Intelligence as a Field of Study

In another sense, AI is more than just machine applications; AI is an entire field of study. A 2016 study by the DOD's Office of Net Assessment (ONA) points out that many citizens perceive AI as *intelligence exhibited by machines* whereas researchers understand AI to be *a discipline of problems to solve*, much like physics.[17] The subtle difference is noteworthy, and researchers contend that the latter explanation is more useful to understanding AI. Through this lens, AI is akin to a branch of computer science that focuses on synthesizing intelligence, mostly generalized as a software focus.[18] This notion explains why there are so many budding areas of AI research: machine learning, robotics, internet of things, deep learning, big data, etc. The separation into various subfields enables progression along varying fronts but also diversifies the comprehensive understanding and direction due to competing stakeholders.

Types of Artificial Intelligence

There are two broad categories of AI: general and narrow (or weak). Artificial general intelligence (AGI) is described as "AI systems that possess a reasonable degree of self-understanding and autonomous self-control, and have the ability to solve a variety of complex problems in a variety of contexts, and to learn to solve new problems that they didn't know about at the time of their creation."[19] In other words, AGI is the basis for *Terminator* scenarios where superintelligence and robots replace humans. Conversely, narrow AI, also known as weak AI, is a specialized and pragmatic application of AI to perform specific tasks, such as algebraic calculations, self-driving cars, or playing chess.[20] Narrow AI is best summarized as the automation of tradi-

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[14] *English Oxford Living Dictionaries*, online ed., s.v. "artificial intelligence."

[15] Cummings, *Artificial Intelligence and the Future of Warfare*, 2.

[16] Peter Stone et al., *Artificial Intelligence and Life in 2030: One Hundred Year Study on Artificial Intelligence*, Report of the 2015–16 Study Panel (Stanford, CA: Stanford University, 2016), 13.

[17] *(Artificial) Intelligence: What Questions Should DOD Be Asking?*, Summer Study July 2016 (Washington, DC: Office of Net Assessment), 20.

[18] Herbert A. Simon, "Artificial Intelligence: An Empirical Science," *Artificial Intelligence 77*, no. 1 (1995): 95–127, https://doi.org/10.1016/0004-3702(95)00039-H.

[19] *Artificial General Intelligence*, ed. Ben Goertzel Cassio Pennachin, vol. 2 (New York: Springer, 2007), vi.

[20] *Artificial General Intelligence*.

tional human activity. To date, narrow AI accounts for the bulk of AI applications and research, whereas AGI is largely the work of fiction writers or critics attempting to conflate near-term AI applications with distant-future ethical concerns.

Machine Learning, Deep Learning, and Artificial Neural Networks

The terms *AI*, *machine learning* (ML), and *deep learning* are best thought of as concentric circles, or subfields. If AI is the problem set, ML is a way to achieve AI, and deep learning is one of many approaches within ML. Machine learning is the application of mathematical theory and statistics to identify relevant data (data mining), learn from it (algorithmic learning), then make predictions based on the data.[21] By repetitively combing the data, the machine identifies patterns and "learns" how to perform a task. Complementary efforts such as decision trees and Bayesian probability theory help parse data, thereby enhancing the ability of machine learning applications to learn from patterns. Conceptually, AI is possible without ML, but it would require millions of lines of code and complex rules; therefore, the maturation of machine learning is a considerable accelerant for AI.

One of the most well-known examples of ML is *computer vision*, or the ability of a machine to recognize an object from an image. Computer vision is what allows Google Photos, Apple Photos, and Facebook to recognize objects or people within a photo, then tag it appropriately. The process begins with millions of pictures and humans training the machine by tagging objects in the pictures. Over time, the algorithm builds a model and begins to tag objects on its own while humans validate the tag. Upon reaching a satisfactory level of success, the machine "learns" the task. Recently, the application of computer vision progressed from benign social media photos to aid in potential intelligence gathering in war. Project Maven, the Pentagon's AI pilot project, is now employing computer vision algorithms on unmanned systems to enable intelligence collection.[22] Using ML, unmanned aerial vehicles can identify items ranging from key infrastructure to potential adversary weapon systems, all without the requirement of a trained analyst.

Deep learning is a subset of machine learning, stemming largely from the study of biology and a general understanding of how the brain functions. Much as the interconnections of neurons stimulates signals throughout the body, artificial neural networks (ANN) are algorithms mimicking the structure of the brain.[23] Deep learning is nothing more than using ANNs to model complex relationships of data.[24] ANNs use machine learning at a much deeper level on abstract problem sets to assign increased confidence in the prediction. Similar to the brain, ANN can weight neurons based on correct predictions and eventually form enduring pathways with specific data, thereby fine-tuning the machine to be very accurate—often more accurate than the human brain.[25] Until recently, ANNs were largely theoretical because it was computationally infeasible to sort through millions of data points repetitively to form mature neural networks; however, the abundance of data and substantial increases in processing power is leading to routine breakthroughs. For example, self-driving cars utilize deep learning to sense millions of data points during thousands of hours of driving time, ultimately yielding safer driving records than

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[21] Ethem Alpaydin, *Introduction to Machine Learning*, 3d ed. (Cambridge, MA: MIT Press, 2014), 1–4.

[22] Laura Criste, "AI Program 'Project Maven' Gets Extra $100 Million in Omnibus," *Bloomberg Government,* 3 April 2018; and Matt Stroud, "The Pentagon Is Getting Serious about AI Weapons," Verge, 12 April 2018.

[23] B. Yegnanarayana, *Artificial Neural Networks* (New Dehli: Prentice-Hall of India, 2006), 4.

[24] Li Deng and Dong Yu, "Deep Learning: Methods and Applications," *Foundations and Trends in Signal Processing*, no. 3–4 (2014): 5, https://doi.org/ 10.1561/2000000039.

[25] Madeline Schiappa, "Man vs Machine: Comparing Artificial and Biological Neural Networks," Sophos News, 21 September 2017; and Jon Erlichman, "Better than Humans: Vanguards of the AI Arms Race," BNN Bloomberg, 8 October 2017.

humans.[26] In a military application, Project Maven can use ANNs and deep learning to not only improve intelligence collection but also assist in lethal targeting. Much like self-driving cars, unmanned aerial vehicles would benefit from the same techniques and improved accuracy to minimize collateral damage during lethal targeting strikes.

The Artificial Intelligence Perceptions and Brand

The lack of a clear definition for artificial intelligence, along with the existence of many subfields under the AI umbrella, generates considerable confusion among the public, decision makers, and even within the scientific community. While AI has the prospect of changing the world, all of it is moot if AI is misunderstood and branded incorrectly. During a town hall session at the Digiday AI Marketing Summit in April 2018, many voiced frustrations about the ambiguity of AI and the difficulty acknowledging the role in their businesses. One marketer highlighted, "I think we've been using 'artificial intelligence' in different variants for a while, but there's a fuzziness around what it can and cannot do."[27] Another stated that "there's a lot of skepticism."[28] AI has a brand image problem. That spells bad news for industries intending to use AI to aid consumers who may be reticent; it may be catastrophic for national defense applications of AI, particularly in democratic societies that rely on the common understanding and the will of the people for support.

Business literature emphasizes that people do not necessarily buy (or accept) products, services, and applications based on physical attributes or functions.[29] Instead, people care more about the social and psychological implications.[30] They care about the brand image, which includes things such as perception and reputation, whether reasoned or emotional.[31] Best case, AI researchers continue to mature the technology, and seemingly artificial projects are recognized more for their potential vice negative consequences. In a worst-case scenario, policy makers and the public may potentially reject AI due to their lack of knowledge and suppositions that AI super bots will soon replace humans. One's enthusiasm regarding AI is largely reflective of their belief of the worst-case scenario.[32] Perceptions guide the future, not AI technology itself.

Branding for the Future

At the very least, an improved working definition of artificial intelligence is necessary. Better yet, AI should be rebranded entirely to disassociate from fear-driven narratives and their cargo.[33] Though a vague AI definition may grant intellectual space for creativity and experimentation, policy makers and those responsible for implementation remain uninformed. The conflation of varying fields of studies, innovations, and technologies confuses the necessary dialogue to prepare human social systems for AI integration. The resultant is fear of the unknown, giving way to a growing concern AI is "summoning the demon" with extreme ethical and legal implica-

[26] Chris Isidore, "Self-driving Cars Are Already Really Safe," CNN Business, 21 March 2018.
[27] Tim Peterson, "Brands Sound Off on Their Frustrations with AI: 'It's Like What VR Was a Few Years Ago'," Digiday, 12 April 2017.
[28] Peterson, "Brands Sound off on Their Frustrations with AI."
[29] Dawn Dobni and George M. Zinkhan, "In Search of Brand Image: A Foundation Analysis," in *Advances in Consumer Research,* ed. Marvin E. Goldberg et al., vol. 17 (Provo, UT: Association for Consumer Research, 1990), 110–19.
[30] Burleigh Bradford Gardner and Sidney J. Levy, "The Product and the Brand," *Harvard Business Review*, March–April 1955, 33–39.
[31] Dobni and Zinkhan, "In Search of Brand Image," 110–19.
[32] Rick Webb, "Superintelligence and Public Opinion," New Co Shift, 24 April 2017.
[33] Kevin Kelly, "The AI Cargo Cult: The Myth of Superhuman AI," *Wired*, 25 April 2017.

tions.[34] An improved definition of artificial intelligence and subsequent lines of inquiry for each subfield would mitigate AI alarmists and common apprehensions of the relatively unknown field of study, while also synchronizing resources and improving accountability mechanisms.

The necessity to rebrand AI for the future is even more exaggerated for the Department of Defense. AI applications in warfare are likely to draw a multitude of critics, as evidenced by recent Google employees protesting the company's affiliation with Project Maven.[35] Similarly, in fall 2017, nearly a hundred chief executive officers of AI companies signed an open letter to the United Nations urging them to consider banning AI in weapons.[36] The growing concerns have the potential to undermine impactful AI applications in war. To prevent a strategic communications nightmare moving forward, the DOD would benefit from rebranding AI to *algorithmic warfare*, something more concrete and perceptually more appetizing. Tying the brand to mathematics is less abstract than the currently nebulous moniker of artificial intelligence. By doing so, the brand will be perceived as more transparent and well-defined, thereby making it more palatable in national security applications.

ENVISIONING ARTIFICIAL INTELLIGENCE IN WARFARE: COMPETING STRATEGIES OF VICTORY

> A military that is slow to exploit technological advances and adapt new ways of fighting opens itself to catastrophic defeat. . . . We must capture the full potential.[37]

Many nations are taking note of the transformative potential of AI. In 2016, the United States released three critical reports sketching a roadmap for AI strategy.[38] China released two foundational documents in 2016 and a national AI development plan in 2017.[39] In September 2017, Russian president Vladimir Putin noted that "whoever becomes the leader in this sphere [artificial intelligence] will become the ruler of the world."[40] As AI increasingly becomes the "focus of international competition," security professionals seek a competitive advantage.[41] To date, the United States and China are publicly driving most of the AI technology development and theory, as well as the discussion on its integration in warfare. Therefore, this study focuses on the competing theories of victory between the DOD and the People's Liberation Army (PLA) strategy to incorporate AI, explicitly highlighting their asymmetries through the foundational lens of competitive advantage business literature.

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[34] "Tesla's Elon Musk: We're 'Summoning the Demon' with Artificial Intelligence," YouTube video, 21 October 2017, 0:19; and "An Open Letter to the United Nations Convention on Certain Conventional Weapons," Future of Life Institute, 21 August 2017.

[35] Scott Shane and Daisuke Wakabayashi, " 'The Business of War': Google Employees Protest Work for the Pentagon," *New York Times*, 4 April 2018.

[36] Tracey Lien, "Elon Musk and AI experts Urge UN to Ban Artificial Intelligence in Weapons," *Los Angeles Times*, 21 August 2017; and "An Open Letter to the United Nations Convention on Certain Conventional Weapons."

[37] *The Marine Corps Operating Concept: How an Expeditionary Force Operates in the 21st Century* (Washington, DC: Headquarters Marine Corps, 2016), 16.

[38] *The National Artificial Intelligence Research and Development Strategic Plan* (Alexandria, VA: National Science and Technology Council, Networking and Information Technology Research and Development Subcommittee, 2016), *Preparing for the Future of Artificial Intelligence* (2016), and *Artificial Intelligence, Automation, and the Economy* (Washington, DC: Executive Office of the President, 2016).

[39] *Three-Year Guidance for Internet Plus Artificial Intelligence Plan* (Beijing: 2016); *13th Five-Year National Science and Technology Innovation Plan* (Beijing: National People's Congress, 2016); and *Next Generation Artificial Intelligence Development Plan* (Beijing: State Council of China, 2017).

[40] Associated Press, "Putin: Leader in Artificial Intelligence Will Rule World," *CNBC*, 4 September 2017.

[41] *A Next Generation Artificial Intelligence Development Plan, China's New Generation Artificial Intelligence Development Plan*, trans. Graham Webster et al. (Beijing: Chinese State Council, 2017).

Two Basic Types of Competitive Advantage: Cost and Differentiation

Few theories in business are as influential as Michael A. Porter's work on competitive advantage. His books, *Competitive Advantage* (1985) and *Competitive Strategy* (1980), remained fundamental to business strategy during the last three decades since being published. The *Economist* succinctly summarizes Porter's oeuvre on how to achieve competitive advantage: "You win either by being cheaper or by being different (which means being perceived by the customer as better or more relevant). There are no other ways."[42] In business, firms seek to create cost advantages by making products at lower cost *or* creating unique products; then, they formulate offensive and defensive strategies to offset competitors.[43] Similar logic applies to national strategy and warfighting. As some note, national strategy and war are not the same as business, but they are all fundamentally human endeavors with many similarities.[44] Consequently, there is utility using the vast sample size of business competitions to also inform defense strategy.[45]

Using the two means to achieve a competitive advantage—cost and differentiation—this chapter progresses by outlining the differences between the American and Chinese AI strategy, first by cost advantage, then by differentiation. It is important to note that both countries are pursuing a competitive advantage through both cost and differentiation; however, their strategies are very different. While the United States may maintain an AI competitive advantage currently, the PLA strategy and structural advantages suggest China will surpass America in short order.

Competing Theories of Cost Advantage: Military-Civil Fusion versus Public-Private Partnership

The keystone of China's AI research and development strategy is a strong military-civil fusion with formal state-sponsored mechanisms to enable deep collaboration between military and civilian organizations. By pursuing collaborative research and development, China seeks significant cost advantages. China's *New Generation AI Development Plan* (2017) emphasizes "the application of military-civilian scientific and technological achievements in two-way transformation . . . to form a new pattern of deep integration of military and civilian development."[46] Elsa Kania, a leading scholar on China's AI strategy, notes that China will need to continue establishing and normalizing mechanisms to actualize their objective.[47] Many examples of recent high-level commissions and civilian partnerships suggest China is progressing quite fast.[48] As Greg Levesque and Mark Stokes conclude, China's "military-civil fusion in the defense industrial context goes beyond traditional notions of civil-military integration," thus blurring the

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[42] "Competitive Advantage," *Economist*, 4 August 2008.

[43] Michael E. Porter, *Competitive Advantage: Creating and Sustaining Superior Performance* (New York: Free Press, 1985), 3.

[44] Todd C. Helmus et al., *Enlisting Madison Avenue: The Marketing Approach to Earning Popular Support in Theaters of Operations* (Arlington, VA: Rand, 2007), 57–58.

[45] Benjamin Jensen et al., "A Business Approach to America's Warfighting Model," *War on The Rocks*, 24 August 2017.

[46] *A Next Generation Artificial Intelligence Development Plan*.

[47] Elsa B. Kania, *Battlefield Singularity: Artificial Intelligence, Military Revolution, and China's Future Military Power* (Washington, DC: Center for a New American Security, 2017), 19.

[48] For example, Chinese Communist Party (CCP) Military-Civil Fusion Development Commission, Central Military Commission (CMC) Military Scientific Research Guidance Committee, and the People's Liberation Army (PLA) CMC Science and Technology Commission. See Gao Chang, "The Military and Civil Integration Development Committee Set Up a Military Plate to Welcome the Pounds and Bullies," *Securities Times*, 23 January 2017; Zhang Yisu and Wang Mengmeng, "Xi Jinping Presides over the First Plenary Meeting of the Central Military and Civil Integration Development Committee," Xinhua News Agency, 20 June 2017; and Li Weishan, "CMC Military Scientific Research Guidance Committee Emerged This Year," *Sina News*, 24 July 2017.

lines of typical state partnerships.[49] Though it remains to be determined if the PLA will realize power-altering returns on their military-civil fusion, China's pursuit of dual-use research and development has the potential to enable monumental cost advantages and generate synergies across a diverse ecosystem.

Similarly, the DOD also aspires to maximize cost advantages through what it calls public-private partnerships.[50] The primary difference here is that, whereas China guides military-civil fusion through state-sponsored guidance, the U.S. public (government) relies on incentives to entice partnerships, thereby incurring additional costs. Still, the renewed focus to increase public-private partnerships is commendable. Organizations like Defense Innovation Unit Experimental (DIUx) and the Strategic Capabilities Office (SCO) are making great strides cultivating partnerships and redefining traditional boundaries.[51]

Arguably, these organizations are not much different than Chinese initiatives; however, the DOD faces culture challenges that impede the relationship with research hubs such as those in Silicon Valley. For one, politics remain a prevalent part of U.S. society. Some experts assert technologists are pushing lawmakers toward a liberal ideology, often diverging from a DOD culture that is largely characterized as conservative.[52] Furthermore, recent tensions such as the Apple and Federal Bureau of Investigation (FBI) encryption debate threaten to widen the divide thanks to strong rebukes from both camps, including some FBI officials characterizing Apple employees as "jerks" and questioning their patriotism.[53] Further straining "the current adversarial nature," some technologists are questioning the impact of their work as it pertains to the social fabric of society, a smaller portion denouncing any affiliation of their work with the government.[54] In turn, civil-military partnerships face strong headwinds, and researchers fear even greater challenges lie ahead.[55] Even more troubling, the under secretary of defense for research and engineering recently conceded the DOD's cumbersome acquisition and lengthy approval process for new technology such as AI impedes "preeminence," resulting in significant disadvantages and risk.[56] Ultimately, it leaves the DOD on a quest for more public-private partnerships. The best way to do so is by focusing on providing incentives, bridging a cultural divide, and revising an outmoded acquisition process—all of which require money, and a lot of it.

In summary, the PLA AI strategy, which relies on a state-driven military-civil fusion, likely has a greater potential realizing a cost advantage over DOD public-private partnerships. As innovation in AI continues to slant more toward the private sector globally, China is better positioned to reap the benefits from the mandated military-civil "shared construction, shared enjoyment, and shared use."[57] Conversely, DOD is working hard to improve public-private part-

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[49] Greg Levesque and Marke Stokes, *Blurred Lines: Military-Civil Fusion and the "Going Out" of China's Defense Industry* (Washington, DC: Pointe Bello, 2016).

[50] *Summary of the 2018 National Defense Strategy of the United States of America*, 8.

[51] Justin Doubleday, "DOD Innovation Insurgents Gain Footing in Pentagon Bureaucracy," Inside Defense, 29 November 2017.

[52] Farhad Manjoo, "Silicon Valley's Politics: Liberal, with One Big Exception," *New York Times*, 9 September 2017.

[53] Jon Brodkin, "FBI Security Expert: Apple Are 'Jerks' about Unlocking Encrypted Phones," Ars Technica, 11 January 2018.

[54] Loren DeJonge Schulman et al., *The Rocky Relationship between Washington and Silicon Valley: Clearing the Path to Improved Collaboration* (Washington, DC: Center for New American Security and Copia Institute, 2017), 4; James Vincent, "Former Facebook Exec Says Social Media Is Ripping Apart Society," Verge, 11 December 2017; and Janet Burns, "Google Employees Denounce Company's Military Drone Work in Letter to CEO," *Forbes*, 10 April 2018.

[55] Schulman et al., *The Rocky Relationship between Washington and Silicon Valley.*

[56] Michael Griffin as quoted in Brandon Knapp, "DOD Official: U.S. Not Part of AI Arms Race," C4ISRNet, 10 April 2018.

[57] Wang Liang et al., "National People's Congress Representative Liu Guozhi: Artificial Intelligence Will Accelerate the Progress of Military Transformation," China Military Online, 17 March 2017.

nerships, but it faces remarkable challenges and costs. Though the United States may serve as the AI capital of the world currently, China's plan to become the "premier global AI innovation center" by 2030 must be respected, due in large part to their focus on military-civil fusion that generates substantial cost advantages in AI research and development.[58]

Competing Theories of Differentiation: Intelligentization versus the Centaur Model

The PLA and DOD also envision the integration of AI in warfare quite differently. Chinese strategists contend AI is trending toward a military revolution and they plan to capitalize on it through an expansive approach they call "intelligentized" warfare.[59] Specifically, China seeks an intelligentized decision-making cycle with a long-term vision, vice short-term application. A critical component of the intelligentized model is the acknowledgment that AI may accelerate the tempo of operations so much that commanders will no longer have the capacity to remain "in the loop," and instead will operating "on the loop."[60] Given this premise, the PLA seems poised to investigate the integration of AI to support a wide range of applications that other governments and societies may not consider due to a difference in virtues and ethics.

Though the PLA is still interested in traditional AI research in support of unmanned platforms and data processing, the PLA is likely more interested in using AI to support ultimate decision making through advanced applications such as operational planning and battle simulation. In other words, they may be more open to, and interested in, applications that resemble AGI as opposed to narrow AI—a significant differentiator. Complementing the intelligentization theory of victory, China recognizes their time line for realization is not immediate; they plan to be on par with the United States by 2020 and may not become the world's AI "Innovation Center" until 2030.[61] As such, the critical components of the Chinese AI strategy are long-term investments in education, talent recruitment, and a massive funding plan anchored in military-civil fusion.[62] Even though the PLA may not be originators of AI-enabled warfighting technologies, they are clearly planning on a different horizon and intend to differentiate through intelligentization.

In a stark difference, the AI strategy for the United States is best characterized by near-term relevancy and adherence to the centaur model, emphasizing the criticality of humans. Since the advent of the third offset strategy, the U.S. vision to incorporate AI on the battlefield focuses primarily on manned-unmanned teaming (MUM-T), or what is commonly referred to as the centaur model—half human, half machine.[63] The centaur approach presumes humans remain "in the loop," always the ultimate authority of lethal force and mission oversight. Such a stipulation likely stems in large part from the U.S. cultural view of law and ethics as constraints. U.S. pol-

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[58] *A Next Generation Artificial Intelligence Development Plan*.

[59] Official translation is debated by some to be "smart." However, some U.S. and Chinese scholars prefer "intelligentization" for consistency and to highlight the parallel to the PLA's theory of "informatization"; Kania, *Battlefield Singularity*, 12; and "A Summary of the Workshop on the Game between AlphaGo and Lee Sedol and the Intelligentization of Military Command and Decision-Making," *China Military Science*, 2 April 2016.

[60] Chen Hanghui, "Artificial Intelligence: Disruptively Changing the Rules of the Game," China Military Online, 18 March 2016.

[61] Paul Mozur, "Beijing Wants A.I. to Be Made in China by 2030," *New York Times*, 20 July 2017; and *A Next Generation Artificial Intelligence Development Plan*.

[62] Gregory Allen and Elsa B. Kania, "China Is Using America's Own Plan to Dominate the Future of Artificial Intelligence," *Foreign Policy*, 8 September 2017.

[63] Work, "Remarks by Deputy Secretary Work on Third Offset Strategy"; Freedberg, "Centaur Army"; and Brad Bush, "How Combined Human and Computer Intelligence Will Redefine Jobs," Tech Crunch Network, 1 November 2016.

icy stresses designing AI applications to "align with ethical, legal, and social principles."[64] The overall U.S. policy then extends across the DOD through *Directive 3000.09, Autonomy in Weapon Systems*, which limits the design of autonomous and semiautonomous weapon systems to "appropriate levels of human judgment over the use of force" and only for "local *defense* . . . static defense of manned installations or onboard defense of manned platforms."[65] As such, *DODD 3000.09* meaningfully restricts military application of AI to include: 1) a human in the loop and 2) be designed primarily for defensive purposes. In contrast, some nations such as China broadly view law and ethics as a consideration, even acknowledging the concept of legal warfare.[66] Moreover, China has long approached technology as a means to determine tactics, not the other way around, as with the United States.[67] Whereas the United States largely seeks technology to enhance current doctrine and tactics, China is much more receptive to developing tactics around a game-changing technology. Such differentiation implies that the DOD may have a narrower perspective in the development of AI applications.

Finally, the DOD focuses on leveraging AI for defined mission sets in the very near future, likely within a five-year program objective memorandum (POM) cycle.[68] Whereas China seeks to surpass America during the course of a decade, the DOD's focal point is modernization in 2019–21.[69] Though it is important to note that critics should not discount the United States and the DOD's near-term focus entirely; the DOD will learn invaluable lessons during the next few years through attempts to implement cutting-edge AI technology.[70] The PLA, with a long-term focus, may only be able to extract some of the modern-day lessons through open-source journalism and espionage. The near-term DOD lessons and hardships also generate reinforcing loops, helping DOD refine AI research and development immensely, perhaps distancing itself even more from China and the PLA. In short, the United States is capitalizing on current AI dominance by seeking near-term centaur-like warfighting applications (differentiation). It remains to be seen if the benefits of the centaur model will also yield long-term returns or if the United States will need to develop a fourth offset to maintain dominance.

China and America are approaching AI integration with competing theories of differentiation: long-term intelligentization and short-term centaur application. China's differentiation strategy is not by chance; it seeks a distinct competitive advantage. As Elsa Kania notes, "the PLA is unlikely to pursue a linear trajectory or follow the track of U.S. military modernization, but rather take a different path."[71] China seeks differentiation with the intent to develop a

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[64] *National Artificial Intelligence Research and Development Strategic Plan*, 26.

[65] *DOD Directive 3000.09, Autonomy in Weapon Systems* (Washington, DC: DOD, 21 November 2012), 2. Emphasis added.

[66] Elsa B. Kania, "On Battlefield Singularity," 10 January 2018, in *The Dead Prussian*, episode 53, produced by Mick Cook, podcast, audio, 37:00.

[67] Dennis J. Blasko, " 'Technology Determines Tactics': The Relationship between Technology and Doctrine in Chinese Military Thinking," *Journal of Strategic Studies* 34, no. 3 (2011): 355–81, https://doi.org/10.1080/01402390.2011.574979.

[68] *Defense Primer: Planning, Programming, Budgeting & Execution Process (PPBE)* (Washington, DC: Congressional Research Service, 2018).

[69] Justin Doubleday, "Shanahan: Joint Staff Will Drive DOD's Modernization Priorities," Inside Defense, 6 February 2018.

[70] Catherine Wang, "The Game of Go: Ancient Applications and Contemporary Connotations," US-China Today, 6 June 2016.

[71] Kania, *Battlefield Singularity*, 4.

"trump card," and thus "leapfrog" the United States.[72] America seeks to extend military superiority and maintain dominance as the global superpower.[73]

Summary

Many scholars describe the pursuit of artificial intelligence supremacy as winner-takes-all in both business and a global arms race.[74] The great powers of the world agree; China, France, Russia, the United Kingdom, and the United States have all recently publicized keynote documents guiding their AI strategy. To date, China and the United States remain pacesetters thanks to technological superiority.[75] Both seek a competitive advantage moving forward.

China and the PLA plan to utilize AI to usher in intelligentized warfare while generating cost advantages through a strong state-sponsored military-civil fusion. Conversely, America and the DOD intend to reap near-term AI benefits as part of the third offset centaur model, aided by incentives to increase public-private partnerships. A variety of biases inform their differing theories of victory, as highlighted throughout by type of government; strategic culture; and assessments of strengths, weaknesses, opportunities, and threats. Although in-depth analysis and the root of competing theories of victory is outside the scope of this chapter, they are critical to analyzing the divergences in strategy. While it is difficult to discern which nation is better prepared for AI integration in the future, the application of time-tested theoretical models, such as Michael Porter's study of competitive advantage, helps illuminate the fundamental differences. Building on those differences, strategists must then craft strategies to exploit or defend perceived advantages and disadvantages. Section three of this chapter strives to do just that by presenting recommendations for the United States and the DOD to sharpen the competitive edge.[76]

SHARPENING THE ARTIFICIAL INTELLIGENCE COMPETITIVE EDGE: RECOMMENDATIONS FOR U.S. POLICY AND THE DEPARTMENT OF DEFENSE

China's national AI strategy has strategic implications for the United States. The U.S. military enjoyed an uncontested advantage in technology for more than three-quarters of a century, but the competitive edge is "eroding," according to the U.S. secretary of defense.[77] The rapid advancement of AI-enabled technology threatens to change both the character and nature of war.[78] Moreover, many scholars believe an AI-inflection point either already exists or is rapidly approaching.[79] The immediacy and potential for a game-changing, leapfrog technology has the potential to excite an arms race and a possible shift in the global balance of power.[80]

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[72] See *Biography of Zhang Wannian* as quoted in Tai Ming Cheung et al., *Planning for Innovation: Understanding China's Plans for Technological, Energy, Industrial, and Defense Development*, US-China Economic and Security Review Commission (San Diego: University of California Institute on Global Conflict and Cooperation, 2016), 26–27; and "Step Up Leapfrog Development in Crux Domains," *PLA Daily*, 25 June 2016, as quoted in Elsa B. Kania, "Trump Cards and Leapfrogging," Strategy Bridge, 6 September 2017.

[73] Benjamin Jensen, "Think Bigger: The Third Offset and Extending the Battlefield," *War on the Rocks* (blog), 12 December 2016; and John Grady, "Officials: Third Offset Strategy Key to Maintaining U.S. Military Technology Dominance," USNI News, 28 October 2016.

[74] Reinhardt Krause, "In AI Technology Race, U.S. Chips May Be Ace-In-The-Hole vs. China," NASDAQ, 27 November 2017; and Sean Illing, "The Rise of AI is Sparking an International Arms Race," Vox, 13 September 2017.

[75] Schumpeter, "How Does Chinese Tech Stack Up against American Tech?," *Economist*, 15 February 2018.

[76] *Summary of the 2018 National Defense Strategy of the United States of America*, cover.

[77] *Summary of the 2018 National Defense Strategy of the United States of America*, 1.

[78] Mattis, "Press Gaggle by Secretary Mattis en Route to Washington, D.C."

[79] Allen and Chan, *Artificial Intelligence and National Security*, 8.

[80] Allen and Chan, *Artificial Intelligence and National Security*, 3; and Reuters, "China's AI Pursuit Set to Alter Future Economic and Military Balance of Power, Report Claims," News.com.au, 30 November 2017.

Section two of this chapter evaluated China and the United States' competing theories of victory for AI integration using Michael Porter's work on *Competitive Advantage* as a theoretical model. China and the United States are pursuing a competitive advantage through both cost and differentiation. China seeks to use AI to inform intelligentized warfare, while generating cost advantages through a strong state-sponsored military-civil fusion. Conversely, America intends to capture near-term AI benefits to support the third offset centaur model, aided by incentives to inspire public-private partnerships. Though the United States currently enjoys an advantage in AI research and development, China intends to surpass the competition on its way to becoming the "global AI Innovation Center" by 2030.[81]

Building on Porter's work on competitive advantage, a host of broad principles for offensive and defensive strategies emerge, all designed to achieve and sustain advantages.[82] Similarly, the United States and the DOD must design a comprehensive strategy to sharpen the AI competitive edge. U.S. and DOD policy requires elements of both offensive and defensive competitive strategies specifically designed to offset China's AI strategy. Offensively, the U.S. must seek to strengthen its relative competitive advantage by rebranding AI to change the *Terminator* mentality—fear of the unknown narrative—to a brand associated with math and precision. Doing so will enable the DOD to dominate the AI narrative and advocate for AI applications on the battlefield as a means to reduce collateral damage and increase success—a notable competitive advantage. Additionally, the United States must go on the offensive to orient and energize the joint force on the AI problem set, while simultaneously incentivizing robust public-private partnerships. Defensively, the United States must counter China's attempts to threaten competitive strength by protecting and attracting the world's top AI talent, while also heightening ethical and legal concerns of intelligentized warfare. The following serve as immediate- and near-term recommendations, organized by increasing complexity:

1. Rebrand *artificial intelligence* to *algorithmic warfare*: the globally acknowledged definition of AI is ambiguous and outdated. While the ambiguity may permit intellectual freedom to innovate and shape the future of AI research, it is not conducive to planning, programming, and budgeting execution (PPBE) cycles within the DOD. In the absence of an agreed-upon definition, it is difficult to allocate funds appropriately and design accountability mechanisms to avoid frivolous spending. More important, AI alarmists continue to theorize doomsday scenarios and jade the discussion of near-term narrow-AI integration. The DOD must dominate the AI narrative to maximize the utility of AI-enabled technologies in warfighting; otherwise, the public will not accept future integration. The current AI brand must be disassociated from fear-driven narratives. The best way to disentangle AI-enabled technologies from terminator scenarios is to rebrand AI to algorithmic warfare. The premise of algorithmic warfare is not novel; it already has name recognition thanks to the Algorithmic Warfare Cross-Functional Team, a.k.a. Project Maven.[83] The positive association between math and algorithms implies a prescriptive process and set of rules, as opposed to the potential of rogue programs. Moreover, it sets the stage for AI to be linked to increased precision on the battlefield, thereby reducing collateral damage—an added boost to the U.S. warfighting brand.

[81] *A Next Generation Artificial Intelligence Development Plan*; and Mozur, "Beijing Wants A.I. to Be Made in China by 2030."

[82] Porter, *Competitive Advantage*, 482–535.

[83] Deputy Secretary of Defense memorandum, "Establishment of an Algorithmic Warfare Cross-Functional Team (Project Maven)," 26 April 2017.

2. Establish a DOD Joint AI center and fund it aggressively: the Defense Innovation Board recently recommended that DOD should create an office to supervise the current "innovation archipelago" of many offices engaged in AI innovation, each on an island and disconnected from the rest.[84] A joint AI center would facilitate centralized planning and direction, as well as prepare the force for new methods of operation. Numerous senior leaders assert every future fight will be a joint effort; joint interoperability is imperative.[85] As opposed to allowing each Service to pursue unique approaches to AI integration, a joint AI center would streamline planning, acquisitions, and operations through centralized direction and synergistic investments across the force. As Secretary Mattis recently noted, coordination is necessary to ensure there are not "a bunch of different organizations all feeling their way forward."[86] Additionally, a joint AI center can prepare the force for new concepts of operations by improving processes associated with recruitment, personnel management, and training.

   Recently, the Pentagon's research and development chief announced a Joint AI Center (JAIC) is likely, but the discussion is "still a work in progress."[87] The DOD plans to deliver a report to Congress by summer detailing the establishment of the JAIC.[88] Expect friction, however, as the JAIC will require adequate resourcing and staffing, all of which will likely meet resistance. There will be a multitude of discussions regarding the physical location of a potential JAIC, how large the staff should be, the size of the JAIC budget, and what mechanism is responsible for prioritizing investments. Though the discussions are important, they are also inherently political. Moreover, each day spent discussing a potential JAIC or writing another point paper is a day lost. It is time to establish a JAIC to concentrate DOD's AI efforts.[89]

3. Formulate a long-term national strategy for AI: a strategy requires linkages to a mission, defined objectives, and a vision for the future, all of which are not clear currently. A whole-of-government approach to AI, spanning the government and private sector, is necessary.[90] *The National AI Research and Development Strategic Plan* is a good starting point, but more is needed to synchronize the vast ecosystem of AI research and development. The United States and the DOD should identify strategic goals, outline plans, and allocate resources to achieve those goals. China's efforts to date are far more admirable, from *A Next Generation Artificial Intelligence Development Plan* to the *Three-Year Action Plan for Promoting the Development of a New Generation Artificial Intelligence Industry*, it is clear China is committed to a comprehensive framework for AI policy and implementation. As Elsa Kania notes, "for better or worse, China's trajectory in AI will be transformative within its borders and perhaps worldwide."[91]

   The United States and the DOD must also extend the planning horizon

[84] "Recommendations," Defense Innovation Board, accessed 25 February 2018.
[85] Amy McCullough, "The Future Fight Must Be Truly Joint," *Air Force Magazine*, 24 January 2018.
[86] Billy Mitchell, "Pentagon Launching Joint Office Focused on Artificial Intelligence," FedScoop, 13 April 2018.
[87] Paul McLeary, "Pentagon, Intel Agencies Set Up New AI Joint Office," Breaking Defense, 13 April 2018.
[88] Jane Edwards, "Pentagon Eyes New Joint Office to Advance AI Development; Michael Griffin Comments," *ExecutiveGov*, 16 April 2018.
[89] Mitchell, "Pentagon Launching Joint Office Focused on Artificial Intelligence."
[90] Kania, *Battlefield Singularity*, 39.
[91] Elsa Kania, "China's AI Agenda Advances," *Diplomat*, 14 February 2018.

for AI integration to include a range of short-, medium-, and long-term applications. Though short-term application remains important, the capability and capacity of AI will soon extend far beyond the U.S. focus of manned-unmanned teaming. The DOD should hedge toward an aggressive strategy of challenging the premise that humans must remain in the loop—a limiting factor in a democratic America but a seemingly obvious conclusion for an authoritarian regime such as China. Being wrong is far too great of a risk. The United States and DOD need a long-term AI strategy complemented with a vision, objectives, resourcing, and a consistent reevaluation schedule.

4. Fund, enhance, and incentivize public-private partnerships: the current risk of an "innovation deficit" further erodes the U.S. strategic advantage for the future.[92] The fact that much of the AI research and development are informed and funded by the private sector introduces significant risk for the DOD. First and foremost, DOD competitors and nonstate actors enjoy the same access to developing technologies. Moreover, smaller forces are likely able to mainstream new technologies well ahead of the United States, thus undermining potential AI-enabled technologies crossing from private to public spheres. Additionally, many private companies and experts have already demonstrated a reluctance to permit their research to be used for military purposes.[93] The DOD must buy down risk by funding more private research, enhancing public-private partnerships, and incentivizing companies to develop *and protect* AI-enabled technologies.[94] DOD efforts (e.g., DIUx) are significant, but they must be multiplied to forge more intimate partnerships across the potential AI ecosystem.[95] AI systems are not likely to be optimized for warfighting unless the DOD is a part of the process and can provide lucrative incentives for partnerships.

5. Recruit and preserve AI talent: human capital remains the most precious resource of the United States and the DOD. Arguably, the AI global "arms race" is largely a race for AI talent.[96] Sharpening the competitive edge requires attracting the top global AI talent and ensuring they are appropriately incentivized to remain in the United States as a valued member of the national security team. The best way to recruit is through a superior education and training pipeline, which also provides the benefit of reinforcing intellectual capital within the system. However, the best trained AI talent require competitive and lucrative job offers if the country seeks for them to remain in the states. In addition to recruiting the best AI talent, the DOD and interagency apparatus also must look within to capitalize on internal talent. Therefore, the DOD should drastically increase the number of fellowships, scholarships, and subsidies in AI-related fields, while also expanding AI opportunities at DOD-sponsored education facilities.

   From a defensive vantage, recruiting and preserving top-tier AI talent deprives competitors such as China and the PLA from the intellectual founda-

[92] L. Rafael Reif, "From the President: The Innovation Deficit," *MIT Technology Review*, 23 June 2015.
[93] Shane and Wakabayashi, " 'The Business of War'."
[94] Daniel Cebul, "Bob Work Has an Idea to Improve Artificial Intelligence," C4ISRNET, 23 January 2018.
[95] "Defense Innovation Initiative (DII)," Defense Innovation Marketplace, accessed 16 April 2018.
[96] Barnes and Chin, "The New Arms Race in AI."

tion necessary to achieve global dominance. Offensively, top AI talent ensures the United States and DOD maintain and improve on what is already recognized as a melting pot of intellectual diversity—the main ingredient for innovation. While the desire is for the most talented students and professionals in AI fields to support U.S. public-private partnerships, not all will do so. Still, their presence in the country will continue to fuel the engine of innovation through the research they will do, the companies they will found, and the technologies they will develop. Cultivating the soil for a rich AI crop requires a complex national plan including elements of education, immigration, and data-privacy reform. It is time to address these challenges with clear eyes focused not on the past, but on the future.

6. Heighten ethical and legal concerns of China's intelligentized warfare: one of China's primary differentiation strategies from the United States is the pursuit of more advanced AI applications to inform intelligentized warfare; a form of warfare more open to maximizing AI as a supreme form of decision making compared to human cognition. Whereas most AI researchers from the Western world are signatories to the 2015 open letter calling for a "ban on offensive autonomous weapons beyond meaningful human control," there are no indications Chinese researchers are experiencing similar concerns.[97] Furthermore, Chinese efforts to sponsor, even mandate, a strong military-civil fusion may subjugate ethical discussions in the name of national security. Therefore, the United States should heighten ethical and legal concerns of intelligentized warfare on the international stage through mechanisms such as the United Nations. Appealing to global perceptions through advanced operations in the information environment may be critical to derail China's offset strategy of leapfrogging the United States.[98]

Summary

The *Summary of the 2018 National Defense Strategy of the United States of America* states that the United States "must anticipate how competitors and adversaries will employ new operational concepts and technologies to attempt to defeat us, while developing operational concepts to sharpen our competitive advantages and enhance our lethality."[99] The U.S. government must employ a mix of both offensive and defensive competitive strategies to offset China's plans to achieve AI dominance. Offensively, the United States should seek to strengthen competitive advantages by rebranding AI to algorithmic warfare, rallying the joint force to prepare appropriately by establishing a JAIC, formulating a long-term AI vision, and incentivizing robust public-private partnerships. Defensively, the U.S. government should counter China's AI strategy by protecting and attracting the world's top AI talent to the United States, while also heightening ethical and legal concerns of intelligentized warfare.

Andrew Marshall is famous for his work on competitive strategies during the nuclear arms race between the United States and Soviet Union. In many respects, the quest for an AI-competitive advantage is similar to the pursuit of nuclear arms, albeit in a more peaceful setting.[100] Marshall argued the key to offsetting great power conflict was through a long-term stra-

[97] "An Open Letter to the United Nations Convention on Certain Conventional Weapons."
[98] "Step Up Leapfrog Development in Crux Domains."
[99] *Summary of the 2018 National Defense Strategy of the United States of America*, 7.
[100] Tom Simonite, "For Superpowers, Artificial Intelligence Fuels New Global Arms Race," *Wired*, 8 September 2017.

tegic approach founded on what he called *net assessment*, or the identification of U.S. strengths and weaknesses to leverage competitive advantages against potential adversaries.[101] Although it is debatable if America and China are in the midst of an AI arms race, there is no denying AI has the potential to revolutionize warfare.[102] The United States can ill afford to neglect AI's potential impact on the balance of power; it must sharpen its competitive advantage.

CONCLUSIONS

Artificial intelligence is seemingly pervading most aspects of life, and the outlook for the future suggests AI will soon be everywhere and in everything. The term artificial intelligence, however, is not indicative of the transformative potential of AI. Intelligence, whether it be in a machine or human, is not artificial at all. Humans have relied on the intelligence and labor of machines for millennia, shifting tasks to machines to focus on other tasks demanding higher cognition and skill.[103] Due to the ambiguous definition and understanding of AI, many alarmists have skewed the discussion of AI integration toward apprehension and fear. AI must be rebranded for the future, focusing instead on the transformative potential of AI to improve every aspect of life from entertainment to national security.

As some security scholars note, "the first nation that adapts [to the changing character of warfare] and integrates artificial intelligence across the force will have a generational advantage on the battlefield."[104] The United States and China are leading the world on the development and integration of AI, for now. After review of both nations guiding AI documents, it is apparent both seek to use AI as a strategic competitive advantage; however, their approaches are nuanced by organizational biases and cultural differences. China and the PLA intend to leverage AI in intelligentized warfare while generating cost advantages through a strong state-sponsored military-civil fusion. Conversely, the United States and the DOD seek near-term AI benefits as part of the third offset centaur model, while relying on incentives to increase public-private partnerships.

The asymmetries between the U.S. and China's differing AI strategies could result in unexpected, destabilizing dynamics to the global balance of power.[105] Therefore, it is imperative for the United States to sharpen the competitive edge by organizing for the potential of an artificial intelligence arms race. This work recommends that the United States rebrand AI to algorithmic warfare; establish a DOD Joint AI Center and fund it aggressively; formulate a long-term national strategy for AI; fund, enhance, and incentivize public-private partnerships; recruit and preserve AI talent; and heighten ethical and legal concerns of China's intelligentized warfare.

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[101] Andy W. Marshall, *Long-Term Competition with the Soviets: A Framework for Strategic Analysis* (Arlington, VA: Rand, 1972).

[102] Tom Simonite, "AI Could Revolutionize War as Much as Nukes," *Wired*, 19 July 2017.

[103] Thomas L. Friedman, *Thank You for Being Late: An Optimist's Guide to Thriving in the Age of Accelerations* (New York: Farrar, Straus and Giroux, 2016), 208–12.

[104] Benjamin Jensen and Ryan Kendall, "Waze for War: How the Army Can Integrate Artificial Intelligence," *War on the Rocks* (blog), 2 September 2016.

[105] Kania, *Battlefield Singularity*, 44.

Institutionalizing Small Wars Capabilities
The Future of Marine Corps Security Force Assistance

by Major Timothy W. Love, U.S. Marine Corps[1]

THE CHALLENGES OF PREPARING FOR FUTURE WAR

As the United States prepares for future war, it faces the challenging task of applying finite resources to seemingly infinite problems. In its quest for both dominance and relevance, the United States must develop balanced defense capabilities, ensuring that it can prevail in both conventional and small wars.[2] Despite the recognition that balanced capabilities are critical to national security, the United States habitually focuses its military preparation on the most dangerous threat, war with a peer nation, often to the exclusion of preparing for the most likely threat, a small war against a weaker state or a nonstate actor. Predictably, America's adversaries refuse to play to its conventional military strengths. In articulating the dilemma, General Charles C. Krulak stated that while the United States may want to fight the "beloved Son of Desert Stonn," it is more probable that it will encounter the "Stepchild of Chechnya."[3] Although such forms of irregular conflict do not play to American strengths, the United States does not have the luxury of opting out because such scenarios do not correspond to preferred notions of war.[4]

As the United States continues to modernize and develop increasingly sophisticated twenty-first century military capabilities, it must also institutionalize small wars capabilities such as security force assistance, which is defined as "activities that support the development of the capacity and capability of foreign security forces and their supporting institutions."[5] Security force assistance, whether applied proactively to deter conflict, or reactively as part of a stabilization and reconstruction effort, will remain a relevant capability in future war. Acknowledging that advising and assisting partners will remain an important component of United States national security, the Marine Corps should take steps to institutionalize its approach to security force assistance by dedicating operational force structure to advisor units, improving advisor training and education, and revising personnel policies that limit advising opportunities.

SECURITY FORCE ASSISTANCE DÉJÀ VU

The ebb and flow of Marine Corps advising missions during the past century demonstrates a

[1] Maj Love is a graduate of MCU's School of Advanced Warfighting (SAW). This paper was nominated by the SAW dean of academics in the category of "future warfare" papers in the academic year 2017–18.

[2] James Mattis, "Irregular Warfare, Hybrid Threats, and the Future Role of Ground Forces" (speech, Center for Strategic and International Studies, Washington, DC, 23 June 2014).

[3] Jim Lehrer, "An Interview with General Charles Krulak," PBS News Hour, 25 June 1999.

[4] Robert M. Gates, "A Balanced Strategy: Reprogramming the Pentagon for a New Age," *Foreign Affairs* 88, no. 1 (January 2009).

[5] *DOD Dictionary of Military and Associated Terms* (Washington, DC: DOD, 2017), 207.

pattern. First, U.S. security interests necessitate military assistance to fledgling partners. In response, the Marine Corps forms ad hoc teams, conducts much discovery learning along the way, and eventually reaches a relatively effective solution.[6] As soon as circumstances permit, the Marine Corps disbands these advising capabilities in favor of pursuing more traditional military missions, until the need for advisors arises again and the cycle repeats. This sine wave of interest in security force assistance, evident from the Banana Wars to Vietnam to Iraq and Afghanistan, demonstrates both the continued requirement for advisors and the Marine Corps' treatment of such undertakings as passing aberrations that can be addressed with improvised solutions.

As the Marine Corps determines what advising capability and capacity to preserve, it should look to the recent past for instruction. The lessons learned and those omitted in the wake of Vietnam should give pause to contemporary military leaders setting the course for the future force. In the aftermath of the long and divisive war in Vietnam, each of the military Services retained an institutional bias for manning, training, and equipping a force to fight a conventional war against a peer threat.[7] This focus on major combat operations prevented the military from institutionalizing many of the advising lessons it should have garnered following Vietnam. While the post-Vietnam U.S. military proved to be a lethal force when fighting like opponents, it struggled to adapt to irregular threats that refused to conform to American strengths.

The American military experience in Iraq demonstrates both the lessons learned and those neglected from Vietnam. In a three-week invasion of Iraq, U.S. forces quickly defeated the Iraqi Army. However, in the wake of conventional military victory, the U.S. military struggled to provide security and empower indigenous forces. As in the early stages of Vietnam, the United States inundated the country with infantry battalions well trained to locate, close with, and destroy an enemy, but poorly prepared to train foreign security forces. As a result of the deliberate institutional amnesia of post-Vietnam senior officers, a generation of military leaders were forced to relearn many of the lessons of small wars under fire.

As the United States enters its 16th year of war, it is once again at a strategic inflection point. Many strategists herald the return of great power rivalry, but the threats of violent extremism still occupy much of the United States military's attention. In this dynamic environment, U.S. political and military leaders face tough choices on how to allocate finite resources to prepare the force for future conflict. When deciding on future capabilities, leaders must resist the temptation to turn away from small wars simply because they do not play to America's military strengths. While modernizing a conventionally dominant military force, the United States must also institutionalize small wars capabilities, such as security force assistance, so that future generations of Americans will be prepared to address these recurrent challenges.

INSTITUTIONALIZING MARINE CORPS SECURITY FORCE ASSISTANCE

To empower Marines conducting advisor missions, the Marine Corps should institutionalize its approach to security force assistance by dedicating operational force structure to advisor units, improving advisor training and education, and changing manpower models to encourage some of the institution's most capable leaders to take on advisor roles. While advising will remain a daunting task even under the best of circumstances, many of the advising challenges that the Marine Corps encounters are self-inflicted. One of these self-imposed challenges is the manner in which teams are formed to conduct advising missions.

Despite a consistent demand signal, the Marine Corps continues to assemble ad hoc teams

[6] William Rosenau et al., *United States Marine Corps Advisors: Past, Present, and Future* (Alexandria, VA: CNA, 2013).
[7] Robert M. Gates, *Duty* (New York: Knopf, 2014), 118.

of individual augments to fill advising requirements. The typical life cycle of an advisor unit involves the formation of a team from individual augments, a brief training period, deployment, followed by redeployment and disaggregation. Continually standing up new organizations from a manning document presents a number of administrative and operational challenges that consume leaders' time and attention. This model is an inefficient process that degrades the readiness of the units providing individual augments, limits the preparation of advisor teams, and impedes the ability of advisor teams to learn directly from those who went before them.

A way to remedy this deficiency is to create a Marine advisor regiment that includes both an advisor training cadre and deployable advisor battalions comprised of advisor teams. This advisor regiment could be formed around the nucleus of the Marine Corps' existing advisor training unit, the Marine Corps Security Cooperation Group (MCSCG). From its current structure, MCSCG would retain a training cadre as well as its existing coordination, liaison, assessment, and training sections (CLATS), which would continue to serve as a linkage to Marine component commanders. To form an advisor regiment, current MCSCG structure would be reinforced with two active duty advisor battalions and one reserve advisor battalion, each comprised of four deployable advisor teams. Each advisor team's composition would be tailored to its mission, but a standard advisor team would consist of approximately 20 total Marines, officers, and staff noncommissioned officers, representing administration, intelligence, operations, fires, information operations, logistics, engineering, communications, and medical services. Depending on its mission, each team could be modified to include additional advisors for areas such as law enforcement, explosive ordnance disposal, or other required capabilities. Battalions and teams would be regionally aligned based on national security priorities, which would evolve over time.

This advisor regiment would remain a service retained force under Marine Forces Command allowing for centralized training and communication with the supported Geographic Combatant Command via the CLAT. Marine Forces Reserve would play a significant role in an advisor regiment. One-third of the advisor regiment's deployable strength, a battalion, would be a reserve unit. Reserve forces would provide a degree of continuity as reserve Marines would be able to remain in their advising unit for a decade or more, while active duty Marines would spend several years in the regiment before returning to their primary military occupational specialty (MOS). Reserve Marines would also provide personnel with unique skill sets to augment deploying active duty teams as missions required.

The advent of an advisor regiment, along with recent changes in law, would allow for a longer-term view of security force assistance. The Fiscal Year 2017 National Defense Authorization Act made changes that now allow conventional forces to include training foreign security forces in their project objective memorandum (POM).[8] The inclusion in the POM extends the planning horizon for security force assistance and will allow the Marine Corps to better forecast and train for security force assistance missions, resulting in a greater degree of proficiency and unit cohesion, thus increasing the likelihood of effectiveness. The formation of an advisor regiment would also allow for continuity of effort, as many of the Marines on advisor teams would remain in the regiment and instruct subsequent teams during their preparation for deployment. An advisor regiment, accounted for in Service manpower models, would alleviate the requirement for units to provide individual augments, resulting in improved force readiness.

In addition to dedicating operational force structure for advisor teams, the Marine Corps should also improve the training and education received by advisors. The advisor preparation currently offered by MCSCG is brief, with courses ranging from three days to four weeks.[9]

[8] Allison Heiser, "FYI7 National Defense Authorization Act and Impact to Security Cooperation," 9 January 2017.
[9] "Marine Corps Security Cooperation Group," Marine.mil.

In contrast, the Marine Corps' Force Fitness Instructor Course, designed to develop Marines capable of enhancing the fitness of the Marines in their unit, lasts six weeks. The Advanced Mortarman Course, taught at the School of Infantry, takes seven weeks to teach its students fire direction, mortar gunnery, and mortar employment. While time is not the sole measure of importance or effectiveness, investing only four weeks in an advisor's resident schooling does not do justice to preparing Marines for such a complex mission.

Preparing advisors to be able to understand and influence their foreign counterpart should involve significant formal education. To achieve this, the Marine Corps should develop a foreign area officer program that allows advisors to spend time studying the culture, history, economics, military, and religion, as well as the social and political nuances of the nation they will be operating in. This education should also include intensive language training that develops conversational proficiency in advisors. While this education would increase the proportion of Marines in a training status, it is a worthwhile investment that increases the chances of mission success and professionally develops Marines.

In addition to improving training and education, the Marine Corps should also revise its manpower policies to encourage some of its most capable Marines to serve as advisors. The Marine Corps must be willing to assign high-quality personnel who demonstrate professional competence, maturity, patience, empathy, and above all the ability to exercise persuasive leadership, to advisor billets.[10] Identifying Marines who possess both an aptitude and a desire to serve in an advising capacity requires a screening process that identifies the most appropriate, rather than the most available, Marine for the job. While advising is by its nature an economy of force mission, it must not be allowed to be an economy of talent effort.

Identifying the appropriate Marines and allowing them to spend time as advisors will require deviation from traditional career paths. Current career paths are structured around officers and Marines filling key billets at certain points in their career to remain competitive for promotion and command opportunities. The time investment required to train, educate, and employ an advisor may preclude a Marine from spending time in a billet traditionally viewed as key to professional advancement. Rather than penalize the Marine for failing to conform to traditional career progression, the Marine Corps should recognize that advising provides a unique tour that develops a diversity of experience that should be embraced.

The Marine Corps touts the power of diversity as a force multiplier. It recruits diverse populations that provide eclectic perspectives that strengthen the team. While the Marine Corps should continue to seek diversity, it must take a nuanced view of diversity, measuring it not merely by physical differences, but in terms of thought and experience. With this in mind, the Marine Corps must seek not only to recruit diverse populations but must promote ways to develop cognitive and experiential diversity as Marines progress through their careers. If Marines attend the same schools, fill the same billets, and conduct the same types of deployments for 20 plus years, they are likely to develop the same circumscribed institutional outlook. However, if Marines diverge from beaten paths, experience different cultures, and learn different methods for viewing and solving problems, they develop a diversity of experience that will benefit themselves and the Marine Corps. Marines should not be forced to follow the same narrow career paths that imbue them with the same patterns of thought. If the Marine Corps genuinely values diversity, it should not only allow but encourage and reward Marines who follow divergent paths that develop diversity of experience and thought.

As Marines develop these diverse skill sets, the Marine Corps must track those with advising skills for future utilization. In 2014, the Marine Corps recognized this requirement and

[10] Rosenau et al., *United States Marine Corps Advisors*, 31.

created the free military occupational specialty (FMOS) of foreign security force advisor. This FMOS, 0570 for officers and 0571 for enlisted, is granted to those who graduate the MCSCG Marine Advisor Course or those who have operational experience as an advisor.[11] While the development of an advisor FMOS is a positive change, slight revisions in awarding the MOS should coincide with increased advisor education. The FMOS of 0570 should be granted to those who complete advanced advisor education that includes language training. The FMOS of 0571 should be granted to those whose advising skills are developed through the experience track.

This differentiation allows for leaders to see what level of education and experience each Marine advisor possesses and how he or she might be best employed in future assignments.

RESISTANCE: ENTRENCHED PARADIGMS, REDUNDANCY, AND TECHNOLOGICAL SOLUTIONS

The Marine Corps' continued institutional reluctance to embrace security force assistance results in part from an entrenched Marine Air-Ground Task Force (MAGTF) paradigm, institutional paranoia about redundant capabilities, and an American fascination with technological solutions to war. While the Marine Corps' role will remain as an expeditionary force in readiness, as circumstances evolve, so must the ways and means for achieving desired ends. In articulating the role of the Marine Corps, a report from the 82d Congress states:

> American History . . . has fully demonstrate the vital need for the existence of a strong force in readiness. Such a force . . . will constantly have a very powerful impact in relation to minor international disturbances . . . [and it] can prevent the growth of potentially large conflagrations by prompt and vigorous action during their incipient stages. Such a ready force, highly mobile, always at a high state of combat readiness, can be in a position to hold a full-scale aggression at bay while the American Nation mobilizes its vast defense machinery.[12]

At the heart of this mandate is the intention to prevent burgeoning conflicts from becoming large-scale wars and, failing that, to provide time for political leaders to make and implement strategic decisions. As security challenges transform, the Marine Corps must seek diverse and complementary ways to strengthen their ability to fulfill this role. In this light, the Marine Corps should view the concept of a force in readiness not only as reactive employment of the MAGTF, but as a proactive employment of advisors to shape the environment.

Such a complementary employment of forces demands a progressive perspective on the role of Marine advisors. The traditional Marine paradigm views the expeditionary force as a MAGTF comprised of four elements: command, ground, aviation, and logistics. Advisors do not fit cleanly into this accepted MAGTF model, thus advising is often seen as being at odds with the Marine Corps' traditional role. Marines must be cautious about adhering to constructs simply because that is the way things have always been done. In keeping with the *Marine Operating Concept*'s key task 6.2—evolve the MAGTF—Marine leaders should view advisors as important enablers, rather than simply as competitors for finite resources.[13]

By conducting advising missions, advisor efforts will not only shape the environment by empowering partner nations, they can also enable the MAGTF. In the course of their duties,

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[11] *MARADMIN 472/14, Approval of the Foreign Security Force (FSF) Advisor Free MOS and Process for Experience Track Designation* (Washington, DC: Headquarters Marine Corps, 23 September 2014).

[12] "Committee Report accompanying S. 677 & H.R. 666," 82d Congress, House of Representatives, 30 June 1951.

[13] *Marine Corps Operating Concept: How an Expeditionary Force Operates in the 21st Century* (Washington, DC: Headquarters Marine Corps, 2016).

advisors can serve as collectors, providing information that enhances the understanding of the MAGTF. Ideally, advisor actions offer proactive solutions that obviate the requirement for the employment of larger forces. However, if employment of additional forces becomes necessary, advisors could serve as an inside force that provides access and facilitates the arrival of a MAGTF. These supporting actions allow advising forces to complement and enhance, rather than detract from the MAGTF. Marine leaders should be wary of adopting a false dichotomy perspective that sees advising at odds with the MAGTF. Instead, leaders should recognize that security force assistance has a role to play in national security and can also enable the MAGTF.

Part of the Marine Corps' institutional aversion to advising missions comes from a perceived redundancy with other advising forces, including Special Operations Forces (SOF) and Army advisors. In the quest for institutional relevance and survival, the Marine Corps often avoids capabilities that are perceived as redundant with other Services, as these become vulnerable to cuts when the inevitable budget reductions occur. While SOF has significant advising capability, its operational tempo driven by its role as the global synchronizer for both counterterrorism and countering weapons of mass destruction, limits its capacity.[14] The U.S. Special Operations Command (SOCOM) commander, General Raymond A Thomas III, recently provided congressional testimony in which he stated that the many demands placed on SOF have SOCOM "constantly on guard against overcommitting this relatively small force."[15] Although SOF remains a highly effective tool of national security, it is not a panacea.

Acknowledging that SOF has finite capacity allows for burden sharing and a symbiotic relationship with conventional forces. Recognizing the importance of this relationship, former secretary of defense James N. Mattis stated in December 2017 that he expects conventional forces to increasingly undertake missions that were once the sole province of SOF.[16] One element of this collaborative relationship can be the realm of security force assistance, where the roles of special operations forces and conventional forces can and should be complementary, not competitive. Likewise, Army and Marine advisors can fill complementary roles. The development of an Army Security Force Assistance Brigade is a milestone in security force assistance that will benefit U.S. national security. As with many missions, the Army and the Marine Corps have unique roles to play. The Marine Corps' expeditionary mind set, Service culture, and maritime nature make it distinctive and endow it with characteristics that are well suited for certain advisory missions. Based on unique capabilities and capacities, the Marine Corps, Army, and SOF will reach an advising equilibrium that reflects national security priorities, demand signals from combatant commands, and the abilities and requirements of foreign security forces.

Beyond inter-Service rivalry, another challenge related to security force assistance is the American obsession with technological solutions. The United States is both a casualty-averse nation and a world leader in technology. These influences combined produce a false perception that technology can somehow sanitize war and make it a near casualty-free endeavor. To further complicate matters, there are strong economic incentives associated with technologically advanced combat platforms like the Bell Boeing MV-22 Osprey, the Lockheed Martin F-35 Lightning II, and the amphibious combat vehicle, which produce billions in revenue for the defense industry. There is no corresponding economic incentive for advising because security force assistance relies largely on human capital. While technological solutions are an important component of war, there must be corresponding investments in individual Marines. Just as

[14] Senate Armed Services Committee, 115th Cong. (4 May 2017) (statement of Gen Raymond A. Thomas III, commander, U.S. Special Operations Command), hereafter Thomas statement.
[15] Thomas statement.
[16] Jim Garamone, "Lines Blurring between Special Ops, Conventional Forces, Mattis Says," Department of Defense, 29 December 2017.

high-technology solutions take years to shape and refine, investments in training and educating people must be made ahead of time to develop leaders who can navigate human terrain and serve as effective advisors. While acknowledging the integral but limited role that technology plays, the United States must guard against the temptation to develop technological solutions to human problems.

Ultimately the Marine Corps' ability to overcome institutional resistance to advising lies in its efficacy as a learning organization. The Marine Corps must not become a victim of antiquated paradigms and rigid thinking. Instead, it must recognize and seize emerging opportunities to gain an advantage. This sort of innovation requires the support of senior leaders. As Williamson Murray and Allan R. Millett write in *Military Innovation in the Interwar Period,* "Without the emergence of bureaucratic acceptance by senior military leaders, including adequate funding for new enterprises and viable career paths to attract bright officers, it is difficult, if not impossible for new ways of fighting to take root within existing military institutions."[17]

INSTITUTIONAL BENEFITS

These recommended reforms, including the creation of an advisor regiment, increased advisor training and education, and revised manpower policies would enhance the Marine Corps and, by extension, U.S. national security. The benefits of these reforms include developing leaders with diverse experiences, institutionalizing advising capabilities that could be expanded in the case of a large-scale counterinsurgency, and creating a cadre of officers and staff noncommissioned officers that can serve as the foundation for additional combat units in the case of large-scale conventional war.

The Marine Corps has long placed a premium on its people. The 2017 *Marine Corps Operating Concept* reemphasizes the importance of human capital by articulating a critical task to "exploit the competence of the individual Marine."[18] In keeping with this outlook, developing and employing capable Marine advisors should be viewed as an investment that not only provides a return during a Marine's advisor tour, but continues to pay dividends throughout a Marine's career. Advising tours develop cultural understanding as only complete immersion can. This understanding of the human dimension of conflict and the interplay of people, culture, and politics equips Marines with a unique perspective that is difficult to acquire simply through training or education. Advising also develops leaders who are adept at balancing risk, able to make decisions in ambiguous environments based on commander's intent, and capable of exercising organizational leadership where the art of persuasion and a reliance on moral, rather than legal, authority is key.

These are indispensable skills that are in keeping with the Marine Corps' maneuver warfare philosophy and are relevant across the spectrum of conflict. In *Mars Learning,* author Keith B. Bickel chronicles the Marine Corps' campaigns in the Banana Wars. When discussing the formative advising experiences of Marines such as Lewis B. "Chesty" Puller and Merritt A. Edson, Bickel writes that "a generation of Marine officers received in the fields of Haiti, the Dominican Republic, and Nicaragua some of the best combat leadership training a young officer could have received during the pre–World War II period."[19] Today, Marine leaders continue to benefit from advising tours. Reflecting on his advisor experience in Iraq, Colonel William F. McCollough

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[17] Williamson Murray and Allan R. Millet, *Military Innovation in the Interwar Period* (Cambridge, UK: Cambridge University Press, 1996), 409.

[18] *Marine Corps Operating Concept*, 10.

[19] Keith B. Bickel, *Mars Learning: The Marine Corps' Development of Small Wars Doctrine, 1915–1940* (Boulder, CO: Westview Press, 2001), 250.

stated that it was "the most important tour I had to prepare me to be a battalion commander."[20] This from an officer who, prior to battalion command, completed tours as a company commander and as an operations officer and an executive officer at both the battalion and regimental levels.

In addition to developing individual Marines, the professionalization of security force assistance also institutionalizes the skill, making it part of the professional repertoire. While it may seem absurd to a contemporary observer that the U.S. military could ever forget the skill set of security force assistance, one need not look any further than early stages of the conflict in Afghanistan and Iraq to see how severely American advising skills had been allowed to atrophy. A failure to institutionalize the small wars lessons of Vietnam just a few decades earlier led to discovery learning in the Middle East that consumed American blood, treasure, time, and credibility.

An institutionalized security force assistance capability has the most practical utility in shaping operations, but if necessary it can also be expanded to support post conflict stabilization operations, including counterinsurgency. While the United States has no discernable plans to conduct a forced regime change followed by reconstruction, the future is uncertain and the United States may one day find that it is in the nation's best interest to do just that. The past 16 years have aptly demonstrated that overthrowing adversaries is easier than leaving a sustainable government and security force in place. While the United States rightly spends much of its focus ensuring it is able to defeat a peer threat, it must also develop the capability to train foreign security forces that allows for a viable exit strategy rather than indefinite occupation. Institutionalizing security force assistance will begin to develop the necessary skill sets and form a unit, the Marine advisor regiment, that could be greatly expanded if required.

An additional benefit of a Marine advisor regiment, is a cadre force of field grade officers and staff noncommissioned officers. In the event of a large conventional war, these leaders could serve as the foundation for additional conventional combat units. While junior Marines and officers can be developed from the civilian population fairly rapidly, producing field grade officers and staff noncommissioned officers with a decade or more of experience takes time. A Marine advisor regiment would serve as a repository of leadership that could be tapped in the event of major war.

CONCLUSION

U.S. conventional military dominance makes it unlikely that adversaries will contest the United States via direct conventional means. Instead, competitors will likely seek to operate in gray zones short of conflict that challenge the United States, but still leave a degree of ambiguity and plausible deniability. In these gray areas, security force assistance will allow the United States by to demonstrate commitment, empower partners to address nascent issues, and contribute toward conflict termination. In advocating for such an approach, former secretary of defense Robert Gates writes,

> Wherever possible, U.S. strategy is to employ indirect approaches—primarily through building the capacity of partner governments and their security forces—to prevent festering problems from turning into crises that require costly and controversial direct military interventions. In this kind of effort, the capability of the United States' allies and partners may be as important as its own, and building their capacity is arguably as important as, if not more so than, the fighting the United States does itself.[21]

[20] Col William F. McCollough, interview with the author, 17 November 2017.
[21] Gates, "A Balanced Strategy."

In this context, security force assistance will continue to be a relevant component of future war. Marine Corps actions to institutionalize security force assistance by creating an advisor regiment, improving advisor training and education, and modifying personnel policies will develop leaders with diverse experiences, further professionalize the skill of advising, and provide a cadre of leaders available in the event of major war. Such actions will make positive long-term contributions to the national security of the United States.

In a world full of threats, the United States will continue to face difficult decisions of how to allocate finite resources to influence seemingly endless problems. As the United States continues to adapt to an evolving security environment, it must ensure that it does not allow itself to adhere to antiquated paradigms simply because they play to American strengths. The United States must recognize both continuity and change in the environment and innovate accordingly, all the while remembering that dominance is not always synonymous with relevance.[22]

[22] Mattis, "Irregular Warfare, Hybrid Threats, and the Future Role of Ground Forces."

Marine Jedis and Artificial Intelligence-Enabled Drone Forces

by Captain Matthew S. Hanks, U.S. Marine Corps[1]

Innovation is a product of imagination, and science fiction is an excellent source of imagination because it offers an unrestricted view of possibilities. When combined with emerging technology, imagination becomes innovation. *Star Wars*, perhaps one of the most iconic science fiction series, captured the imagination of generations and had a direct impact on current technology. The U.S. Navy created a laser weapon system prototype that is reminiscent of laser turrets on the Death Star.[2] In Australia, Euclideon Holographics produced a hologram table similar to those often seen on Imperial starships.[3] But so far, the American military has failed to capitalize on one of the major themes in *Star Wars*: the Jedi knight.

The Jedi draws their power through the ability to wield the "force." Yoda explains that "[t]hrough the force, things you will see. Other places. The future . . . the past."[4] With the force, a Jedi can sense incidents before they happen and influence the present to shape the future. Marines already possess the Jedi knight mind-set, they only lack the ability to employ the force.[5] Until we find a way to tap into the galaxy's midichlorians, technical material solutions represent the only realistic avenue for exploration.[6] In 20 years, drones will be prevalent across the globe, and artificial intelligence (AI) and semiautonomous systems will likely be available for military use, not only for U.S. forces but for their opponents as well. These emerging technologies, combined with the Marine Air-Ground Task Force (MAGTF), could transform Marines into Jedis. The Marine Corps must employ AI-enabled drone forces (AI-EDF) to harness the immutable power of the force in future warfare if they are to achieve tactical advantages on the battlefield.

Much like the force to a Jedi, the AI-EDF would enable Marines to sense possibilities before they occur and influence the present to shape the future. The AI-EDF has three core functions: gain and maintain contact, analyze information in a timely manner, and provide the ability to influence the situation. A variety of drones with collection capabilities, such as full motion

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[2] Kris Osborne, "The U.S. Navy Is Developing Laser Weapons for Ships to Incinerate Enemy Drones and Small Boats," *Business Insider*, 15 September 2016.

[3] "Euclideon Hologram Table for Business," Euclideon, 2019.

[4] George Lucas, *Star Wars: Episode V – The Empire Strikes Back*, directed by Irvin Kershner (San Francisco, CA: Lucasfilm, 1980), 2:07:00.

[5] For the context of this argument, the term *force* is defined as the ability to know about something before it happens combined with the ability to influence the present to shape the future.

[6] Midichlorians are chemical compounds found within every living cell that forms the basis between the connection life and the force.

video and signals intelligence, can provide the first capability to develop and maintain a tactical picture. The AI system could provide the second function through data analysis, while determining target/no-target within milliseconds. As with a uniformed human, the AI would automatically conduct actions within its authority based on the current rules of engagement or would present the situation to the appropriate human user for a decision outside the AI's authority.[7] Possible actions to influence situations would range from the low end of voice directing noncombatants to safe locations to the high-end, providing precision fires with swarming high explosive drones. In a visual sense, a combined AI-EDF looks like a series of overlapping spheres or force fields, ranging in size and capability based on the unit it supports. For example, a battalion AI-EDF would provide capabilities such as antiship cruise missiles and antiair defense with a 200-kilometer (km) sphere, while a squad would provide capabilities such as local ground-based security and intelligence, surveillance, and reconnaissance with a 15-km sphere.[8] The drone force associated with each unit would vary based on the capabilities required, and in turn, subordinate units would operate under the umbrella of parent unit spheres.

An AI-EDF would exploit the advantages of the Navy's composite warfare commander construct. Marine AI-EDF units would operate under the expeditionary warfare commander within a littoral combat group and act as part of an integrated naval network of sea-based and land-based sensors, shooters, and sustainers. Furthermore, AI-EDF would allow Marine units to operate in a dispersed and often disaggregated manner as the persistent inside force for expeditionary advanced based operations. Marine AI-EDF units would provide the joint force maritime component commander with strong screening and scouting capabilities that develop and maintain a tactical picture for the fleet. This increased force protection would allow high value strike units, such as carrier strike groups and amphibious ready groups, to maneuver in the littorals under contested conditions with acceptable risk to the force. The AIs across all units would be in continuous communications and would instantly coordinate fires based on the capabilities required. Moreover, logistical units will be linked into the AI-EDF network with specially outfitted unmanned vehicles (e.g., air, land, and sea variants) to sustain the dispersed AI-EDF units. The high number of drones in AI-EDF units would provide increased camouflage through ambiguity, while scattering signatures over a dispersed area would make it difficult for the enemy to pinpoint critical nodes through electronic means.

Innovative technology is a principle foundation for Western warfare.[9] However, in the Information Age, technology develops so quickly that it is often irrelevant before fully produced. It is paramount to understand that the advantage goes not to the actor who possesses new technology first, but rather the advantage goes to the actor who *exploits* the technology through effective employment and *adapts* within the conflict. The two emerging technologies of drones and AI will undoubtably have a place in the future of the MAGTF. The question of *how* is entirely limited to imagination. For the Navy and Marine Corps, an AI-EDF is critical for the effective execution of concepts such as littoral operations in contested environments and expeditionary advanced based operations. The science fiction of Marine Jedis wielding the force through AI-EDF technologies fails to become the future only if the unimaginative stick to what they know to *be fact* rather than what can *become fact*.

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[7] A "person in the loop" or "person on the loop" may be a legal and/or ethical requirement in the employment of AI and other intelligent robotic systems.

[8] Distances are arbitrary and only used to make the point of a significant difference between unit sizes.

[9] Geoffrey Parker, ed., *The Cambridge Illustrated History of Warfare: The Triumph of the West* (Cambridge, UK: Cambridge University Press, 2008).

Navigating without GPS
Changing Direction

by Captain James Cole, U.S. Air Force[1]

Database is loaded and good to go!" barked the crew chief over the sounds of the unmanned aerial vehicles (UAVs) spinning up as he ducked into the command post tent. "All right, let's launch the strike and prepare to relocate," ordered the commander. Seconds later, three UAVs lifted off the rain-soaked grass and began their individual routes to the target many miles away. Mentally preparing for the next movement, the Marine reflected on the developments in the past 20 years that shaped their current mission.

When the first conflict erupted over the enemy's territorial expansion, the Marines responded in defense of their regional allies. They had been mentally preparing for operations in a degraded environment, and problems surfaced as soon as they approached their destination. Their predecessors knew they relied on GPS but did not fully understand the depth at which they trusted navigational services until they were no longer available. Or, as they found out, when it gave them incorrect information. They did not realize the enemy was spoofing at first, so they landed on the wrong island beach, delaying the unit's arrival to the objective by an entire day. Once ashore, the units scrambled to find a way to use their GPS-guided precision munitions that were no longer GPS-guided or precise. With no alternatives, they used unguided fires. Some missions failed and others caused the deaths of innocent civilians.

Shaking his head, the commander strode out of the tent. He scanned the area. From what he had been told, a nightmare did not even begin to describe the frustration and chaos the Marines on the ground experienced once they landed ashore 20 years ago. Civilian casualties abruptly turned the world powers against the country's leaders and brought our nation to the negotiating table. It shamed the Marines to walk away from a fight, but his predecessors took some powerful lessons learned and determined to make themselves and their equipment less GPS reliant.

Their dependence on modern technology demonstrated a glaring weakness that forced them to devolve in one area and advance in others. Ironically, systems to navigate precisely without GPS had existed for years, but they were not integrated into many systems at the time. World industrial thought until that point saw no reason to invest in more complicated systems when they had worldwide reliable and accurate GPS signals from space. It was the best, fastest, and cheapest method for navigation, until they no longer had it, and then found themselves with no alternative.

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The Marines quickly realized that encrypted directional GPS antennas were a good starting point. They also recognized that if the enemy was to shoot down their satellites, it would not matter if they had the best GPS equipment or shielding techniques. A GPS receiver without satellites is useless. So, they invested in four complementary systems: celestial navigation, imagery navigation, inertial navigation, and background electromagnetic navigation.

The commander grunted as he heaved a box from the mud and trudged toward the loading vehicle. He did not know exactly how the systems they installed on the UAVs worked, but he knew enough. If the UAV could not see the sun, moon, or stars, it could use its camera to see the terrain. It could geolocate itself using electronic signals or use its inertial sensors to calculate its location based on movement. Overall, it was a very impressive system—one that gave the commander confidence in their mission.

Integration cost millions and several years' time, but even the skeptics conceded the Service's gamble paid off after several of the prototype UAVs completed peacekeeping operations while being GPS jammed. Thankfully, our hard work as a Service and country paid off. The next generation of UAVs navigated in any weather, over any terrain, with as good as or better accuracy than GPS. Most important, they were not jammable. There were weaknesses with each individual system, but they were designed to work together with or without GPS to provide collaborative positioning to whatever combat system on which they were installed.

Pushing the communications equipment into the vehicle and wiping the brown mud off his trousers, the commander recalled taking apart his father's old laptop. It dwarfed the UAV's state-of-the-art computer his team had just updated with the latest hardware and intelligence data. His enthusiastic crew chief had lectured him yesterday about the up-to-date imagery and electronic measurements. If the route was cloudy, GPS was spotty, or the inertial navigation system went on the fritz, the UAV would still know where it was. Then his resident intel Marine had described the artificial intelligence and machine learning systems the aircraft used to analyze the terrain, even in obscured conditions. It sounded complex, but as long as the smart bombs went where they were told, the commander was not concerned about the intricacies of the new systems. These changes were not solely felt in the Marine Corps; longtime friends in the other Services had shared their impressions about this technology on their respective land and sea vehicles and the precision munitions they delivered. No longer would long-range rockets, bombs, UAVs, and other vehicles be sidelined without accurate target and location coordinates. Ships and vehicles anywhere in the world now knew their exact location that could not be denied or spoofed.

The commander smiled again, throwing the last of the equipment into the vehicle. After years of hard work and rigorous testing, his predecessors had changed the direction of modern navigation. A year ago, the leadership was at last confident they were no longer dependent on GPS to fight. Now, 20 days prior, the enemy shot down or disabled 12 of our satellites; 15 days ago, Congress declared war; and for the past 72 hours, the commander and his team had been launching precision strikes against the enemy. Dropping into his seat, he checked his data pad and grinned. There was no GPS signal, but he was confident his UAVs would navigate to the target and deliver the precision strikes command had requested. "Let's get to the pickup zone," he growled to his crew chief, slamming the door.

Beyond M113

Developing an Armored Infantry Capability for the Australian Army

by Major Levon J. Lambert, Australian Army[1]

Technology works best when enabling or partnering human endeavour.[2]

INTRODUCTION

Military institutions often struggle to wed forthcoming technology to a cogent concept for employment. The penalty for failure is the loss of life that ensues when the intended combination of technology, people, and doctrine results in an inadequate system for enabling warfare in the future operating environment. Acquiring new technology requires an army to rethink concepts for employment that also necessitates restructuring and even reviewing its operational approach. The Australian Army's 2025 acquisition of an infantry fighting vehicle (IFV) under Project Land 400 Phase 3 (LAND 400-3) and Plan Beersheba's recent generation of three mechanized battalions across the combat brigades represent a real opportunity to maximize the overall effectiveness of combined arms close combat.[3] The eternal debate as to the utility of different types of infantry and an argument toward the most effective manifestation is unlikely to be settled herein. The key component of the debate, however, addresses the persistent need to adapt, modernize, and implement new technology in the most effective fashion to maintain a competitive edge. The results of the following analysis will show that the Australian Army's acquisition of an IFV has triggered the need for generating a specialized infantry capability as part of modernizing the mechanized battalion that will more effectively wed the new technology to a cogent design for employment. Doing so will provide combat brigades the opportunity for exploitation at the tactical and operational level in future combined arms warfare.[4] From 2025, acquiring an IFV necessitates the establishment of armored infantry to modernize the present mechanized battalion and sustain an advantage in armored close combat for the future.

The Australian Army has the advantage of learning from other nations' efforts to effective-

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[2] LtGen Angus J. Campbell, "A Turning Tide?: Australia's Strategic Defence Interests and the Australian Army" (speech, Lowy Institute for International Policy, Sydney, 4 October 2016).

[3] Land 400 aims to "enhance the mounted close combat capability of the Land Force by providing armored fighting vehicles with improved firepower, protection, mobility and communication characteristics to enable tactical success in the contemporary and future operational environment." See "Project LAND 400," Australian Army, 21 December 2016. Under Plan Beersheba, the Australian Army continues to modernize to remain equipped and prepared for new and emerging threats. See "Project Beersheba," Australian Army, 15 June 2017.

[4] The core capabilities of Plan Beersheba will be "three similarly structured combat brigades, each able to deploy and sustain combined arms teams (consisting of armor, infantry, artillery and engineers) directly supported by specialised enabling functions (such as intelligence, logistics and aviation)." See "Plan LAND 400." The 2017 extension to this came in the form of Plan Keogh to direct the establishment of mechanized battalions.

ly incorporate IFVs into an operational approach after 53 years operating the M113 armored personnel carrier (APC). Therefore, it will be beneficial to evaluate case studies in both medium- and high-intensity conflicts, including the transition of select nations from APC to IFV. Doing so will demonstrate the utility that the IFV brings to a future Australian capability within the realms of what the Australian combat brigade may be called upon to do. Ultimately, the historical evidence supports specific recommendations surrounding the transition away from mechanized infantry battalions equipped with organic APCs to generating an armored infantry equipped with an IFV and a specialized mode of employment.[5] Such a move will support a pathway to LA00-3's successful implementation beyond 2025. If the Australian *Adaptive Campaigning: Army's Future Land Operating Concept* (FLOC) requires forces with a technological edge to have a disproportionate effect harnessing all aspects of a single capability, the development of armored infantry is the logical next step when considering the future of mechanized infantry relative to the demands of twenty-first century combined arms close combat.[6]

The capability of infantry equipped with organic fighting vehicles is the result of a complex set of human, organizational, and technological processes that is the subject of this study. Current literature identifies that both mechanized and armored infantry formations are prevalent throughout developed armies of the world. Their origins in the interwar period of the 1920s and 1930s were reinforced through the Allied and German armored divisions of World War II and revived by many Western armies after the Arab-Israeli War (Yom Kippur War) of 1973. It is a common capability to employ in recent decades, but has a difficult history sitting astride both infantry and armor branches of respective armies. Infantry equipped with IFVs have often been subject to institutional agendas and factional competition over resources, leading to a history complicated by questions of branch or institutional affiliation.

Offering a way to successfully inject technology into a complex fighting system is the core of this research. First, this thesis will frame the transition point the Australian Army will shortly undertake offering a design-driven method for understanding the conceptual approach to the transition from APC to IFV. Second, it will review the unique characteristics of both mechanized and armored infantry to determine a working definition and a mode of employment before offering a place for it within the joint land campaign. Third, it will analyze operational case studies in both medium- and high-intensity conflict to offer a narrative on the likely nature of tasks for IFV-equipped infantry to be incorporated into an operational approach. Lastly, the thesis will review the generation of armored infantry by select nations' militaries, observing two key transition points involving a move from APC to IFV centered on the U.S. Army in 1982 and the Republic of Korea's Army (ROKA) in 2009. Accompanying this work are products relating to the transition beyond the M113, including a possible unit structure, as well as recommendations to aid implementation of the conceptual approach put forth here.

FRAMING THE TRANSITION

> Nations will modernise their military for possible use against regional adversaries and develop adaptive technologies for possible use against extra-regional adversaries.[7]

An effective problem frame will identify the crucial issues that may impede effective adap-

[5] For the purposes of this discussion, the term *organic* refers to whether the specified equipment is part of the baseline organization vice reinforced.

[6] *Adaptive Campaigning: Army's Future Land Operating Concept* (Canberra, AU: Directorate of Army Research and Analysis, Army Headquarters, 2009).

[7] Colin S. Gray, *War, Peace and International Relations: An Introduction to Strategic History* (New York: Routledge, 2007), 238.

tation. Acknowledging that the IFV will not be employed by the Australian Army before 2025 allows for flexibility in determining a solution to the problem of modernizing. In describing how the British generated mechanized forces during the interwar period, historian Dennis E. Showalter posits achieving a synergy of doctrine and materiel as the defining characteristic.[8] Moreover, early armor advocate British general J. F. C. Fuller described a similar problem of the 1920s interwar period in fusing emerging technology with appropriate concepts for employment in a similar fashion to Colin S. Gray's description of the modernization imperative. Through his 2016 address to the Lowy Institute, Lieutenant General Campbell echoes the approach offered by Fuller and Showalter in emphasizing the partnership with technology as a common theme for the future. Therefore, it is evident that accurately combining new technology with an effectively formulated concept for a relevant operational environment is the appropriate path to follow.

For example, the U.S. Marine Corps addresses the challenge of modernizing in the immediate future through a design-driven approach. They establish a central problem statement linked to a possible description of the solution—logic and counterlogic set in clear opposition. The example problem statement is: "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."[9] It is from this problem statement that the future operating concept is articulated to best support an explanation of the future drivers of change and the critical tasks required to meet them. The Harvard Business School demonstrates another approach to problem solving defined as a *theory of action* to establish an end result descriptor of a solution. Similarly, H. A. Simon, in his discussion of solutions to ill-structured problems, suggests they are bounded by resource limitations and solutions expressed in varying degrees of acceptability.[10] Mike Pidd also addresses the complexities of problem solving within systems describing key differences between "puzzles" and "wicked problems" in complex systems. He states that developing useful models of complex systems, especially those that involve human action and intent, is difficult—but each have solutions derived from levels of acceptability to the relevant stakeholders.[11] Applying this methodology to the transition from the APC to the IFV to meet future threats allows the problem to be framed as follows:

> The transition of mechanized battalions away from the M113AS4 and subsequent acquisition of an IFV risks disaggregation of the capability and limited adaptation if inappropriate concepts, structure, and culture are adopted.

With the problem framed in such a way, the proposed solution to modernizing close combat is linked to the critical juncture of transition:

> Acquiring an IFV necessitates a conceptual and structural change upon transition to support cultural change and harness the advantages of protection, fire-

[8] Dennis E. Showalter, "Military Innovation and the Whig Perspective of History," in *The Challenge of Change: Military Institutions and New Realities, 1918–1941*, ed. Harold R. Winton and David R. Mets (Lincoln: University of Nebraska Press, 2000), 232.

[9] *Marine Corps Operating Concept: How an Expeditionary Force Operates in the 21st Century* (Washington, DC: Headquarters Marine Corps, 2016), 8.

[10] Stacey Childress and Geoff E. Marietta, *A Problem-Solving Approach to Designing and Implementing a Strategy to Improve Performance* (Boston, MA: Public Education Leadership Project, Harvard Business School, 2008), 2, figure A. See also H. A. Simon, "The Structure of Ill-structured Problems," *Artificial Intelligence* 4, nos. 3–4 (1973): 181–201, https://doi.org/10.1016/0004-3702(73)90011-8. Solutions to ill-defined problems are rarely correct or incorrect but fall on a range of acceptability and cannot be judged on their own but require some implementation and evaluation to test. Solvers of ill-defined problems divide their work into problem representation and problem-solving phases and justify their solutions by means of argument.

[11] Mike Pidd, ed., *Systems Modelling: Theory and Practice* (West Sussex, UK: John Wiley & Sons, 2004), 206.

> power, and mobility in the context of close combat. If the IFV is organic to the battalion for operational, structural, and cultural reasons the ability to modernize close combat can be realized more effectively.

With an effective problem statement linked to a *theory of action*, a definition of the capability and mode of employment can be explored. Importantly, this definition must reinforce the present doctrinal role of the Royal Australian Infantry Corps to support a viable solution to modernizing close combat. This research assumes that the present role of infantry is suitable to modern requirements and is unlikely to change in the near future. The ability to fulfill the present role, but with a more technologically advanced method, while avoiding the path dependence influenced by 53 years of familiarity between the current mechanized battalion and anachronistic APC squadron structure, will be the key to realizing the effectiveness of integrating the IFV.

DEFINING THE CAPABILITY AND MODE OF EMPLOYMENT

A Complicated History

> New arms are invented and introduced without a definite relationship to structure and control . . . proportions are not logically arrived at but are the outcome of ignorant opposition on one side and enthusiastic aggressiveness on the other.[12]

The salient prediction by then British Army colonel J. F. C. Fuller in the 1920s summed up the trouble with establishing a continuous historical evolution for a capability in constant conflict between two dominant combat arms. The complicated history of a hybrid infantry-armor capability is reflective of doctrinal confusion and branch, or corps, competition resident in the Western armies of the twentieth century. There are two individuals who sought to address the paucity of writing on what it means to be labelled mechanized and to offer commentary on capabilities that straddle the difficult juncture between purist armor and traditional infantry. Writing in 1980, British Army brigadier Richard E. Simpkin sought to establish an effective definition of *mechanized infantry* inside the larger narrative on the development of late twentieth-century NATO armored warfare as a way to defeat the Soviet Union's motor rifles.[13] His approach would later support the British development of the Warrior mechanized combat vehicle with associated infantry specialization from 1987.[14] U.S. historian W. Blair Haworth Jr. wrote extensively on the problematic evolution of the M2 Bradley fighting vehicle. He contrasted the fighting vehicle against the institutional issues with optimization of tactical structures. Of particular note are the definitions that Simpkin and Hungarian brigadier general Huba Wass de Czege posited between 1980 and 1985 for determining specific roles for infantry in different aspects of the land campaign. They both describe a "specialised infantry employing an infantry fighting vehicle" and both acknowledge that there is more than one type of infantry required in modern combined arms.[15] This, in itself, suggests that the recently shelved Australian standard infantry

[12] Col J. F. C. Fuller, *The Foundations of the Science of War* (London: Hutchinson, 1925), 147.
[13] Richard E. Simpkin, *Mechanized Infantry* (London: Brassey's, 1980), 11.
[14] Simon Dunstan, *Warrior Company* (Marlborough, UK: Crowood Press, 1998), 8. The first Warrior vehicles were handed to 1st Battalion, Grenadier Guards, in May 1987. This is approximately five years after the United States fielded the Bradley fighting vehicle.
[15] Richard E. Simpkin, *Human Factors in Mechanized Warfare* (London: Brassey's, 1983), 18; and Huba Wass de Czege, "Three Kinds of Infantry," *Infantry*, July–August 1985, 11.

battalion may have been missing some of the more fundamental thinking in seeking both a standardized definition of role and ubiquitous design for employment.

Mechanized infantry leads a rather isolated existence amid both combat history and the literature of military doctrine. It is a slightly obscure and difficult history of a capability caught between armor and infantry branches with impassioned advocacy on both sides. Both Simpkin and Haworth comment on the lack of sources and relative obscurity of the topic. Diane L. Urbina's 1999 work, *Lethal Beyond All Expectations: The Bradley Fighting Vehicle*, describes longstanding confusion about what the Bradley was and was not designed to do. She states it was neither an M113 APC, designed as a battlefield taxi, nor was it a tank.[16] Urbina further cites Haworth's work on the Bradley's evolution and the U.S. Army's holistic problem with the role and structure of mechanized infantry amid changes in technology of the air-land battle era.[17] This discussion encapsulates the conceptual problems facing the Australian Army with the IFV itself against the backdrop of technology, structure, and doctrine. What may be said of this history, however, is that the superimposition of the tank on Western warfare as a whole made the question of tactical mobility for infantry an urgent and perennial one.[18] Thus, it is important to consider the history around the evolution of the Bradley fighting vehicle throughout the 1980s and the subsequent fielding of U.S., ROK, and German IFV-equipped infantry through 2015. These historical episodes mirror the journey the Australian Army will undertake with the transition from APC to IFV and the resultant requirement to undertake changes in structure, employment, and doctrine. The following will establish a definition for the reader, contrasting both mechanized and armored infantry labels, before offering a definition of armored infantry for the future Australian capability.

Establishing a Useful Definition

> Is the mechanized infantry force a body of infantrymen who happen to be issued armored vehicles, or are they armored vehicle crewmen who happen to dismount for some combat situations?[19]

It is this exact question—defining mechanized infantry—that has plagued Western armies seeking to establish a mechanized capability or specialized armored infantry since the introduction of the IFV after 1980. Instituting a new approach begins with an effective definition. The initial emphasis on definitions in this research is to highlight the subsequent effect they have on employment and placement in force design for the land campaign. Both parts of Haworth's question are the polar ends of the spectrum when it comes to infantry equipped with organic armor. Doctrine and tradition imply the former in generalist terms, but practice and technological developments have moved toward the latter in specialist terms, while any persistent effort to reconcile the duality within the same soldiery has been continually problematic.[20] In offering a definition for later use, this section will detail the difficult but common interchangeability between the terms *mechanized* and *armored* including the institutional confusion it has wrought against a specialist versus generalist backdrop. Implicit in the discussion is the tension between

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[16] Diane L. Urbina, "Lethal Beyond All Expectations: The Bradley Fighting Vehicle," in *From Camp Colt to Desert Storm: The History of U.S. Armored Forces*, ed. George F. Hoffman and Donn A. Starry (Lexington: University Press of Kentucky, 1999), 428.

[17] Urbina, "Lethal Beyond All Expectations."

[18] W. Blair Haworth Jr., *The Bradley and How It Got That Way: Technology, Institutions, and the Problem of Mechanized Infantry in the United States Army* (Westport, CT: Greenwood Press, 1999), 6.

[19] Haworth, *The Bradley and How It Got That Way*, 22.

[20] Haworth, *The Bradley and How It Got That Way*.

the type of vehicle platform, the dismounted section size, and the requirements of the role when describing either in definitive terms.

Distinctions between mechanized and armored forms of infantry not only provide useful labels but also draw attention to the significant differences in capabilities, limitations, and complexity that characterizes the different forms. Simpkin aptly describes the original challenge for a hybrid infantry-armored force: "With mechanized infantry, the difficulty lies in arriving at a meaningful and lucid definition of the role of infantry in the armored battle and the way it should fight . . . something at the grass roots level but broader than simply minor tactics."[21] In describing one view, Haworth observes the U.S. model of mechanized infantry as a generalist force under the direction of the infantry branch, using organic armored vehicles under the training auspices of the armored branch to carry out the whole spectrum of infantry missions.[22] There are two key issues worthy of discussion: first, the role of infantry in an armored battle; and second, the relative difficulty to maintain the jack-of-all-trades approach to infantry training inside the generalist capability burdened by the requirement to train with more technology.

Haworth's description of a generalist capability appears to have translated pervasively into the workings of the Australian Army. Specifically, in 2008, a former commanding officer of the only mechanized battalion observed that mechanized infantrymen have a key responsibility to provide the "mass" element of the combined arms team.[23] This was the embodiment of the generalist view of the U.S. Army's M113-based mechanized infantry. It is the guiding principle by which the Australian mechanized mode of employment developed and suits both the APC and the battalion structure.[24] The most useful injection on the definition of different forms of infantry, however, was offered by Colonel de Czege in 1985 as he attempted to reconcile a number of different views on infantry with the introduction of the Bradley fighting vehicle.

Contributing to the debate on the dilemma of modern mechanized infantry in the generalist sense, de Czege described the utility of three basic kinds of infantry required for the land campaign; two of which will be discussed further in this chapter. He predicates this on the notion that infantry have a very broad responsibility in warfare that cannot be confined to the possession of one single type and suggests a requirement for "regular" and "armored" infantry. He states the need for "infantry whose primary mission is to support the advance of the tank." For the United States in recent decades, both APC and IFV equipped infantry have been regularly task-organized alongside tank elements that largely supports this claim. Importantly, however, the terms armored and mechanized have very different meanings depending on their context of fighting with, meaning integrated, or simply alongside tank formations. The meaning of these terms has altered throughout the years not only through different eras but also through the polemical purpose of different authors and advocates. Last, de Czege defines armored infantry as a "specialized infantry employing an infantry fighting vehicle" to acknowledge that there is more than one type of infantry required in modern combined arms.[25] This definition is echoed by Simpkin and Haworth, and in both instances, the problem of discerning a well-defined mechanized or armored infantry relates to more than semantics with mixed results in different militaries.

Specifically, a distinct contrast exists between the German, British, and U.S. capabilities when it comes to infantry equipped with an IFV. In the first instance, it manifests in different dismounted section sizes and the possession of antitank guided missiles (ATGM) as a determinant. The British Army uses infantry with an IFV labelled as armored infantry, whereas the

[21] Simpkin, *Mechanized Infantry*, 49.
[22] Haworth, *The Bradley and How It Got That Way*, 152.
[23] LtCol Shane L. Gabriel, 7 Royal Australian Regiment (Mechanized), Standard Operating Procedures (2008), 5.
[24] Ian Kuring, *Redcoats to Cams* (Canberra, AU: Australian Army History Unit, 2004), 389.
[25] de Czege, "Three Kinds of Infantry," 10–11.

United States employs an IFV within a mechanized combined arms battalion based on a larger general-purpose infantry platoon.[26] The British Warrior IFV does not employ an ATGM, instead relying on the accompanying tanks for antitank fires and battalion-level ATGM platoon, although the United States uses an ATGM on each vehicle in an attempt to close the gap between tank and IFV offensive capability.[27] In both instances, the IFV-equipped infantry is designed to fight with tanks with some variations on the need to conduct independent missions by the IFVs. The German *Panzergrenadier* offers a third approach as a model with a reduced section size and defined mission to enable armored formations, including the use of an ATGM.[28]

Considering Haworth's definition and its present structure, the Australian Army's approach in the twenty-first century is reminiscent of the U.S. M113-based mechanized infantry battalion of the late 1970s in the general-purpose sense.[29] It employs a marginally more capable version of the M113 but is better suited to fighting alongside tanks rather than integrated with them due to a lack of armor and antitank fires. The most common aspect of the UK and U.S. capabilities is the abiding requirement for interoperability with tanks, although the role of Australian infantry remains no different to that in the UK.[30] The contrast between the German and U.S. approach is of noteworthy consideration when it comes to defining mechanized infantry and armored infantry in the context of employing an IFV due to similarly equipped platforms and significantly different approaches. Accurately defining different types of infantry has important implications for force structure, doctrine, and combined arms warfare. The role of infantry within the context of Australian Army doctrine is important in that it acknowledges the primacy of infantry in executing close combat. In considering how to define armored infantry, the enduring role of the infantry should remain unchanged; however, the Army also needs to apply it in the context of a specialized force with organic IFVs engaging in close combat. For that purpose, an appropriate definition of *close combat* is:

> Actions that place force elements in varying terrain and in immediate contact with the threat; where direct fires, supported by indirect fires, are applied to strike, shape and/or shield to defeat or destroy enemy forces or seize and retain decisive points.[31]

Further, close combat's primary mechanisms are attrition and suppression for the stated purpose of the destruction of enemy forces or to seize and hold ground.[32] Regarding an IFV for infantry executing close combat, this raises the question of whether infantry can do better with an IFV or an APC, and what will need to change. The present Australian combat brigade

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[26] The combined arms battalion is a 2:2 tank and infantry organization forming the core of the armored brigade combat team. Doctrinally, see *The Tank and Mechanized Infantry Battalion Task Force*, FM 3.90.2 (Washington, DC: Department of the Army, 2003); and *Combined Arms Battalion*, FM 3.90.5 (Washington, DC: Department of the Army, 2016). There exists a potential to establish this interoperability as the standard for Australian IFV and tank doctrine because there is little offered beyond mounted minor tactics at present.

[27] Haworth, *The Bradley and How It Got That Way*, 76.

[28] *Truppenführung (TF): HDv 100/100 VS-NfD* (Der Bundesminister der Verteidigung, 1990), 233.

[29] Kuring, *Redcoats to Cams*, 389; and David Horner and Jean Bou, eds., *Duty First: A History of the Royal Australian Regiment* (Crows Nest, AU: Allen & Unwin, 2008), 271.

[30] "Role of the Royal Australian Infantry Corps," Australian Army, 19 December 2016. This is only included in case there are some who are unaware: "The role of Royal Australian Infantry Corps is to seek out and close with the enemy, to kill or capture him, to seize and hold ground, and to repel attack by day or night, regardless of season, weather or terrain."

[31] Dean K. Bowley et al., *Attrition and Suppression: Defining the Nature of Close Combat*, DSTO-TR-1638 (Edinburgh, AU: Defence Science and Technology Organisation, Department of Defence, Australian Government, 2004), 3. This study is used because it offers a more comprehensive definition for close combat than that offered in the *Glossary*, Australian Defence Force Publication 04.1.1 (Canberra, AU: Australian Defence Headquarters, n.d.).

[32] Bowley et al., *Attrition and Suppression*.

with two differently equipped infantry battalions at least structurally acknowledges that there are two possible types of infantry, as also emphasized by de Czege in 1983.[33] When it comes to the modes of employment, there is one ultimate difference: there are those that use the APC and those that do not.[34] This should not be overly simplified to suggest that a battalion's utility is based solely on tactical mobility, but on something higher with greater depth of thinking surrounding its intended employment within the wider context of the land campaign. The inevitable extension to the rationale for future utility and to preserve the dichotomy within the brigade is to say: those that employ the IFV and those that do not; a useful combination of a generalist and specialist infantry for applicable phases of war. This suggests a way to discern mechanized or armored infantry capabilities based on vehicle type and dismounted section. It should be stated from the outset that a larger section size places it more toward the generalist than the specialist.[35] A dismounted element of six accompanying German Puma IFV is an example of such specialization resident in the *Panzergrenadiers*.

Inherent to each type of infantry is the common observation that there exists a requirement for some type of specialised vehicle for battlefield mobility. Each comes with nuanced differences in the size of the dismounted infantry element employed with. In the *Journal on Military Operations*, William F. Owen states: "The roles of IFVs and APCs differ in one essential way. The IFV is designed to fight; that is, engage in direct-fire combat with the enemy… in support of a dismounted section. In contrast, the APC is and was designed to deliver the infantry to a point where they dismount and fight on foot."[36] The Israel Defense Force (IDF) employs an APC-based infantry that serves as a useful example of a general purpose mechanized infantry.[37] After the 2006 Second Lebanon War, the IDF concluded that heavy units would play a critical role in hybrid conflict with utility of heavy armored personnel carriers relating to protected mobility near frontline conflict.[38] The section of nine dismounted soldiers is of suitable size to conduct independent operations while the vehicle enables battlefield mobility. The U.S. Bradley-based capability, conversely, offers a different mechanized approach. A dismounted section of nine soldiers are equipped with a specialized vehicle that allows for both independent operations but is more capable when remaining with the IFV. The U.S. model is unique because the section is split between vehicles, meaning the section is not complete until it regroups after dismounting. The Bradley only carries seven in the troop compartment and cannot deliver a complete section into battle. This capability resides within the general-purpose infantry model also.

Meanwhile, the last type of infantry specified within figure 1 is that of the German *Panzergrenadier*. With the associated Puma IFV, the dismounted section of six soldiers are intended to fight alongside the IFV and are considered an equal aspect of the capability overall. The Puma IFV becomes the "suppression or fixing platform" (support group) with the requirement to enable the movement of the smaller dismounted *gruppen* (group). According to German doctrine *Truppenführung*, this type of specialized infantry, with a tailored design in structure and tasking, is more closely associated with traditional armored infantry, though the *Bundeswehr* (German

[33] The intended design is one battalion employing wheeled protected mobility vehicles and a greater quantity of dismounted infantry (nine) with the other battalion employing a tracked infantry fighting vehicle and a smaller quantity of dismounted infantry (six).

[34] de Czege, "Three Kinds of Infantry," 10.

[35] Bruce Held et al., *Understanding Why a Ground Combat Vehicle That Carries Nine Dismounts Is Important to the Army* (Santa Monica, CA: Rand, 2013), 11.

[36] William F. Owen, "Wrong Technology for the Wrong Tactics: The Infantry Fighting Vehicle," *Military Operations* 1, no. 3 (Winter 2012): 17.

[37] Owen, "Wrong Technology for the Wrong Tactics," 18.

[38] David E. Johnson and John Gordon IV, *Observations on Recent Trends in Armored Forces* (Santa Monica, CA: Rand, 2010), 5.

unified forces) demonstrates a significant commitment to the operational-level idea of *Panzergrenadiers* to be discussed later.[39] The key observation is that a smaller section size generates a greater requirement for integration with the IFV; the two become quite dependent on each other. There is a critical point surrounding survivability of the vehicle and of the infantry, where the capability could not be disaggregated because it ceases to achieve its intended purpose of supporting infantry in close combat.

Importantly, the enduring role of infantry is no different at the tactical level when it comes to the execution of close combat, but the mode of employment for the IFV and the place within the joint land campaign will be.[40] The extant doctrinal tension surrounds whether armored infantry equipped with an IFV is a unique type of infantry, that is, infantry with a more unique set of tasks than traditional mechanized infantry, or whether IFV-equipped infantry should be capable of the full set of traditional mechanized infantry tasks. Haworth describes the crucial issue that plagued the U.S. Army in establishing a fundamental definition for infantry with an organic IFV: "The vision of a mechanized infantry force wedded to armored fighting vehicles yet preserving the general-purpose nature of the earlier force repeatedly led the Army to pursue unrealistic technological goals and forced it to make awkward trade-offs when they proved unattainable."[41] To propose a distinction between armored and mechanized infantry is to specify different sets of tasks and functions that are linked to intended employment. Forcing an IFV to do both the general purpose while ostensibly configured for the specialist ensures that it will do neither well. The seemingly minor tactical aspect of dismounted section size is one determinant. By not making this distinction effectively, the U.S. Army experienced issues with training and support, distorted force designs, and a doctrine that was incomprehensible to outsiders.[42] The most useful definition revolves around the speciality of fighting with an IFV tactically structured to do so due to a smaller dismounted element and with the ability to enable tanks through intimate support in both weapons and doctrine. The start point for transition away from M113-based battalions is to define the key differences between mechanized and armored relative to close combat.

MECHANIZED INFANTRY

> Confusion or misunderstanding in some circles regarding the role of an APC versus an IFV was a long-standing problem in the US Army.[43]

Establishing an effective definition for what mechanized infantry *is* versus what it *does* has been a persistent challenge for the Australian Army based, on the dual mode of employment for the M113 as both a mechanized battalion and APC lift squadron for the past 53 years. The present mechanized battalion is loosely defined by the possession of the M113AS4 and purported interoperability with the M1 Abrams main battle tank (MBT). The most recently available definition for the M113-based capability is offered by *Employment of Infantry* as: "A standing organisation of infantry that has organic armoured personnel carriers."[44] If the doctrine is explored further, a reader can also establish somewhat disjointedly that "mechanised infantry has protected mobility and firepower that allows domination of a larger part of the battlespace and

[39] *Truppenführung*, 233. The doctrine describes the primary function in support of tanks with further emphasis on transition between mounted and dismounted combat.

[40] The key difference is between infantry attacking or defending at the tactical level versus when you would employ a specific type of infantry at the operational level or during a campaign. Armored infantry may occupy a first echelon task as part of an advance and attack versus motorized infantry needed to seize an objective in complex terrain.

[41] Haworth, *The Bradley and How It Got That Way*, 153.

[42] Haworth, *The Bradley and How It Got That Way*.

[43] Urbina, "Lethal Beyond Expectations," 410.

[44] *Employment of Infantry*, LWD 3-3-7 (Canberra, AU: Australian Army, 2008), 1.2.

faster transition from one activity to the next . . . [and] even dismounting to achieve the mission."[45] What can be deduced from this point is that the mechanized battalion is a generalist force expected to conduct tactical actions with or without the APC. It also implies an element of operational reach and a description of rapidity in tactical transition. This is not a sophisticated description of an M113-based capability and is easily confused with that of an APC squadron in the context of providing lift versus close combat.

The 2008 definition is one of the only references in published Australian Army doctrine and is symptomatic of a greater struggle with the mode of employment since the Army's first mechanized trial and subsequent resource-constrained development throughout the 1980s.[46] Professor Michael Evans also observed the Australian institutional problem as "doctrinal fragmentation and a lack of corporate memory in doctrine development led to the predominance of corps doctrine over Army-wide doctrine and of task doctrine over conceptual doctrine."[47] This notion is worth highlighting as this chapter seeks to first conceptualize the development of armored infantry as an evolutionary process from the present mechanized infantry. In the first instance, it may be achieved by establishing a comprehensive definition behind the basis for employment. By defining the capability effectively, it therefore becomes easy to draw out subsequent tasks against a mode of employment for the IFV itself. Moreover, the generalist definition offered by the M113-based mechanized infantry can be contrasted with that of a more specialized approach in determining a mode of employment for infantry equipped with an IFV.

ARMORED INFANTRY

> History and common sense alike leave no doubt that tanks mostly need close-in support of a more intimate kind than other tanks can give. Whether they do it mounted or on their feet, the men who provide such support are going to have to live, move and fight with the tanks.[48]

One key difference between mechanized and armored infantry is the specialized nature that manifests in both the type of vehicle employed and the quantity of infantry resident within it. The second point of difference is the ability for the IFV to enable infantry in the conduct of close combat through different weapons like stabilized cannons and ATGM, increased armor, and interoperability with tanks. In seeking a definition of an armored infantry capability for the Australian Army, this chapter subscribes to that offered by both Simpkin and de Czege as the starting point; first, the utility of a specialized infantry employing an infantry fighting vehicle; and second, infantry with a distinct role supporting the tank. The U.S. approach to the IFV is that "the Bradley was designed to fight through to an objective, only dismounting its small number of infantry once it arrived. Infantry, however, is not the priority with the Bradley. This made it a good vehicle to fight alongside M1 Abrams Tanks."[49] Though conceptually useful, the United States never fully embraced this concept, which only served to complicate dismounted

[45] *Employment of Infantry*, 3.4–3.5.
[46] Horner and Bou, *Duty First*, 271. The vision of a mechanized battalion fielding only a single company on a rotational basis is a disturbing one, though not out of place in the context of the time and funding for the Australian Army.
[47] Michael Evans, *Forward from the Past: The Development of Australian Army Doctrine, 1972–Present*, Study Paper no. 301 (Canberra, AU: Land Warfare Studies Centre, 1999), 68. Evans describes the departure from any armored infantry circa 1975, whereby LtGen F. G. Hassett articulated the requirement for armored tactics absent infantry. The 1980s mechanized trial would subsequently cement this doctrinal division despite enthusiasm at the battalion and brigade level. See "Training Directive," as cited by MajGen W. G. Henderson, Training Command, Training Command Doctrinal Conference, 16 July 1975.
[48] Simpkin, *Mechanized Infantry*, 43.
[49] James King, "Never Bring a Stryker to a Tank Fight," Modern War Institute at West Point, 2 May 2017.

maneuver.[50] Americans eventually adopted a middle-ground approach with the present-day role of the IFV after experiences in Iraq from 1991 and 2003 onward: "The Bradley provides protected transport, overwatching fires for dismounted infantry, employed to suppress or defeat enemy tanks, fighting vehicles, bunkers, and dismounted infantry; and used to close with the enemy by fire and maneuver."[51] In understanding the requirements for infantry operating with tanks and how to employ a smaller dismounted element, Germany suggests a different definition for articulating the requirements of the *Panzergrenadier*.

In the example of *Panzergrenadier*, the IFV is an integral, even defining piece of section equipment, with its members expected to stay with it under normal operational conditions.[52] The *Bundeswehr* presently defines the capability as: "The *Panzergrenadiertruppe* (infantry platoon) is especially suited for swift changes between mounted and dismounted combat to maintain the momentum of armored (tank) troops. The direct and close cooperation of the *Panzertruppe* [tanks or armor] and the *Panzergrenadiertruppe* is, mandatory to succeed. Their versatility and reactivity enable them to gain and maintain the initiative and bring about the decision."[53] In this description, the German capability reflects the more traditional view of armored infantry as described by Simpkin and de Czege. The original 1942 title *Panzergrenadier* suggests (mechanized) heavy infantry elements whose greater protection and mobility allowed them to keep pace with tank units and formations and strike or penetrate in depth. This designation reflects the traditional role of grenadiers as shock troops within the wider combined arms formation.[54] Is this something of future utility to Australia in requiring a greater relative effect from a smaller force? Central to the mode of employment is the inclusion of the IFV and interoperability with the MBT. This mode of employment is important to the definition of armored infantry equipped with an IFV relative to mechanized infantry equipped with an APC. These descriptions are the key changes triggered by the acquisition of an IFV. The conceptual understanding for employment of the *Bundeswehr* armored infantry capability is a useful start point in describing a future Australian capability. When paired with the institutional understanding offered by both Simpkin and de Czege, there are a number of useful common characteristics for the Australian capability:

1. The IFV is organic to the battalion structure with crews drawn from the infantry.
2. The primary reason for the capability is to enhance infantry close combat.
3. The secondary reason for the capability is to enhance the effectiveness of tanks at the tactical and operational level through attack in depth and penetration.
4. Employment of the capability emphasizes rapid changes between mounted and dismounted combat that exist nowhere else in Army.
5. Employment of the IFV is predicated on suppression/attrition on behalf of the infantry within it.
6. The IFV and its infantry component cannot be effectively disaggregated without reducing the overall capability.

Refining this conceptual understanding through a concise definition is crucial. A possible definition based on combining Simpkin, se Czege, and the *Bundeswehr* approach is:

> Australian armored infantry is the primary capability responsible for armored

[50] Haworth, *The Bradley and How It Got that Way*, 152.
[51] Haworth, *The Bradley and How It Got that Way*.
[52] H. J. Thiele, "Panzergrenadier," *Infantry* 53 (November 1963): 40.
[53] *Truppenführung*, 233.
[54] Robert M. Citino, *Quest for Decisive Victory: From Stalemate to Blitzkrieg in Europe, 1899–1940* (Lawrence: University Press of Kansas, 2002), 200.

close combat. It generally operates with and in close support of tanks, and is able to rapidly transition between mounted and dismounted combat as a versatile combination of infantry and integral armored support.

Armed with an effective definition as a start point for the capability, it is now possible to articulate a possible mode of employment for the IFV within an organization described as an armored infantry battalion.

ESTABLISHING A MODE OF EMPLOYMENT

> The three physical elements of war are moving, guarding, and hitting. Like the mental and the moral, they are so closely related that to separate them is practically impossible.[55]

An effective definition supports the ability to discern the institutional approach employing the IFV. The differences in the German and U.S. development of IFV-equipped infantry offer that the full potential of the IFV is only realized when an appropriate structure and tasks are incorporated into a system reflective of the mode of employment; that is, the primary way in which the capability is regarded by the institution. Fuller's description of the physical elements of war offer a way to basically understand the enduring characteristics of armored infantry relative to such employment. Of further utility in describing the various modes of employment for both mechanized and armored infantry is Richard Simpkin's article published in 1983.[56] Simpkin suggests that there are three options for using the IFV or APC with their own resultant complexities and risks that equate to the way in which they are regarded as a system. The absolute nature of each tasking resides in the apex in the corners of the triangle, manifest as a complete mode of employment defined by both the vehicle and structure of the dismounted element. The three options are:

1. *Conservative*: the vehicle is employed with the express aim of conserving it to be able to retrieve the infantry at a later point. In a tactical sense, this would equate to the common zulu muster, whereby vehicles are concentrated away from direct fires and infantry are left to maneuver unsupported. In an operational sense, this may be the existence of "empty" vehicles for the purpose of moving units at specific points during a campaign or operation. This end describes Urbina's "battle taxi" nature of the M113 relative to the employment of Haworth's generalist mechanized infantry.
2. *Independent*: the vehicle is able to be employed independent of the infantry. This would equate to tactical tasks of reconnaissance or fire interdiction from a distance. This end really describes the armored vehicle conducting fire and maneuver similar to a tank but without the same level of survivability.
3. *Support*: this is the truest combination of infantry and armor and manifests through the ability of the vehicle to conduct close combat with the section as an integral element. The addition of an ATGM implies support to tank forces also.

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[55] Fuller, *The Foundations of the Science of War*, 148. These elements support both offensive and defensive phases of war. Guarding and moving may be extrapolated to cover stability operations as required.

[56] Richard E. Simpkin, "When the Squad Dismounts," *Infantry* 73, no. 6 (November–December 1983): 15. The "marketing model" style was also used as late as 2015 by Dr. John D. Salt of Cranfield University in the UK when describing the mode of employment available to IFV-equipped infantry in his presentation "On the Wagons, Off the Wagons." It has been modified in this chapter to include doctrinal tasks and placement of the studied forces within it for greater fidelity.

In determining the type of tasking required for the vehicle relative to that of the infantry, Simpkin posed the question: "Where do you place the pin?" For the mode of employment for mechanized and armored infantry capabilities discussed so far, a position has been established within the triangle to best describe hybrid infantry-armor organizations pertaining to Australian, U.S., UK, and German forces. Note the polar differences between the definition offered for the M113-based Australian capability and that of the German IFV-based *Panzergrenadier* described earlier. The definitions for both mechanized and armored infantry posited in this research are depicted in a comparative sense to illustrate the differences in support and the resultant structural manning requirements for the capability. The determinant for the U.S. capability toward a more independent mode of employment is due to both the structure of the infantry platoon and the integrated antitank missiles resident in the Bradley.

It is possible to see how the IFV influences the mode of employment. Specifically, in the German model, a greater requirement for specialization when it comes to a greater need for support manifest in the requirement to accompany tanks and transition between mounted and dismounted combat. The U.S. Army Cavalry units suggests a level of specialization different from the infantry for IFV-centric operations. For the German and UK models, the section sizes are reduced to cater to the vehicle platform, though the available mounted weapons are increased to cater for a reduced amount of infantry. A lone World War II example of infantry weapon carriers offers a start point for a capability that tried to achieve every aspect of combined arms support to infantry but were not armored enough to fight alongside tanks in close combat.[57]

An Australian capability with a dismounted element of six soldiers necessitates a position more toward support than any other part of the triangle. Further equipping it with an ATGM like the German capability generates a more self-reliant organization that can better enable tank forces. An IFV without infantry is simply a weaker tank and employing it as an adjunct to infantry maneuver sees the placement of the capability mostly toward the independent point of the triangle similar to the U.S. Cavalry approach. The APC-based infantry resides firmly along the conservative edge for the main purpose of delivering infantry that will ultimately fight on foot; the bias toward conservative allows for the APC to return to remount the infantry for the next task. This is indicated by the Australian and Israeli approaches to a battlefield taxi, though the Israeli heavy APC has tank-like survivability based on the availability of tank chassis for production. Achieving an approach that best supports close combat is clearly depicted by the capabilities at the base of the triangle. That the requirement to change the mode of employment on acquisition of an IFV should now become quite apparent, particularly if the preceding capability is based on an APC. Acquisition suggests a move on the triangle from conservative to support if the expressed aim is for close combat versus the requirement to fight solely as dismounted infantry. How the mode of employment may manifest across different militaries is the subject of the following discussion.

COMPARATIVE SYSTEMS

> The continued need of the tank for support from riflemen on the ground created an environment in which the tank and the armored rifle squad are the primary and essential factors.[58]

[57] John D. Salt of Cranfield University suggests that "doctrine at the time made it clear that these were not AFVs, but 'firepower transports,' so they would fight either by dismounting their organic weapons or (against the 'light opposition' of hopeful doctrine writers) fight mounted but could not conduct anything like intimate support of their dismounted element."

[58] Virgil Ney, *The Evolution of the Armored Infantry Rifle Squad*, CORG Memorandum 198 (Fort Belvoir, VA: Combat Operations Research Group, U.S. Army Combat Developments Command, 1965), 2.

This section will compare basic infantry systems to best illustrate the key differences between a generalist and specialist capability. Those presented here are reflective of the specialist and generalist approaches to solving the problem of generating a hybrid infantry-armor organization. Seemingly simple characteristics of each capability, such as section sizes or possession of an ATGM, have follow-on implications for the mode of employment. At the most basic level, reducing the APC dismounted section size to six does not equal the ability to maintain the same approach to employment; this problem was encountered by the U.S. Army in 1982 and will be discussed later. Table 1 offers a comparison of different capabilities ranging from six to nine dismounts, with ATGM or without.

Table 1 identifies mechanized and armored infantry capabilities defined by smaller section sizes, the inclusion of an ATGM, and mode of employment relative to the APC-based infantry of the Australian Army. Armies that intend for the infantry to accompany tanks are equipped with an ATGM, except for the UK as a function of cost over requirement. In the case of both the UK and Germany, a smaller section size defines the capability as armored infantry designed to accompany tanks. The tasks of the German *Panzergrenadier* are limited to support the smaller section size, but the UK's doctrinal role of infantry still closely resembles that in Australia. The Australian APC-based infantry resembles both that of Norway and ROK and is as capable in the dismounted generalist sense but cannot integrate with tanks as effectively due to a lack of both a stabilized cannon and ATGM. Both Norway and the ROKA retain generalist infantry due to section sizes larger than eight. It should be noted that the U.S. Bradley has both stabilized cannon and ATGM, but a single vehicle cannot deliver a whole section to battle. In observing the section size and weapons available between the U.S. and German capabilities, there is a clear difference in what the *Panzergrenadier* can achieve relative to its intended employment with the inclusion of a stabilized cannon, ATGM, and specialized set of tasks for the dismounted infantry.

These comparisons suggest that an IFV able to carry a section of eight or more is still able to undertake infantry tasks in a generalist sense of the definition and that it may be acceptable to separate the vehicles from the platoon if the requirement arose. Such an idea is further validated by the IFV possessing a stabilized cannon and ATGM. This sees both the mechanized infantry forces from ROK and Norway retain a larger section due to the troop compartment available in the platform and retain the IFV aligned with its infantry component. In the case of the Puma and Warrior IFV, the smaller section necessitated a structural change to the infantry, and again in the case of the *Panzergrenadier*, a narrower mode of employment relative to supporting tanks and rapid transition between mounted and dismounted combat. This is an inescapable aspect of reducing section sizes relative to the intended employment posited by Bruce Held et al. in the 2013 Rand study *Understanding Why a Ground Combat Vehicle that Carries Nine Dismounts Is Important to the Army.* In essence, dismounted combat power cannot be reduced to fewer than seven soldiers if the intended scope of tasks relates to that achievable by eight or nine.[59] Finally, when considering whether infantry soldiers are capable of wielding an IFV, it should be noted that all examples employ infantry as the crew as a way to ensure a level of cultural interoperability.

ARMORED INFANTRY AND THE JOINT LAND CAMPAIGN

Only at the operational level could combat actions be forged into an ensemble

[59] Bruce Held et al., *Understanding Why a Ground Combat Vehicle that Carries Nine Dismounts Is Important to the Army* (Santa Monica, CA: Rand, 2013), 16. The analysts offer a perspective across a number of decades designed to inform the U.S. Army's acquisition of a larger IFV to overcome the inability of the Bradley to deliver a whole section.

Table 1: Comparative capabilities of IFV-equipped infantry

Nation	Description	Platform	Crew	Dismount	Armament	ATGM
Australia	Mechanized	M113AS4 (APC)	2	8	12.7mm	N
United States	Mechanized	M2 Bradley (IFV)	3	9*	25mm	Y
UK	Armored	Warrior (IFV)	3	7	30mm	N
Germany	Panzergrenadier	Puma (IFV)	3	6	30mm	Y
Norway	Mechanized	CV9030 (IFV)	3	8	30mm	Y
ROK	Mechanized	K21 (IFV)	3	9	40mm	Y

Source: Comprised from open source information supplemented by responses from officers of each nationality in attendance at Marine Corps University's Command and Staff College through a combination of interviews and doctrine translation into English.

> and so provide the creative tactical material for extensive operations united by strategy.[60]

Two assumptions underpin the employment of armored infantry: first, there is a requirement to increase the relative effect of tanks at both the tactical and operational levels; and second, there is a threat commensurate with the requirement to field an IFV. Thus, the optimal placement for the capability is in the high- and medium-intensity conflict categories with the primary effect related to decisive actions in a land campaign. This section will offer a place for armored infantry within the conduct of a joint land campaign for the combat brigade. Minor examples drawn from the Israeli experience in the opening decade of the twenty-first century are used to illustrate the utility of armor in hybrid conflict. For the IDF, hybrid threats including combinations of regular, irregular, and criminal elements combined to employ antitank missiles and unmanned systems to target armored capabilities.[61] The 2006 and 2008 experiences of the IDF (Israeli Army) in Lebanon and Gaza offer a narrative on the increasing utility of combined tank and IFV forces in hybrid warfare.

Commencing with an institutional lack of experience in combined arms due to prolonged employment in low intensity conflict, the IDF erroneously believed that heavier forces were increasingly irrelevant. After the 2006 Second Lebanon War, the IDF concluded that a mix of tanks and IFVs would be critical in any hybrid conflict.[62] By December 2008, for Operation Cast Lead (Gaza War), the IDF deployed two of the four ground maneuver brigades to Gaza based on groupings with IFVs.[63] The brigades provided the IDF with the ability to conduct protected maneuver and direct fire support of infantry in an area riddled with mines, snipers, and rocket propelled grenades. The final conclusion from the Israeli experience was that IFV-equipped infantry reduce operational risks and minimize friendly casualties.[64] The notion of risk reduction and IFVs as a force multiplier in hybrid warfare offers armored infantry as a logical choice. Consider the relative changes in grouping specialized armored infantry in support of tanks versus the tank and generalist APC approach. The specific change relates to increased operational risk

[60] Michael Evans, *The Continental School of Strategy: The Past, Present, and Future of Land Power*, Study Paper 305 (Canberra, AU: Australian Army Land Warfare Studies Centre, 2004), 50.

[61] Avi Kober, "The Israeli Defence Force in the Second Lebanon War: Why the Poor Performance?," *Journal of Strategic Studies* 31, no. 1 (February 2008): 12.

[62] Johnson and Gordon, *Observations on Recent Trends in Armored Forces*, 5. The Israeli example of a hybrid conflict can be extrapolated to any terrain or environment where a mix of combatants is designed to reduce conventional technological overmatch.

[63] Johnson and Gordon, *Observations on Recent Trends in Armored Forces*, 6.

[64] Johnson and Gordon, *Observations on Recent Trends in Armored Forces*.

relative to close combat and the need for firepower. Further, the autonomy of armored infantry and interoperability with tank forces is increased through the addition of an ATGM.

The paucity of tanks in the combat brigade necessitates a way to enhance close combat, increase the relative effect of the tank, and conduct distributed maneuver as part of FLOC.[65] Simpkin also suggests a place for armored infantry in the land campaign as: the tactical or operational offensive is the type of combat in which tanks most need infantry support and need it on the largest scale and to restore or maintain the momentum of the advance.[66] In essence, infantry can increase the relative effect of the tank by augmenting what Simpkin describes and is articulated in figure 4. German doctrine at the battalion level, *Das Panzergrenadierbataillon*, also states: "The fighting of the battalion is characterized by the combination of fire and movement, attacking in conjunction with main battle tanks, swift changes between mounted and dismounted combat, close cooperation between mounted and dismounted forces, and particularly mobile combat."[67] An Australian capability can be illustrated effectively by combining Simpkin's notion of facilitating tank maneuver with that of the German approach to rapid transition with close cooperation between mounted and dismounted forces. Armored infantry can therefore be considered in the context of generating small maneuver elements with a technological edge providing an enhanced effect for the heavy armor within a combat brigade and then transitioning to limited dismounted combat as part of distributed maneuver and decisive action.[68] This suggests an interpretation of combat power applied to different operational environments for the optimal employment of a brigade combat team (BCT) equipped with armored infantry.

The utility of armored infantry across a range of environs relative to the effectiveness of the type of combat power employed is clear. The employment window is the best use of a particular force as described by U.S. doctrine relating to the employment of the BCT.[69] This force is of relative size to that which Australia may field as part of a coalition formation with a unit structure offered in appendix A. The overall lack of heavy units in the Australian Army requires another aspect of the combined arms team to increase the relative effect of the tank. This would place armored infantry in the top one-third of the employment window with significant utility across the majority of terrain types. Armored infantry fills the gap where tank forces are too encumbered, but light forces do not have the requisite combat power or mobility. It is not as useful below this threshold due to structural differences in lighter forces, that is, the greater quantity of infantry and other factors, such as air-portability of different vehicles, density of terrain, or force projection through Australia's relatively small amount of strategic mobility.

The U.S. Army employs the combined arms battalion (CAB) based on balanced tank and IFV groupings that may also offer utility for reexamining the Australian operational approach. In this sense, armored capabilities are combined to form a core fighting structure within the U.S. armored BCT.[70] If an Australian armored infantry battalion had four rifle companies to combine with up to two tank squadrons of the present armored cavalry regiment, two CABs could be formed within the combat brigade at any one time to generate an additional fighting echelon

[65] *Adaptive Campaigning* (FLOC), 45.
[66] Simpkin, *Mechanized Infantry*, 48.
[67] *Das Panzergrenadierbataillon*, HDv 231/100 (London: Amber Books, 2007), 1,003, translated from original German source.
[68] *Adaptive Campaigning* (FLOC), 33.
[69] *Tactics and Techniques for Combined Arms Heavy Forces: Armored Brigade, Battalion/Task Force, and Company/Team*, FM 71-123 (Washington, DC: Department of the Army, 1992).
[70] *Combined Arms Battalion*.

or another heavy force grouping for scheduled deployment.[71] As the following operational case studies will show, a high IFV-to-tank ratio equates to generating greater relative effect of the tanks. This provides the combat brigade with a better armored option than the singular mechanized infantry battlegroup supported by a small number of tanks. With a definition and characteristics of the capability established, and a broad position in the land campaign identified, recent operational case studies will illustrate the effect that infantry equipped with an organic IFV can achieve in both medium and high intensity conflict.

OPERATIONAL CASE STUDIES

> The danger of air attack, the aim of mystification, and the need of drawing full value from mechanized mobility, suggest that advancing forces should not only be distributed as widely as is compatible with combined action, but be dispersed as much as is compatible with cohesion.[72]

The fielding of the IFV in the 1980s engendered a fundamental shift in the way infantry could conduct close combat while increasing the ability to engage other fighting vehicles and even tanks. Additionally, for the first time, infantry forces had mobility that was truly commensurate with the MBT they were tasked to accompany and protect. The IFV allowed for operational reach and combined action with a requisite level of cohesion greater than that envisaged by Captain B. H. Liddell Hart during the interwar period, and likely even more than Guderian experienced in the *Wehrmacht* Panzer formations entering the Soviet Union in 1942.[73] For the United States, infantry underwent a quantum leap in technology available for the conduct of combined arms commencing with the introduction of the Bradley fighting vehicle in 1982. The following short studies are included to demonstrate the utility of infantry with organic IFV capabilities in both high- and medium-intensity conflict. The U.S. Army history is particularly useful because it shows the arrival and subsequent evolution of employment from testing, to operations involving large-scale maneuver, and through to the complexity of the urban environment during stability operations.

The United States Army in Iraq

> With the arrival of the Bradley fighting vehicle . . . we have a new situation. . . . The Bradley infantry is designed to support the M1 tank, and Bradley infantry *is* significantly different from M113 infantry.[74]

For the U.S. Army, the recognition of the requirement for a different type of infantry was an important one both in the context of the acquisition of an IFV and the operational requirement to enable tank formations. This would become apparent in the first conflict the United States would employ the new capability, validating the often-argued requirement for more than one type of infantry.

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[71] The expectation is that there would be a 2:1 infantry-to-armor ratio inside a triangular battlegroup. A discussion on the utility of a four-company battalion will seek to reduce support company elements in favor of maneuver elements that would generate integration across a brigade as opposed to within a battalion to meet requirements of the FLOC.
[72] B. H. Liddell Hart, *Strategy*, 2d rev. ed. (New York: Meridian, 1991), 332.
[73] James S. Corum, *The Roots of Blitzkrieg: Hans von Seeckt and German Military Reform* (Lawrence: University Press of Kansas, 1992).
[74] de Czege, "More on Infantry," 13. Emphasis original.

Operation Desert Storm, 1991

> D Company, TF 4-7th Infantry, had moved out that morning. . . . The company reached Medina Ridge after only a 5-kilometer march, and Staff Sergeant Charles Peters, the company master gunner, spotted several BMPs and T-72s [Soviet main battle tanks] dug in on the slope below his Bradley. . . . Peters destroyed one BMP with only three quick rounds of 25mm armor-piercing ammunition, then adroitly switched his ammunition selector to high explosive to engage the Iraqis as they ran from the vehicle toward some nearby trenches. He just as rapidly switched back to armor-piercing again to kill a second BMP and engaged a third. . . . This particular Iraqi vehicle strangely did not explode like the others . . . it was a T-72. . . . Peters quickly raised the TOW [tube-launched optically tracked wire-guided] "two-pack" launcher and switched sighting systems a third time. . . . Peters held his cross hairs steady on the tank a few seconds longer until missile impact and destruction. He finished this remarkable one-man gunnery demonstration by switching back to the 25mm a fourth time to kill a third BMP as Captain Christopher Shalosky, his amazed company commander, watched.[75]

This description of an infantry company's experience as part of the U.S. Army's 1st Armored Division during Operation Desert Storm relates an infantry unit historically trained to do something extremely different to what would transpire on the third day of the campaign. The notion of fighting mounted would appear counterintuitive to what the infantryman is fundamentally trained to do.[76] This new approach was so successful during Desert Storm, though that it is worthy of replication as an approach to combined arms. Ultimately, infantry increased their tactical and operational effectiveness through the addition of an IFV and a significant change in training. A similar story played out for the 24th Mechanized Infantry Division Combat Team (24th DCT) in its attack to free Kuwait in March 1991. The 24th DCT comprised 249 M1 tanks and 218 M2 Bradleys.[77] This was almost a 1:1 ratio of tank to IFV for employment against an enemy comprising approximately seven Iraqi divisions. The ability to augment tanks and support the destruction of tanks in this fashion established a role for IFV-equipped infantry in high-intensity conflict.

In an example of operational reach characterizing the success of infantry in increasing the relative effect of tank forces, 24th DCT advanced 370 kilometers as part of the attack. The operational effects were to sever Iraqi lines of communication through the Euphrates River Valley and destroy up to four Iraqi Republican Guard divisions, equating to approximately 363 tanks and other armored vehicles.[78] Tank forces assigned achieved a high destruction ratio for enemy tanks due in part to the balanced nature of combined arms undertaken by 24th DCT, the IFV equipped with an ATGM and the balanced ratio with tanks. In advancing 370 kilometers in 100 hours of combat, 24th DCT moved farther and faster than any mechanized force in history.[79] Key tasks allocated to the infantry as part of 24th DCT were not far beyond that of traditional infantry requirements, though temporally compressed. The important difference related to the

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[75] Robert H. Scales Jr., as quoted in Haworth, *The Bradley and How It Got that Way*, 2.

[76] Haworth, *The Bradley and How It Got that Way*.

[77] Maj Jason K. Kamiya, *A History of the 24th Mechanized Infantry Division Combat Team during Operation Desert Storm: "The Attack to Free Kuwait" (January through March 1991)* (Fort Stewart, GA: Headquarters 24th Mechanized Infantry Division, 1991), 7.

[78] Kamiya, *A History of the 24th Mechanized Infantry Division Combat Team during Operation Desert Storm*, 40.

[79] Kamiya, *A History of the 24th Mechanized Infantry Division Combat Team during Operation Desert Storm*.

tempo and speed by which these tasks would occur and then abruptly change. From the 24th DCT record of Desert Storm, describing the attacks on ar-Rumaylah, into the Euphrates, toward al-Basrah, and the counterattack to Tallil Air Base, there were consistent tasks that came to characterize the employment of IFV-equipped infantry at company and above grouped with and without tanks:

1. Seize identified battle positions.
2. Establish blocking positions.
3. Attack with tanks to clear enemy strong points.
4. Support tank forces in conducting penetration or bypass.
5. Defend in zone as part of mobile defensive activities.[80]

The relative parity in numbers between tanks and IFV-equipped infantry demonstrated the need for balanced forces, or as a minimum, tanks enabled by appropriately equipped infantry that could keep pace and deal with commensurate threats. The level of operational reach and the 1:1 tank-to-IFV ratio resident in the formations are two key aspects of this operation worth exploring further when considering the development of an Australian armored infantry battalion task organized with tanks.

Operation Iraqi Freedom, 2003

> A mech[anized] infantry company is only half-complete with just the dismounts. We fight as an integrated team with our tracks. We complement each other. They are our heavy support. We are their eyes and ears. It is a perfect balance, and to be most effective, we have to work together.[81]

In stark contrast to 1991, the requirements for IFV-equipped infantry expanded with the 2003 conflict in Iraq; a high IFV-to-tank ratio was replaced by a focus on employment of the IFV alongside dismounted infantry in urban terrain. In addition to a stunning armored advance to achieve the strategic defeat of Saddam Hussein, the challenges of combined arms in the urban environment were reinforced. Iraq in 2003 involved urban areas at the margin of highways and stretches of wide-open cross-country highway.[82] For a mechanized infantry force equipped with IFVs, the U.S. Army had to contend with close combat in urban terrain and the complexities of stability operations within the lethality of high-intensity conflict. On 6 April 2003, an armored BCT deployed, comprising 30 M1 tanks and 13 M2 Bradleys, to seize the city of Baghdad with roughly 5 million inhabitants; by 7 April, the 3d Infantry Division had seized Hussein's presidential palace and achieved the initial strategic aims of the war.[83] This is but one example of significant operational reach. The following campaign included the significantly populated and religious areas of Fallujah and Sadr City.

Echoing Bellavia's tactical summation for the Bradley during urban fighting, Michael Green and James D. Brown observed the standard engagement by U.S. mechanized infantry in Thawra was less than 200 meters.[84] The short engagement distance reinforced the need for an IFV to support the infantry it carried as well as aid them in the protection of the attached tanks. In

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[80] Kamiya, *A History of the 24th Mechanized Infantry Division Combat Team during Operation Desert Storm*, 42–56.
[81] SSgt David Bellavia with John R. Bruning, *House to House: An Epic Memoir of War* (New York: Free Press, 2007), 117.
[82] David Zucchino, *Thunder Run: The Armored Strike to Capture Baghdad* (New York: Grove Press, 2004), 15.
[83] Thomas Donnelly and Frederick W. Kagan, *Ground Truth: The Future of U.S. Land Power* (Washington, DC: AEI Press, 2008). 52.
[84] Michael Green and James D. Brown, *M2/M3 Bradley at War* (Saint Paul, MN: Zenith Press, 2007), 51.

many ways, the IFV resembles the infantry section's automatic weapon, more so when describing the close combat mechanism of suppression. Bellavia relates his personal experience: "Bradley gunners rake the buildings around us, prepping the area with high-explosive rounds fired into windows and doors."[85] In this sense, intimate support to infantry is beyond the capability of a tank in terms of casualty evacuation and discerning targets for infantry. In describing the utility of the IFV in Fallujah in 2004, Kendall D. Gott emphasized the protected mobility and subsequent use of supporting and covering fires for infantry from the on-board weapons.[86] Conflict in Iraq from 2003 to 2005 offers the following insights on the employment of IFV-equipped infantry in an urban environment:

1. Cooperation between the infantry section and on-board infantry crews for attacking enemy positions detailed by those dismounted (fix and suppress)
2. An understanding of weapon effects from vehicle-mounted systems at distances of less than 300 meters.
3. Close combat operation between tanks and IFVs in a 2:1 tank to IFV ratio

The close nature of cooperation and the intimate support requirements between the infantry and the dismounted section demonstrated the utility of an organic capability that could only be refined through habitual proximity between infantry and the associated fighting vehicle. The IFV was considered an integral part of the infantry organization and was employed both operationally and tactically in tandem with tanks. In the Australian context, development of urban terrain procedures for IFVs with tanks will be different for that employed by the present mechanized battalion. Reduced engagement distances and the increase of the IFV-to-tank ratio in urban terrain are useful start point illustrated by the U.S. experience in this case study.

The German Bundeswehr *in Afghanistan, 2009–15*

> The Marder Armored Infantry Combat Vehicles (IFV) saw their first frontline use in July 2009 when extricating Belgian and Afghan security forces from an ambush. This first combat experience alone demonstrated the enormous effect the AICVs had on enemy forces.[87]

The *Bundeswehr* sent German *Panzergrenadiers* to Afghanistan with the Marder amphibious infantry combat vehicle (AICV) in early 2009 as a response to a deteriorating security situation. As previously described, German IFV-equipped infantry is of a slightly different capability to that of the U.S. variety. This is an important distinction because this particular case portrays the utility of a specialized armored infantry conducting stability operations in medium-intensity conflict. The German approach was established amid concerns about the size of the German military commitment, a perception as to escalation with the arrival of the IFV, and concerns about the condition of roads and bridge capacity.[88] The resultant deployment of company-size elements was Germany's solution to both the fragile security situation and the perception of the role of its forces. The deployment was most timely and overshadowed all concerns when, in 2010, German *Panzergrenadiers* were involved in the heaviest fighting since the establishment of the *Bundeswehr*.[89] The following company-level case offers important lessons on armored infantry

[85] Bellavia and Bruning, *House to House*, 166.
[86] Kendall D. Gott, *Breaking the Mold: Tanks in the Cities* (Fort Leavenworth, KS: Combat Studies Institute, 2006), 97.
[87] Marcel Bohnert and Andy Neumann, *German Mechanized Infantry on Combat Operations in Afghanistan* (Berlin: Miles-Verlag, 2017), 22.
[88] Bohnert and Neumann, *German Mechanized Infantry on Combat Operations in Afghanistan*, 20.
[89] Bohnert and Neumann, *German Mechanized Infantry on Combat Operations in Afghanistan*, 27.

in stability operations. This conveys utility to the Australian approach to contemporary stability operations and to give a broader view of IFV-equipped infantry beyond high-intensity conflict.

The *Panzergrenadier* capability was primarily employed as a quick reaction force (QRF) as part of a larger security force training mission in Regional Command–North (RC-N). Specifically, members of a paratroop (light) force conducting the training were reinforced by the AICV-equipped infantry. Note that this particular task force was built around the 92d Mechanized Battalion in the first instance. Task Force Kunduz III was intended to stabilize the southern part of the district of Chahar Darreh in Kunduz Province while overseeing the expansion of the security bubble farther north. In real terms, this organization was 250-strong and equipped with 25 Marder IFVs.[90] The success of the mission appears to surround the use of the IFV as a deterrent, in the first instance "through its weaponry and martial appearance," and then the ability to rapidly escalate as the security situation dictated. For example, the QRF was involved in more than 50 engagements in 2010.[91] One distinct advantage observed by the author of this study was the ability of the *Panzergrenadiers* to transition between mounted and dismounted skills. The key lessons drawn for the employment of German armored infantry in stability operations were as follows:

1. Coordination between mounted and dismounted capability
2. The enduring nature of tracked vehicles in all terrain
3. The utility of the IFV as a deterrent through its "martial appearance"[92]
4. The ability to employ the IFV as a mobile fortress due to weapon and sensor capabilities, but still remain below the threshold of tank forces

The *Bundeswehr* in Afghanistan offers an example of a relatively small amount of armored infantry paired with an advisor organization to support indigenous capacity-building that resolves questions of both force protection and operational risk reduction. Essentially, the Germans had an IFV to support normal advisor operations as well as provide a deterrent and a primarily offensive capability to use against local insurgents. The force ratio of one armored infantry company amid a lighter battalion organization of three other subunits is noteworthy. With an understanding as to the employment of IFV-equipped infantry in both high- and medium-intensity conflict, an approach to training and transitioning a hybrid infantry-armor organization can be explored.

TRANSITION AND TRAINING

> For a Bradley infantry battalion to have the same gunnery requirement as a tank battalion is, bluntly, expecting the infantry to do more than its fair share in the combined arms fight.[93]

The conceptual approach to fighting with an IFV should lead the implementation of the technology. From an infantry perspective, IFVs are designed around infantry use for close combat, and the context of this research is to support developing infantry units that possess organic vehicles with infantry crews. In grappling with the requirement to train infantry on a more technologically sophisticated platform while retaining the generalist infantry approach, a common

[90] Bohnert and Neumann, *German Mechanized Infantry on Combat Operations in Afghanistan*, 32.
[91] Bohnert and Neumann, *German Mechanized Infantry on Combat Operations in Afghanistan*, 22.
[92] John D. Salt offers an interpretation of the IFV that resembles this notion. He describes it as the "battlefield bully" in that it can fill a gap where a tank would be considered overkill. Salt correspondence with author, 26 February 2018.
[93] Edward Gibbons, "Why Johnny Can't Dismount: The Decline of America's Mechanized Infantry Force" (master's thesis, School of Advanced Military Studies, U.S. Army Command and General Staff College, 1995), 44.

journey is observed in the U.S. Army in transitioning infantry from M113 APC to Bradley IFV in the early 1980s. There remains an important narrative surrounding the dismounted component of an armored infantry capability and a universal sense of frustration at its general decay when competing for time and resources in IFV units. Writing in the late 1980s and early 1990s, U.S. Army officers provide primary source examples on these principal training challenges in Bradley-based units from the section to battalion level. Haworth cites the same challenges in his study that reflect the tension between being proficient at both mounted and dismounted combat without reducing either requirement.[94] The Bradley IFV offers a unique perspective with an associated technological training component when the infantry training burden appears to be unnecessarily separate to the infantry-armor system itself. The ROK Army appeared to undertake the 2009 transition from APC to IFV based almost directly on the U.S. model, hence its inclusion in this research. These perspectives have been included so that the Australian Army may capture the lessons and avoid the same mistakes during a similar transition.

The Bradley Fighting Vehicle Transition

> The Army proposed to change the role of the infantry armored vehicle from transport to combat while expanding the role of the troops they carried; at the same time, it proposed to do so by evolving the new [vehicle] from the old, although the characteristics of the two diverged sharply.[95]

When striving to find a path forward for transitioning and training the Australian Army for the IFV, it is important to revisit the same struggles the U.S. Army had with the Bradley. The challenges surrounding the U.S. Army's transition from M113-based infantry to IFV-based infantry in 1982 are relevant to the transition that the Australian Army will undertake upon acquisition of the IFV. Fielding the Bradley caused the U.S. Army to think and rethink mechanized infantry doctrine. Ultimately, the United States could never accept a specialized mode of employment. This had implications for the infantry section and sought to break up the individuals across the vehicles in the platoon to maintain a generalist capability. The decision to focus on the vehicular capabilities in mounted operations necessarily reduced the role and function of the infantry section in the conduct of dismounted operations.[96] This was never adopted by the infantry branch. The risk in forcing the platoon to regroup upon dismounting to maintain a more generalist mode of employment was deemed acceptable by the institution despite influential theorists such as de Czege identifying otherwise. Haworth describes the doctrinal tension between intended roles, equipment capability, and required training relative to mode of employment in the context of the air-land battle period. His study, completed in 1999, offers useful insight into the requirement to generate a specialized structure and well-defined mode of employment ahead of the acquisition of the IFV. Ultimately, Haworth observes that the U.S. Army had difficulty acquiring and accommodating an infantry fighting vehicle because it insisted on effecting a radical doctrinal change by incremental means.[97] It should be noted that the infantry as a whole welcomed the overall capability, but struggled to reconcile the difficulties in placing the IFV-equipped infantry into a traditional infantry mission.

The 1988 reorganization of the Bradley platoon sought to remedy the problems associat-

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[94] Haworth cites both Theodore R. Severn and Edward Gibbons as critics of the U.S. Army's inability to conduct tactical training amid the institutional problem of fielding a new vehicle with significant increases in technological sophistication.

[95] Haworth, *The Bradley and How It Got that Way*, 151.

[96] Gibbons, "Why Johnny Can't Dismount," 24.

[97] Haworth, *The Bradley and How It Got that Way*, 3.

ed with having a reduced section size in each Bradley against the requirement to generate a nine-man section.[98] This led to forming two nine-man sections or one large section per Bradley pairing. The restoration of the large section came at the expense of the platoon because the mounted and dismounted elements were considered separable when required. A further 1998 reorganization gain led to changes in the quantity of sections relative to the infantry platoon. The platoon structure demonstrates both a dismounted capability and a separate IFV capability by splitting dismounted sections between the vehicles. Overall, the platoon has three sections of nine and a vehicle element of four that can be split into pairs. When the vehicular element splits, however, the dismounted element is unnecessarily split also. This structure reflects the ability of the Bradley platoon to operate toward the independent sector of Simpkin's triangle due to a large dismounted element beyond that carried in a single vehicle.

There are a number of tactical problems observed with the U.S. structure that are worth exploring to avoid similar problems with an Australian model, whereby the IFV may not have the requisite seating to house the current model of an M113-based mechanized section. The first issue relates to the fact that one vehicle is unable to deliver a single section to an objective. This would lead to friction at the lowest level at what would be the most crucial point in close combat. For the section commander, face-to-face communication would not be possible until the fireteams have assembled after leaving the different vehicles.[99] To remedy the requirement to be in close proximity for the purpose of regrouping to conduct dismounted combat, either of two things must occur. First, the IFV must maneuver to close proximity with the other to affect link-up, thereby exposing itself to greater risk of destruction. Second, the soldiers from another IFV must move away from it to regroup with their parent section, likely under fire or in close contact with an enemy. This suggests that the ability to conduct close combat immediately on dismount is likely to be more difficult simply because sections need to reconsolidate from different vehicles on different parts of an objective.[100]That these two aspects would be built into the platoon on the basis of maintaining a generalist capability seems to be an unacceptable risk when considering the implications of confusion during maneuver under fire on an objective.

The U.S. evolution of section sizes and platoon structures from the inception of the IFV in 1982 reflects a struggle to align doctrine with technology and maintain the M113-style of generalist infantry. In this case, technology was implemented before there was a conceptual understanding behind a reduced section or platoon size. The acquisition of an IFV in the Australian context necessitates that the Army addresses the requirements for a reduced section before the arrival of the new technology. If the IFV dictates a reduction in section size, a case can be made for a reduction in the scope of tasks for the dismounted element. The reduction in scope could amount to a specialization for the purpose of increasing the relative effect of the tank and maneuvering as first echelon forces as part of armored close combat.

Another issue in transition was coordinating the two different training models for the new IFV and the full suite of dismounted infantry tasks. U.S. doctrine at the time demanded that the Bradley-equipped section be treated as a complete entity, yet the time demands on training the entire capability exerted pressure to split training into infantry, gunnery, and tracks.[101] Haworth describes how the challenge could be overcome through an examination of doctrine and specialization that would inform training: "On the doctrinal front, some of the conflicts inherent in

[98] Haworth describes a period in the early 1980s whereby Bradley dismounts were reduced to five due to a requirement to maintain a loader for the TOW and the problem of low recruiting in mechanized infantry units.
[99] Held et al., *Understanding Why a Ground Combat Vehicle that Carries Nine Dismounts Is Important to the Army*, 29. This would be the least ideal model for a section commander to deal with.
[100] Held et al., *Understanding Why a Ground Combat Vehicle that Carries Nine Dismounts Is Important to the Army*.
[101] Haworth, *The Bradley and How It Got that Way*, 102.

organizations trying to operate armored vehicles within the framework of the infantry ethos and mission might have been avoided by seeing the dismounted element as a specialist subset of an armored force rather than seeing armored fighting vehicles as an element of equipment within a general-purpose infantry force element."[102] This conflict appears to be outwardly resolved by the German model of *Panzergrenadier*, specifically, that a specialized structure and role was adopted with the introduction of an IFV and the reduced section size was treated according to a narrower mode of employment. A number of useful observations are found in the U.S. transition from M113 to IFV:

1. Develop new doctrine to support the employment of the IFV prior to fielding the capability including tactical structure from section level up.
2. Implement new doctrine as quickly as possible to enable training.
3. Institute a specialized section structure to suit employment of the vehicle and avoid keeping large sections distributed between vehicles (i.e., avoid a regroup on dismount).
4. Develop a stream of senior noncommissioned officers (SNCO) to ensure technical aspects of the vehicle, such as gunnery, can be trained to the required level within the unit.
5. Reduce training requirements for the dismounted infantry relative to the scope of employment to fit within a defined mode of infantry.
6. Failure when training an IFV crew like a tank crew (e.g., gunnery).

Haworth's final observation regarding the fielding of the Bradley relates to advocacy and questions of ownership in training, management, and culture in hybrid organizations.[103] Whenever the path of least resistance was taken institutionally, the Army ended up taking the path of greatest resistance doctrinally. The divided opinions between the armor and infantry branches over the infantry fighting vehicle was one of the most difficult aspects of fielding the capability.

The South Korean Transition

The K21 IFV was fielded as a successor to the K200 APC in 2009 after a 10-year development period. This was a deliberate intention to increase the lethality of the armored vehicles available to the infantry who were previously equipped with a domestically produced M113-equivalent—the K200.[104] The Republic of Korea Army (ROKA) fielded the relatively new capability in the context of fighting against the BMP and BTR-equipped units of North Korea on the demilitarized zone. This section will detail the training challenges and recommendations based on the transition from the K200 to K21.

The premise for the development of the K21 was to combine the best of the available IFV technology with an amphibious battlefield taxi akin to an M113 with the result manifesting as the structure. The challenge for the employment of the K21 was then to identify the optimum employment for the hybrid vehicle. The K21 adopted the German concepts of chain gun and antitank missiles, while maintaining the ability to transport the large infantry section around

[102] Haworth, *The Bradley and How It Got that* Way, 153.
[103] Haworth, *The Bradley and How It Got that Way*, 157.
[104] Ed Kim, "South Korea's Deadly Infantry Fighting Vehicle Is a Terror on the Battlefield," *The Buzz* (blog), National Interest, 11 April 2016.

the battlefield.[105] This allowed the IFV to have multiple roles: transporting personnel, supporting infantry, supporting tanks, and killing enemy tanks. It is for these reasons that the ROKA struggled to define its main role on the battlefield. Due to the radically upgraded capability of the K21, the value of the mounted element came to compete with that of the dismounted element, and it remained unclear which was more valuable.[106] A clear solution in this case was to produce new doctrine to consider the intended roles and the relative importance between the dismounted riflemen and the IFV. In developing doctrine, the ROKA identified subchallenges, including the IFV's role, procedures for the crew, tactical employment, and optimum organization for the section and platoon. The last aspect was given relatively little weight in comparison to the first three as the structure had not changed.

Despite retaining the same size section as used in the previous K200 battalion, the ROKA identified different concepts for employment, and therefore, different requirements to train IFV units. The first of which was mounted gunnery training. ROKA identified that gunnery training should be integrated with tactical training to prevent isolation from tactical training and the technicalities of gunnery becoming an end in itself.[107] The perceived technical burden of an advanced vehicle with the associated turret was related to the second problem of fielding an IFV unit—dismounted infantry training. This problematic aspect was mirrored in the U.S. transition and identified in 1995 though seemingly not addressed in the ROKA example.[108] Structurally, it could be a result of the generalist and specialist argument related to the mode of employment for infantry. If the IFV has an increased technical burden with the resultant requirement for more hours of training by the same people, what is the expected compromise?

The answer offered here is to reduce the scope of dismounted tasks to create a specialized mode of employment for infantry with IFVs. The ROKA approach was to refine infantry tasks to working more with tanks such as breaching obstacles, securing objectives, and employing antitank missile systems.[109] Like the United States of the 1980s and 1990s, the ROKA also struggled to reconcile the requirement to train one aspect of the capability at the expense of the other. The ROKA identified the requirement to revise dismounted tactics due to the change from APC to IFV. The key tension was "the competing need between dismounting infantrymen to close with an objective and maintaining sufficient stand-off range for employing chain gun and anti-tank missiles."[110] The solution was to train leaders in defined conditions requiring the infantry to dismount. Though seemingly a tactical issue, the unnecessary slowing of the formation could have operational issues for momentum and tempo when it came to enabling tanks. The ROKA example identified the problems of training a hybrid organization when the level of technical expertise was increased without relative changes to any other requirements. The recommendations from the ROKA experience are offered for Australia's transition from APC to IFV:[111]

1. A clear statement that the IFV is a new tool to support armor in the offense and to take and hold ground.
2. The Infantry School should play a central role in providing the integration of doctrine for IFV training and employment.

[105] Maj Changho Lee, ROKA, "The Challenges in Training of the Mechanized Infantry Units of the Republic of Korea Army in Transitioning from the Armored Personnel Carrier (K200) to Infantry Fighting Vehicle (K21)" (master's thesis, U.S. Army Command and General Staff College, 2012), 55, hereafter "Challenges in Training of the Mechanized Infantry Units."
[106] Lee, "Challenges in Training of the Mechanized Infantry Units," 56.
[107] Lee, "Challenges in Training of the Mechanized Infantry Units," 59.
[108] Gibbons, "Why Johnny Can't Dismount," 34.
[109] Lee, "Challenges in Training the Mechanized Units," 75.
[110] Lee, "Challenges in Training the Mechanized Units," 68.
[111] Lee, "Challenges in Training the Mechanized Units," 78.

3. The mounted and dismounted elements are almost equally supported and supporting.[112]
4. Articulate the conditions that require infantry to dismount and refine the responsibility of the dismounted leader.
5. Refine the essential training tasks for dismounted infantry in IFV units.
6. Develop institutional training programs for IFV infantry leaders.
7. Exclude the section leader from the vehicular leadership position to prevent overtasking.
8. Generate a cadre of NCO gunnery instructors to ensure efficiency in turret training.
9. Adopt a second SNCO to support the dismounted element in addition to that required for the IFV grouping, or a dual SNCO system at platoon and company level.[113]

Dealing with the Dismounts

The United States experienced significant doctrinal tension associated with generating and maintaining the dismounted aspect of the capability, acknowledging from the outset that it was comprised of competing training objectives within the finite bounds of time and resources. The impact of a more technologically capable vehicle compounded the requirement to continue to train to the full scope of dismounted infantry tasks. One way to mitigate against this systemic competition is to reduce the scope of tasks required by the infantry. This can be done by creating a specialized structure complete with defined tasks and establishing a system where the mounted and dismounted aspects of the unit can be trained by two sets of instructors to best generate concurrency in training.

Writing in 1988, Theodore R. Severn observed the U.S. Army attempting to integrate the IFV into normal tactical training and live-fire scenarios in Europe. He identified the need to train the mounted and dismounted elements as opposed to single sections and platoons to prevent the additional requirements for gunnery taking primacy at section and platoon level.[114] He posited that "training as separate elements offers a practical solution to the existing dichotomy and builds trust, confidence and teamwork."[115] Collective tactical training needed to be focused on reaching element proficiency before conducting culminating training as a complete IFV platoon, essentially training dismounted teams and vehicle crews separately at the platoon level. Severn notes that NCOs in each element can more easily achieve proficiency since the number of tasks required by each of them is reduced significantly.[116] This aspect of the U.S. transition from APC to IFV, combined with the similar approach by the ROKA, may offer a conceptual way to design combined in-unit training for the Australian Army commencing at platoon and above. Additionally, a defined collection of armored infantry tasks at the section level may support the ability to meet the baseline of training relative to the technical complexity of the IFV.

Earlier in the chapter, a definition for Australian armored infantry was offered as one that is primarily responsible for armored close combat with integral support from an IFV. The place-

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[112] There would appear to be a similarity between ROKA and *Panzergrenadier* modes of employment despite differing section sizes and IFV numbers per platoon. The basis for this has been hard to discern due to English translation limitations.

[113] This would not be unlike the present mechanized sergeant resident in the Australian approach.

[114] LtCol Theodore R. Severn, *Air-Land Battle Preparation: Have We Forgotten to Train the Mechanized Infantrymen?* (Carlisle Barracks, PA: U.S. Army War College, 1988), 29.

[115] Severn, *Air-Land Battle Preparation*, 30.

[116] Severn, *Air-Land Battle Preparation*, 31.

ment of the Australian capability on Simpkin's triangle wholly in the support realm is the preferred mode of employment. When considering the operational-level tasks to support tanks and undertake combat actions in the medium- and high-intensity levels of conflict, the exact scope of for the accompanying infantry can be narrowed to best effect. They could take their origins from both *Panzergrenadiers* and previous manifestations of armored infantry.[117] The basic tasks for dismounted infantry are likened to:

1. Breaching or removing hasty obstacles in attack and advance
2. Neutralising or destroying antitank weapons
3. Designating targets for tanks
4. Protecting tanks against individual antitank measures (identifying/marking lanes)
5. Leading the attack when necessary (through complex terrain)
6. Providing security for tanks (at the halt, harbor, or in battle positions)
7. Breaking into a fortified objective through intimate support with armor
8. Mopping up and consolidating the objective by reducing strong points
9. Employing antitank weapons against enemy vehicles (in complex terrain)
10. Supporting the delay and defense by occupying prepared positions

This is by no means an exhaustive list but seeks to identify the basis by which individuals can be trained relative to the definition and conceptual mode of employment for armored infantry offered in this chapter. The unit structure and recommendations to refine and implement the conceptual ideas behind armored infantry are included as appendices A and B.

CONCLUSION

Australia's 53-year history with the M113 has embedded an approach to infantry equipped with APC's that requires a rethink in the lead up to the acquisition of the IFV. There is no question that the armored infantry soldier requires a different mindset to understand the scope of tasks and the significant increase in technology resident within the IFV capability. To see infantry navigating at high speed, fighting a stabilized system with antitank missiles, executing tank-killing missions, conducting hasty clearances, breaching obstacles, and engaging in stability operations before transitioning to attack a fortified urban objective all demonstrate a capability beyond that of the present mechanized battalion. Such a vision really encapsulates an infantry specialist whose bias is toward armored close combat and combined arms in the truest sense. It is also offered as one example of the partnership between human endeavor and technology envisaged by Lieutenant General Campbell in 2016. When planning the future of infantry and the transition away from M113, it is worth considering the examples of the 1991 and 2003 Gulf Wars, the 2006 and 2008 experiences of Israel in Lebanon and Gaza, and the German experience in Afghanistan up until 2015 as indicative examples of modern hybrid conflict. These are all instances where infantry equipped with an IFV, often closely aligned with tank forces, provide a significant capability in both medium- and high-intensity conflict that proved the defining difference in the campaign. The use of high IFV-to-tank ratios, development of close and far engagement techniques with all onboard weapons within close proximity to the dismounted infantry are all important aspects to consider.

To best meet FLOC's requirement for decisive action and distributed maneuver, the acquisition of the IFV under LAND-3 should drive thinking toward a specialized infantry, particularly if the IFV cannot accommodate the same size section of the present APC and the future operating environment requires more from its close combatants than that offered by the present mecha-

[117] Ney, *The Evolution of the Armored Infantry Rifle Squad*, 69.

nized battalion. Such thinking should emphasize the design-driven approach and articulation of the resultant issues in applying an inappropriate system of doctrine, people, and technology. This chapter sought to articulate the conceptual and structural change imperative based on the acquisition of the IFV and future transition from M113 that must ostensibly start with a useful definition leading to an effective mode of employment. The German model for the *Panzergrenadier* offers an extremely useful start point for a hybrid infantry-armor organization in determining that which Australia could adopt by 2025. In identifying these things first, the army should then look to the transition undertaken by the United States and ROK to best identify the pitfalls of increasing technology and training requirements, but not altering the mode of employment or modifying doctrine effectively beforehand. In the case of the United States alone, the resultant structural and doctrinal tension suggests it is still not optimal. Additionally, further review of U.S. and German doctrine detailing a place for the armored infantry battalion within the combat brigade will establish a start point for developing doctrine ahead of the transition. A clear approach to understanding the interaction between the IFV and tank forces, a clear definition of the intended capability, and a mode of employment supported by adequate doctrine will prove decisive in generating an effective combat system. When the advantages of technology in partnering human endeavor are considered, it ultimately suggests that the acquisition of an infantry fighting vehicle requires a systemic change to best enable infantry to conduct combined arms close combat beyond M113 and certainly well beyond 2025.

APPENDIX A
ARMORED INFANTRY UNIT STRUCTURE
Armored Infantry Battalion (ArInf)

Characteristics: the IFV is central to shoot, move, communicate, and task-organize effectively within the brigade. The structure is based on the definition offered for the Australian capability.

Divisible: the battalion is designed as a first echelon force built around four rifle companies. The battalion can detach two rifle companies to form a 2:1 battlegroup with the armored cavalry regiment (ACR) while retaining a similar weight of combat power in the remaining elements. Equally, the addition of tanks allows for a subunit to be replaced within the ACR. The structure is designed to be more adaptable to forming battlegroups within the combat brigade as a whole.

Integral firepower: removing the heavy weapons platoon acknowledges that the battalion is able to support maneuver primarily through the IFV and associated ATGM, including handheld section-level antitank weapons. The second assumption is that the habitually grouped tanks are also able to provide a better effect than manportable systems either as a reserve or main effort force. The question of a battlegroup reserve is answered through the addition of a fourth rifle company perceived to be of more utility than a single platoon.

Integral reconnaissance: the reconnaissance platoon provides the army's only integrated mounted and dismounted capability. A total of four patrols and a sniper section would be the baseline requirement.

APPENDIX B
RECOMMENDATIONS TO AID IMPLEMENTATION

Recommendation	Comments
Endorse problem statement for transition planning: "The transition of mechanized battalions away from M113AS4 and subsequent acquisition of an IFV risks disaggregation of the capability and limited adaptation if inappropriate concepts, structure, and culture are adopted."	This problem statement would be the start state for further investigation by FORCOMD planners when it came to understanding how to transition from APC to IFV. It is intended to generate thinking across the range of doctrine and training requirements to achieve integration. Transition will be likely as important as acquisition because the resultant issues may persist for years.
Adopt definition: "Australian armored infantry is the primary capability responsible for armored close combat. It generally operates with and in close support of tanks, able to rapidly transition between mounted and dismounted combat as a versatile combination of infantry and integral armored support."	Defining the capability has utility in the development of doctrine at both tactical and operational levels of war. From the definition, all other aspects of the conceptual thinking could be derived.
Adopt mode of employment characterized by: 1. Support to small numbers of tanks. 2. Intimate support to infantry. 3. Rapid transition between mounted and dismounted combat. 4. Employment of the IFV ATGM	These four key tasks would be behind the development of tactical doctrine and individual training at the schoolhouses.
Examine specialized scope of tasks for IFV dismounted infantry section of six. Review German doctrine in bibliography as a start point and an overview of Virgil Ney's work would also be useful.	The development of new tactics, techniques, and procedures behind smaller squad sizes reconciled with tasks to support armored close combat needs to be the focus. It may equate to doing one third less of regular infantry directed mission-essential task list but offer new tasks to breach or attack by fire with antitank systems.
Endorse armored infantry battalion structure: 1. Conduct simulation testing. 2. Provide alternative models to that proposed. 3. Establish best practice based on the above.	This structure really focuses on four rifle companies as a trade-off to making it more interoperable with the rest of the brigade.
Establish an approach for integrating the battalion structure into the combat brigade's maneuver. 1. Review U.S. doctrine: ATP 3-90.1, *Armor and Mechanized Infantry Company Team*, 2016. 2. Review U.S. doctrine: FM 3-90.5, *Combined Arms Battalion*, 2016. 3. Review German doctrine: *Das Panzergrenadierbatallion,* HDv 231/100, 2001. 4. Develop doctrine for grouping and employing the Armored infantry battalion, including ATGM employment.	An ideal scenario would see the CAB integrated as a *Panzergrenadier* battalion that supports armored offensive action at the operational level. This type of maneuver enables further operational reach with a bias for offensive action not previously available to infantry battalions in the Australian Army. It will remain a function of mindset enhanced by equipment and doctrine.

The High-Mobility Artillery Rocket System-Unmanned Ground Vehicle

Emerging Fires Technology in Support of Expeditionary Advanced Base Operations

by Captain M. P. Magyar, U.S. Marine Corps[1]

THE FRAMEWORK

The *Marine Corps Operating Concept* (MOC) provides the framework for how the Navy and Marine Corps team will organize, train, fight, and win in future conflicts. Nested within the MOC are subordinate operating concepts that represent critical areas that the MAGTF has been tasked to address and be prepared to answer. The focus of this chapter is the subordinate operating concept of expeditionary advanced base operations (EABO). For the joint force to be successful within this concept, it requires the MAGTF to provide innovative solutions to conduct surface-to-surface fires that enable power projection within the maritime domain. Moreover, this chapter recommends the emerging technology of the high-mobility artillery rocket system-unmanned ground vehicle (HIMARS-UGV) that will enable the MAGTF, as part of the naval force, to provide long-range precision fires that enable power projection in support of EABO.

CURRENT TECHNOLOGY

The HIMARS is a MEF-level asset designed to provide long-range, all-weather, precision rocket and missile fires. The *high mobility* aspect allows the six-wheeled, five-ton chassis to be air-inserted via Lockheed C-130 Hercules or Boeing C-17 Globemaster III to maximize fire support well forward of maneuver elements across the MAGTF's area of operations. HIMARS batteries deploy with a significant footprint of six M142 HIMARS launchers; 12 ammunition resupply systems and trailers; a fire direction center for command, control, technical fire direction; and about 100 Marines and sailors. HIMARS can fire all multiple launch rocket system (MLRS)/HIMARS family of munitions (MFOM), including the guided MLRS and Lockheed Martin MGM-140 Army Tactical Missile System. Because of the enemy's lack of counterbattery and uncontested airspaces, these capabilities made HIMARS the ideal artillery weapon system during the counterinsurgency fight of the past 17 years.

EMERGING TECHNOLOGY

The HIMARS-UGV would maintain the ability to support the MAGTF with long-range, precision rocket and missile fires in addition to increases in mobility, survivability, deployability, and

[1] Capt Magyar is a student at MCU's Expeditionary Warfare School. This paper won first place in the Lord Charitable Trust Lecture Series Essay Contest hosted by the Brute Krulak Center of Innovation and Creativity and sponsored by the Marine Corps University Foundation for academic year 2018–19.

lethality. Improvements in mobility include placing the launcher module portion of the M142 HIMARS and inserting it on a lighter, more rugged wheeled chassis. This results in a significant reduction in overall weight, increase in mobility, and an increase in deployability by allowing the system to be vertically inserted via Sikorsky CH-53 Sea Stallion. In comparison to the current HIMARS system, which is limited to locations that support C-130 runways, this is a huge leap in capability. One of the significant differences between the current HIMARS and the emerging technology includes physically removing Marines from inside the vehicle, which turns the system into a UGV. Marines would remotely operate the system from offset locations, increasing survivability by placing personnel outside of the enemy's threat ring and significantly reducing the potential of friendly casualties. Moreover, by removing Marines from the HIMARS, batteries would be able to decrease manpower while increasing the number of HIMARS systems that could be fire capable at one time since several UGVs could be controlled and operated remotely by the same crew. Eliminating the 1:1 ratio of operator to system, the MAGTF could essentially saturate the battlespace with these assets, extending the joint force's area of influence. In addition, the HIMARS-UGV would sustain the ability to fire all MFOM, including new capabilities of antiair and antiship missiles, which is an increase in lethality and capability necessary to support the joint force.

EABO: OPPORTUNITIES

The decades of uncontested air and maritime domains created a false sense of security for the joint force and artillery community. In what is projected to be the *next fight*, peer adversaries will deploy offensive and defensive assets that mirror our own. Within EABO, these considerations are taken into account as "Expeditionary Advanced Bases are designed to operate *within* the arc of enemy capabilities (i.e., long-range fires and sensors)."[2] Within this context, the joint force needs to reconsider the tenets of mobility, survivability, deployability, and lethality to counter such threats.

The EABO concept requires MAGTF surface-based long-range precision fires in support of the joint force. Specifically, Marines support this concept by employing "EABs for offensive actions in support of sea control. They reinforce and defend EABs with manned and unmanned long-range strike, anti-ship, anti-air, and [command and control] C2-extending systems to transform a site into a sea-denial outpost."[3] The HIMARS-UGV meets this requirement as a force multiplier that enables the joint force to carry out its mission within antiaccess, area denial (A2AD) environments. The opportunity is to employ multitudes of HIMARS-UGVs that are vertically inserted, well dispersed, offer a small signature for targeting, require less manpower to operate, offer large volumes of fires, and decrease the loss of life by being remotely operated if fired upon. This capability frees limited, manned joint assets the ability to achieve decisive actions while the enemy ties up its own limited intelligence, surveillance, and reconnaissance platforms to honor the threat of land-based, antiship fires. Highly mobile, small physical footprints, and integrated into the naval campaign, the HIMARS-UGV buys time and space necessary for the joint force to maneuver into advantageous positions deep within the enemy's operational area.

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[2] Art Corbett, "Expeditionary Advanced Base Operations: Considerations for Force Development" (working paper, Concepts and Plans Division, Marine and Naval Concepts, Marine Corps Warfighting Lab, 2017), 6.

[3] *Marine Corps Operating Concept (MOC): How an Expeditionary Force Operates in the 21st Century* (Washington, DC: Headquarters Marine Corps, 2016), 13.

CONCLUSION

The emerging technology that will most affect the MAGTF, as part of the naval force, is the HIMARS-UGV. By retaining the functionality of the current HIMARs, but increasing capability in regard to mobility, survivability, deployability, and lethality, the HIMARS-UGV is a force fires multiplier that enables the joint force to operate unimpeded within what was previously considered A2AD environments.

Recruiting and Retaining Quality Servicemembers
Exploring the Potential Implications of Changes to Military Benefits

by Major James W. Lucas, U.S. Army[1]

INTRODUCTION

Following through on a campaign promise in March 1969, President Richard M. Nixon established the President's Commission on an All-Volunteer Armed Force. Commonly referred to as the Gates Commission, aptly named after its chair, former secretary of defense Thomas S. Gates Jr., the group unanimously recommended abolishment of the draft and adoption of the all volunteer force (AVF) in November 1970. On 30 June 1973, the age of conscription formally ended.[2] Economist Milton Friedman, a prominent and influential member of the commission, argued the AVF would be more efficient than a draft force. He based his argument on three premises: the opportunity cost of the AVF, the elimination of the conscription tax inherent to a conscription force, and confidence that an AVF would reduce personnel turnover, resulting in smaller annual demands for new recruits.[3]

A fundamental aspect of the all-volunteer force is the necessity to recruit and retain high-quality individuals. Based on existing programs of tuition assistance in at least five states, it is possible to imagine a future where college tuition is universally free. Changes to the military retirement system effective 1 January 2018 provide earlier vesting on government contributions. In the future, military personnel can elect to separate from service with some form of retirement prior to the traditional 20-year mark.

Without the recruitment incentive of money for college, and with servicemembers able to disengage midcareer with tangible retirement savings, the military should adopt six measures to maintain a competitive advantage over potential adversaries. These include: modifications to the current Post-9/11 GI Bill (GI Bill), taking aggressive action to reinforce existing programs that provide college credit for military service, linking the continuation pay under the blended retirement system to performance, increasing the rate the government matches Thrift Savings Program (TSP) contributions for those midcareer, allowing servicemembers to opt into a higher level of TRICARE, and allowing for professional development sabbaticals.

MOTIVATIONS FOR SERVICE

People volunteer to serve and remain in the military for a number of reasons. A sense of patri-

[1] Maj Lucas is a graduate of the School of Advanced Warfighting. This paper was nominated for the Joint Service Planner Award of the Military Officers Association of North America for academic year 2017–18.

[2] John T. Warner and Beth J. Asch, "The Record and Prospects of the All-Volunteer Military in the United States," *Journal of Economic Perspectives* 15, no. 2 (Spring 2001): 169.

[3] Warner and Asch, "The Record and Prospects of the All-Volunteer Military in the United States," 170–76.

otism drives some, while others seek opportunities that may not be accessible near their home.[4] Two of the more prevalent reasons for military service include education benefits and the attraction of a pension for careerists after 20 years of service.

In a study from 2008, researchers from the Rand Corporation asked two groups of military enlistees—recruits joining directly out of high school and people joining later in life—to cite their primary reasons for joining the Army. Although the reasons differed slightly, both groups cited "money for education" as one of their top two reasons for joining.[5] A more recent Rand study explored the impact of military education benefits on servicemembers' decision making, and came to a similar conclusion. Researchers polled new recruits from the Air Force, Army, Marine Corps, and Navy in 16 focus groups across four major cities in the United States.[6] The second most common reason for joining the military listed by every group was "benefits," and the majority of the focus groups "specifically highlighted education benefits" during and after service as an impetus for volunteering.[7] Both studies focused exclusively on enlisted personnel. A college degree is a prerequisite to commission as an officer so education assistance is a tangible benefit of an appointment to the U.S. Military Academy (West Point) or a scholarship through the Reserve Officer Training Corps (ROTC).

The specific reasons people opt to remain in the Service after completion of their initial obligation are harder to ascertain. A significant motivator at the 10 years-of-service (YOS) mark is undoubtedly the military pension. Ironically, only 17 percent of initial entry men and women serve the 20 years necessary to earn the pension.[8] This statistic is somewhat misleading. Almost 49 percent of *officers* opt to serve for at least 20 years; 17 is the overall percentage including both officers and enlisted.[9] Two key conclusions emerge from the Rand research and the revelation about the percentage of individuals who choose to serve the 20 years necessary to receive a military pension. First, education benefits play an important role in the recruitment of enlisted personnel. Second, while education benefits are a less effective recruitment tool for officers, the lure of a pension at 20 years is at least one reason almost half of those eligible remain in.[10]

DEFINING THE PROBLEM

In the future, two significant changes could affect how the military recruits and retains highly qualified individuals. Looming over the horizon is the potential adoption of some form of free college education. More immediate are the approved changes to the military retirement system. Both alterations to existing systems could force the military to adopt new and creative measures to identify and retain invaluable personnel.

The first change that could significantly affect recruitment is the adoption of some form of free college education. New York, Oregon, Rhode Island, and Tennessee already offer free tuition to community college or public state institutions. This consists of a scholarship for a recent high school graduates, covering any remaining tuition expenses after need-based grants are

[4] Bernard D. Rostker et al., *Recruiting Older Youths: Insights from a New Survey of Army Recruits* (Santa Monica, CA: Rand, 2014), 30.
[5] Rostker et al., *Recruiting Older Youths*, 30.
[6] Jennie W. Wenger et al., *Are Current Military Education Benefits Efficient and Effective for the Services?* (Santa Monica, CA: Rand, 2017), 11–12, https://doi.org/10.7249/RR1766.
[7] Wenger et al., *Are Current Military Education Benefits Efficient and Effective for the Services?*, 11–12.
[8] Allison Schrager, "Only One in Five People Take Up This Incredibly Generous Pension to Retire at 40," *Quartz* (blog), 14 March 2017.
[9] Schrager, "Only One in Five People Take Up This Incredibly Generous Pension to Retire at 40."
[10] Schrager, "Only One in Five People Take Up This Incredibly Generous Pension to Retire at 40."

exhausted.[11] Some states have additional requirements. For example, the New York Excelsior Scholarship is only available to students whose family earns less than $125,000 annually. Recipients must also work and reside in New York after graduation for the same number of years they received the scholarship.[12]

The most progressive program in the country is currently in San Francisco, California, where "every resident is eligible no matter when they finished high school." The San Francisco program also provides money to cover nontuition-related expenses for lower income participants.[13] This movement could have tremendous implications for military recruitment. People frequently view higher education as a gateway to a higher quality of life. If potential servicemembers can pursue higher education at a discounted rate without military service, the challenge becomes finding new ways to incentivize service.

Approved changes to the military retirement system represent the second factor that could considerably negatively affect retention. On 1 January 2018, the Blended Retirement System (BRS) went into effect. There are four key components to the new retirement system. First, similar to the former retirement plan, the BRS provides eligible retirees with a defined benefit after 20 YOS. However, under the BRS, the pension is equal to the average of the final three YOS basic pay multiplied by 2 percent for every year of service.[14] This is half a percentage point lower than the current multiplier.[15]

Second, under the blended retirement system, the government will contribute 1 percent of the servicemember's base pay to a Thrift Savings Plan (TSP) after 60 days of service. This contribution is fully vested after two years of service.[16] The government will also start matching individual contributions up to 4 percent after the second YOS.[17] This brings the maximum government contribution up to 5 percent.[18]

The third unique component of the new retirement system is the concept of "continuation pay." Comparable to a bonus, continuation pay is a retention tool targeted at servicemembers between 8 and 12 years of service. The cash payout is calculated using a continuation pay multiplier, set by each military Service based on its unique needs, ranging anywhere from 2.5 to 13 times an individual's monthly basic pay.[19] In return for accepting the continuation pay, the servicemember incurs an additional four-year service obligation.[20]

The final significant component to the BRS is the option for servicemembers who retire after 20 years to receive their pension either as a full annuity or as a lump sum. Under the latter option, servicemembers collect either 25 percent or 50 percent of their pension at retirement, then

[11] Katie Lobosco, "Tuition-free College Is Getting Bigger. Here's Where It's Offered," CNN Money, 4 August 2017.
[12] Kelli B. Grant, "If You Can't Get New York's Free Tuition, Here Are 10 More States with Cheap College Costs," CNBC, 17 May 2017.
[13] Lobosco, "Tuition-free College Is Getting Bigger."
[14] Amilcar A. Menichini et al., "The Retention Impacts of the Forthcoming USA Military Retirement Reform," *Journal of Defense Management* 7, no. 1 (August 2017): 161, https://doi.org/10.4172/2167-0374.1000161.
[15] As an example, if at 20 years a retiree's average final three years of basic pay was $6,000 monthly, under the BRS, they could expect approximately $2,400 as a monthly pension. Under the old system, the monthly pension works out to approximately $3,000.
[16] For military members serving as of 31 December 2017, the 1 percent automatic government contribution starts immediately on the first pay period after opting into the BRS. It becomes vested after two years of service.
[17] Servicemembers who opt in to the BRS will see matching contributions immediately.
[18] A person who makes an individual contribution to a TSP of 5 percent will also receive the automatic government contribution of 1 percent and the government matching contribution of 4 percent for a total monthly contribution of 10 percent. Laura J. Junor et al., "Military Retirement Reform: A Case Study in Successful Public Sector Change," *Joint Forces Quarterly*, no. 86 (July 2017): 76.
[19] "The Blended Retirement System: Continuation Pay," fact sheet, Military Pay, 8 December 2017, 1–2.
[20] Menichini et al., "The Retention Impacts of the Forthcoming USA Military Retirement Reform," 161.

receive reduced monthly payments until the age of 67. After age 67, the system reverts back to the normal monthly pension amount.[21]

For the first time, servicemembers can exit the military prior to 20 years with some form of retirement. This can have tremendous negative ramifications on retention, a concern for both personnel managers and Service chiefs. The military is unique from other professions because certain occupations require "skills and expertise [that] cannot be hired from the civilian labor market," or homegrown talent.[22] Perhaps of greater concern are the occupational specialties that are also in high demand in the civilian sector, such as pilots, cyber operations specialists, and linguists. Congress has already taken an active interest in how the respective Services are addressing "the shortage of military pilots."[23] The other occupational specialties face their own challenges with retention. As long as mission requirements continue to grow, and the demands of the private sector remain fierce, retaining enough cyber specialists and linguists may prove challenging, especially with the guaranteed vested retirement offered under the BRS.[24]

Senior leaders are still evaluating the effect the BRS may have on midcareer retention, especially as it pertains to these highly sought-after skill sets. In testimony before the Subcommittee on Military Personnel of the House Armed Services Committee, Lieutenant General Mark A. Brilakis said the Marine Corps remained "concerned on the potential impact on [the] retention behavior of the force" the BRS could have.[25] At the same hearing, Representative Trent Kelly (R-MS) expressed apprehension about servicemembers in high demand fields capitalizing on their military training and vested TSP contributions to pursue better paying jobs in the private sector after their initial term of enlistment.[26] The personnel managers from the other Services did not express the same angst about the impact of the BRS; however, the concerns of Lieutenant General Brilakis and Representative Kelly are not unfounded. In 1991, the Australian military switched from a defined benefit plan to a plan comparable to the BRS. In an article published in 2015, researchers found the attrition rate under the new retirement plan was higher than the older plan "in every year of the sample except at 20 YOS."[27] The United States military will need to identify ways to retain midcareer servicemembers, who now have the option to leave the Service sooner with some form of tangible retirement.

Two forthcoming changes could affect the way the military Services recruit and retain capable individuals. The implementation of some form of free college education threatens to obviate one benefit of service sought after by potential recruits. With the implementation of the Blended Retirement System in 2018, the retention of midcareer servicemembers may prove difficult. To counter these potential changes, the military should explore alternative enticements for recruitment and retention.

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[21] "Introduction to the Blended Retirement System" (presentation, Department of Defense, Washington, DC, 26 June 2017).

[22] Junor et al., "Military Retirement Reform," 74.

[23] *Hearing before the Subcommittee on Military Personnel of the Committee on Armed Services on Military Pilot Shortage,* 115th Cong., 1st sess. (29 March 2017) (statement of LtGen Mark A. Brilakis, commandant for Manpower and Reserve Affairs), 1, hereafter Brilakis statement.

[24] Tom Philpott, "Personnel Chiefs Share Concerns on Deployment Pace, Retirement Plan," *Stars & Stripes*, 18 May 2017.

[25] Brilakis statement.

[26] Philpott, "Personnel Chiefs Share Concerns on Deployment Pace, Retirement Plan."

[27] Jesse M. Cunha et al., "The Retention Effects of High Years of Service Cliff-Vesting Pension Plans," *Economic Letters*, no. 126 (January 2015): 8, https://doi.org/10.1016/j.econlet.2014.11.005.

RECOMMENDATIONS

History demonstrates there is rarely one single way to resolve complex problems. It is infinitely complicated to identify new and creative ways to incentivize military service in a future where college tuition is free for everyone or midcareer servicemembers can separate with some vested form of retirement prior to 20 years, or both. The following recommendations first target recruitment, then address retention. The Department of Defense should consider modifications to the current Post-9/11 GI Bill and take aggressive action to reinforce the benefits of existing programs providing college credit for military service to continue recruitment of quality individuals. To bridge the midcareer gap between 8 and 12 years and to retain top talent, the military should explore linking continuation pay to performance, increasing the rate the government matches TSP contributions for servicemembers who elect to serve past the midcareer mark, allowing midcareer servicemembers to opt into a higher level of TRICARE, and allowing for professional development sabbaticals.

The first recommendation is a modification of the Post-9/11 GI Bill. Under the current system, after 36 aggregate months on active duty, a servicemember can receive full tuition and fees paid directly to the institution of higher learning at the in-state student rate. Veterans participating in a resident degree program qualify for a monthly housing allowance (MHA) equal to the basic allowance for housing (BAH) for an E-5 with dependents and receive an annual stipend for books and supplies up to $1,000.[28] Veterans can also utilize the Post-9/11 GI Bill to pursue trade school education, apprenticeships, and on-the-job training.[29]

Since 1985, "college tuition alone has shot up by more than 500 percent," outpacing the price of food, gas, and health care.[30] What frequently gets overlooked are the hidden costs of attending college, including room and board, books and supplies, and health care. In the future, if tuition is free for everyone, prospective students will still need to support themselves financially. Full-time student status "limits students' participation in the workforce," and financial aid does not always cover the veiled cost of higher education.[31] With that in mind, proposed modifications to the existing Post-9/11 GI Bill could take four forms: a change to the way benefits are distributed, the addition of a basic allowance for subsistence (BAS) payment, an increase in the stipend for books and school supplies, and the addition of the opportunity for veterans to retain TRICARE health coverage while in school in lieu of enrollment in another program.

The first adjustment to the Post-9/11 GI Bill updates the way funds are distributed. Instead of paying the tuition and fees directly to the school, the Veterans Administration would distribute funds directly to the servicemember. Servicemembers could elect to receive *either* the total cost of tuition and fees as a monthly payment or the MHA, depending on their individual circumstances.[32] For example, tuition and fees for Veteran A, at the University of Virginia, Charlottesville, are estimated at $15,192 and the monthly housing allowance is $1,646.[33] They could choose either a monthly payment of $1,688 or the MHA of $1,646.[34] By comparison, tuition and

[28] For students participating in distance learning programs, the MHA is equal to one-half the BAH national average. Students pursuing degrees at foreign schools are eligible for an MHA equal to the BAH national average. *Post 9/11 GI Bill: It's Your Future*, VA Pamphlet 22-09-01 (Washington, DC: Department of Veterans Affairs, 2012).

[29] *Post 9/11 GI Bill.*

[30] Jimmy Sengenberger, "The Higher and Higher Cost of Higher Ed," *Weekly Standard*, 22 May 2017, 19.

[31] Sara Goldrick-Rab and Nancy Kendall, *The Real Price of College: College Completion Series, Part Two* (Washington, DC: Century Foundation, 2016), 2.

[32] The monthly payment for tuition and fees would take the total value of tuition and fees and divide it by nine for each month the servicemember is attending school.

[33] "GI Bill Comparison Tool," U.S. Department of Veterans Affairs, accessed 28 December 2017.

[34] The monthly payment amount is calculated by dividing $15,192 into nine monthly payments, one for each month the student is attending class.

fees for Veteran B, attending the University of Michigan, Dearborn, are estimated at $11,304 and the monthly tuition and fee payment is $1,246. Veteran B's MHA is $1,742.[35] Since the cost of living in Dearborn is higher than Charlottesville, Veteran B could elect to receive the MHA.

The next alteration to the GI Bill is the addition of a BAS payment comparable to what active duty servicemembers currently receive to "offset the cost for a [service] member's meals."[36] Under this proposal, GI Bill benefits would include a monthly BAS payment to reduce living expenses while attending school. The entitlement would maintain parity with the rate active duty servicemembers receive. Similar to the current allowance, the BAS paid to servicemembers attending school is "not intended to offset the costs of meals for family members."[37] That would remain a potential out-of-pocket expense.

Doubling the stipend for books and supplies is another potential modification to the Post-9/11 GI Bill that would still attract recruits looking to offset the expense of college. Using data from the National Center for Education Statistics (NCES), return to the examples of Veteran A and Veteran B. According to data collected by the NCES on the 2016–17 academic year, Veteran A could expect to pay approximately $1,294 for books and supplies; Veteran B would pay approximately $1,300.[38] It is evident that the current book stipend inadequately addresses the cost of books and supplies. Doubling the compensation would not only better address the expense but also provide additional funds to cover unforeseen expenditures.

The final recommended adjustment to the Post-9/11 GI Bill would allow veterans who separate from service and elect to *immediately* use their GI Bill and to remain enrolled in TRICARE for the duration of their time in school. Currently, a veteran separating from active duty service has a number of options for continued health care. They can apply for the Transitional Assistance Management Program (TAMP) or the Continued Health Care Benefit Program (CHCBP).[39] Veterans of Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF) may also apply for health care benefits through the Veterans Administration.[40] Instead of enrolling in any of these programs or pursuing a civilian health care plan, veterans using their GI Bill directly after separating would remain on TRICARE. This would alleviate the worry of continued medical coverage, at no cost to the servicemember.

The second recommendation aimed at supporting the continued recruitment of quality individuals is for the military to take aggressive action to emphasize existing programs that grant college credits toward specific degree tracts. Currently the American Council on Education (ACE) "presents credit recommendations and detailed summaries for formal courses and occupations offered by all branches of the military."[41] These credit recommendations appear on the servicemember's Joint Services Transcript (JST); however, the academic institution awards

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[35] "GI Bill Comparison Tool."

[36] "Military Compensation: Basic Allowance for Subsistence (BAS)," MilitaryPay.Defense.gov, accessed 28 December 2017.

[37] "Military Compensation: Basic Allowance for Subsistence (BAS)."

[38] "College Navigator: University of Virginia-Main Campus," National Center for Education Statistics, accessed 28 December 2017.

[39] TAMP provides "180 days of premium-free transitional health care benefits" after regular TRICARE coverage ends. "Transitional Assistance Management Program," TRICARE, accessed 28 December 2017. CHCBP provides coverage for up to 18 months and bridges the gap between the end of TRICARE coverage and the start of a civilian health. "Continued Health Care Benefit Program," TRICARE, accessed 28 December 2017.

[40] An OEF or OIF veteran is eligible for "cost free medical care for any condition related to their service . . . for five years after the date of their discharge or release." "Health Benefits," U.S. Department of Veterans Affairs, accessed 28 December 2017.

[41] "Guide to the Evaluation of Educational Experiences in the Armed Services," American Council on Education, accessed 28 December 2017.

the actual credit.[42] Although a foundation exists, the military can expand this program in three ways: review existing military courses to ensure the necessary accreditation exists, educate servicemembers on additional educational benefits, and link a percentage of federal funding to the ACE credit recommendations schools accept.

The first step in building on the existing college credit program for military service is to scrupulously review current ACE course and occupation recommendations. According to the ACE website, course reviews are good for 10 years "provided the course or occupation has not substantively changed."[43] The ACE staff last reviewed the credit recommendation for Ranger School in February 2000, making the existing recommendation out of date.[44] By the same token, in the ACE military guide, there is currently no recommended occupational credit for lower enlisted (skill levels 10 and 20). ACE only provides a recommendation for mid and senior enlisted (skill levels 30, 40, and 50).[45] Conducting the comprehensive review of military courses and occupations will increase the servicemember's ability to either complete general education requirements or complete credit along with a specific degree track.

After completing the review, the next critical step becomes educating new and existing servicemembers on the credit opportunities. Programs such as the U.S. Army's Soldier for Life, GoArmyEd, and the U.S. Marine Corps' Marine for Life Network are just the starting point for connecting servicemembers to education benefits. The Services may need to place additional emphasis on training recruiters, career counselors, and leaders throughout the force on how servicemembers can leverage their military experience to complete a college degree.

The final step to emphasize the existing program of granting credit toward specific degree tracts is to tie additional federal funding to the acceptance of ACE recommendations. Typically, the federal government supports higher education by providing financial assistance to individual students and funding research projects.[46] Tax cuts, deductions, exemptions, and exclusions are other ways the federal government supports higher education. In 2013, the federal government provided approximately $31 billion in federal tax expenditures to compensate for costs, equaling the money spent on Pell Grants.[47] Linking these tax cuts to the ACE recommendations for military school and occupational experience is one way to incentivize public colleges and universities to grant credit. This might make it easier for veterans to complete degrees and enable recruiters to continue to offer education benefits as a service incentive.

To address the retention of midcareer servicemembers, the first recommendation is linking a portion of the continuation pay offered between 8 and 12 years of service performance. Under the BRS, individual Services determine the continuation pay multiplier a servicemember is eligible for based on Service needs. This rate ranges anywhere from 2.5 to 13 times monthly basic pay.[48] Although service requirements will always play a role in personnel actions, need-based determination of the pay multiplier is a missed opportunity to retain top performing individuals. Instead, the rate should be calculated based on a combination of service requirements and

[42] Presently, more than 2,300 colleges and universities recognize the JST as "official documentation of military training and experiences." See "College Credit for Military Experience," Military.com, accessed 28 December 2017. As an example, ACE recommends awarding six semester hours in physical education toward a baccalaureate or associate's degree for servicemembers who completed the U.S. Army Ranger School. "Course Exhibit: Ranger," American Council on Education, accessed 28 December 2017.

[43] "Military Guide Frequently Asked Questions," American Council on Education, accessed 28 December 2017.

[44] "Course Exhibit: Ranger."

[45] "Military Guide Frequently Asked Questions."

[46] Operating costs are typically covered by the state government. Ingrid Schroeder et al., *Federal and State Funding of Higher Education: A Changing Landscape* (Washington, DC: Pew Charitable Trusts, 2015), 3.

[47] Schroeder et al., *Federal and State Funding of Higher Education*.

[48] "Introduction to the Blended Retirement System."

individual performance. Think of the continuation pay multiplier as a spectrum ranging from the low end of 2.5 to the high end of 13. The difference between the two points on the spectrum is 10.5, so each evaluation criteria is worth approximately 5.25 places between the low and high end. A servicemember's place on the spectrum is driven as much by need as it is by performance. The well-documented air force pilot shortage serves as an example of this change.[49] A midcareer pilot considering separating from the Service meets a pressing need for the Air Force and would qualify for the full value, five and a quarter, of the continuation pay multiplier associated with service requirements. However, this same pilot may be a midtier performer, and only warrants half of the performance multiplier, or approximately three. The pilot's final continuation pay multiplier, starting at 2.5 and adding the values associated with needs and performance, would be approximately 10 times monthly basic pay.[50] Conversely, a midcareer armor crewman is less of a pressing need for the Army and does not receive any credit towards the continuation pay multiplier. This same crewman is a top-tier performer and qualifies for the full performance-based rate, for a total continuation pay multiplier of approximately eight times base pay.[51] By attempting to establish parity between the needs of the Service and performance, top performers are incentivized to remain in the Service past the midcareer mark.

Increasing the percentage rate at which the government matches individual contributions to the Thrift Savings Plan is another way to incentivize people to bridge the midcareer gap. Currently, the government only matches individual contributions up to 5 percent. Under this proposal, individuals at the 8 YOS mark could receive an additional 1.25 percent matching for every additional year of service through 12 years. At the 12-year mark, the government's matching rate would revert back to a maximum of 5 percent. An individual in their 12 year of service who contributed 10 percent of their paycheck to the TSP would receive an additional 10 percent from the government. To prevent a mass exodus of servicemembers after the 12-year mark, the government matching contributions would not fully vest until after the 14th YOS. In theory, after 12 years of service, most people will elect to remain in through the 20-year mark to receive the defined benefit. However, servicemembers who elect to get out prior to the vesting of the additional government contributions would pay a penalty. Providing servicemembers a higher government matching rate for individual TSP contributions is an additional way to encourage people to remain in the military through the midcareer point.

A tangible benefit of military service is the relatively low-cost health care provided to servicemembers and their families. Currently, there are two principal TRICARE plans available to active duty servicemembers and eligible dependents: TRICARE Prime and now TRICARE Select.[52] According to TRICARE, there are approximately 2.79 million active duty servicemembers and dependents enrolled in TRICARE Prime; 303,000 active duty family members are enrolled in TRICARE Standard and Extra.[53] TRICARE Prime is the most affordable plan, with the fewest out-of-pocket expenses, because the majority of care is provided by a primary care manager (PCM). This PCM is typically located at an on-post clinic, although time and distance standards do exist, which allow nonactive duty beneficiaries to receive care off-post.[54] A consideration for family members seeking treatment at an on-post health clinic is increased

[49] Christopher Woody, " 'We're Burning Out Our People': The Air Force Says Its Pilot Shortage Is Getting Worse," *Business Insider*, 9 November 2017.
[50] Based on the example provided, the actual continuation pay multiplier would be 10.375 times monthly basic pay.
[51] Based on the example provided, the actual continuation pay multiplier would be 7.75 times monthly basic pay.
[52] As of 1 January 2018, TRICARE Standard and Extra was replaced by TRICARE Select. "TRICARE Select," TRICARE, accessed 28 December 2017.
[53] "Number of Beneficiaries," TRICARE, accessed 28 December 2017.
[54] "Compare Plans," TRICARE, accessed 28 December 2017.

wait times resulting from the understandable priority given to uniformed servicemembers.

By comparison, TRICARE Standard and Extra is a more flexible plan in that it allows non-active duty beneficiaries to elect where they receive treatment regardless of their proximity to an on-post facility. Unfortunately, this flexibility comes at a cost. Under TRICARE Standard and Extra, family members have an annual deductible. After meeting the deductible, beneficiaries covered under TRICARE Standard and Extra pay a percentage of the cost of a doctor's visit.[55]

To encourage individuals to remain in the military past the midcareer point, the Department of Defense could consider offering the benefits of TRICARE Standard and Extra to family members without the additional cost. By removing the annual deductible and visit fees, the DOD removes one of the largest barriers to selecting TRICARE Standard for dependents. With the flexibility to choose their network provider, family members could avoid the long wait times frequently associated with receiving treatment on-post. Although it is difficult to assign a value to that benefit, it is not unrealistic to expect family members to be grateful for the increased freedom and therefore more willing to support continued military service for their sponsor.

So far all of the recommendations to aid in the retention of top talent have focused on higher pay and additional benefits. The final recommendation deviates from that path since a potential counterargument can be made that "competing to retain top talent on price alone . . . is a losing strategy."[56] Services can incentivize people to stay in past the midcareer mark by increasing ways to take a professional development sabbatical. This temporary interruption in service can include increased opportunities for interagency exchange programs and the pursuit of advanced civilian schooling while on active duty. Research indicates, "key job attitudes, notably job satisfaction and organizational commitment are also strong predictors of turn-over."[57] This leave of absence might improve both job satisfaction and organizational commitment by allowing servicemembers to pursue other areas of interest.

The Army already offers a few select majors and lieutenant colonels an opportunity to participate in the Command and General Staff College Interagency Fellowship. This program is designed to expose participants to a federal department or agency, helping them to "develop a more thorough understanding of the agency's mission, culture, capabilities, and procedures."[58] Unfortunately, those selected to participate are only on loan for approximately a year before returning to the Army. The program could be modified to focus on captains and noncommissioned officers at the midcareer point. It could also be adjusted so that selected servicemembers are required to work for the agency for two years prior to returning to their parent Service.

To address future challenges to the recruitment and retention of personnel, the military may need to consider unconventional methods. The DOD should consider reforms to the Post-9/11 GI Bill and strengthen an existing program to transfer military service to college credit to continue to incentivize military service in exchange for educational benefits. The Services might retain more top talent past the midcareer (8–12 years) gap by linking a portion of the continuation pay included under the BRS to performance, increasing the government matching rate for TSP contributions, allowing servicemembers to opt into a more flexible TRICARE plan, and allowing for professional leaves of absence. To fully evaluate the strength of these recommendations, it is important to consider potential counterarguments.

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[55] "Compare Plans."

[56] Phil C. Bryan and David G. Allen, "Compensation, Benefits and Employee Turnover: HR Strategies for Retaining Top Talent," *Compensation & Benefits Review* 45, no. 3 (2013): 174, https://doi.org/10.1177/0886368713494342.

[57] Bryan and Allen, "Compensation, Benefits and Employee Turnover," 174.

[58] *Broadening Opportunities Program Catalog* (Fort Benning, GA: Officer Personnel Management Directorate, United States Army Human Resources Command, 2016).

POTENTIAL COUNTERARGUMENTS

These proposals are not without their own shortfalls and require additional refinement for full implementation. When evaluating the merits of modifications to the Post-9/11 GI Bill that involve payments directly to servicemembers, it is anticipated that critics may have reservations about abuse of the system. A simple solution to prevent misuse of the benefit is to require proof of registration at the start of the semester and proof of completion with a passing grade at the end. Failure to complete the semester or the exploitation of the system would result in the servicemember incurring a debt comparable to a student loan.

An additional concern about the alterations to the GI Bill may be the lack of acknowledgment of veterans who separate from service and do not immediately return to school. Although valid, the modifications to the Post-9/11 GI Bill would be a time-based opportunity. Prior to separating from the military, a servicemember would have to opt in to the modified benefit. If they choose to pursue other opportunities first, they would retain the Post-9/11 GI Bill as it currently stands.

Perhaps the biggest counterargument to the proposals to aid in the retention of midcareer servicemembers is that they are essentially throwing money at the problem, which admittedly is not always a successful strategy. Although higher pay and more benefits are not always enough incentive for top performers to remain, they do play a role. What these proposed recommendations attempt to do is establish fair and reasonable standards for continuation pay compensation and create a realistic vesting period for the additional benefits. As John T. Warner and Beth J. Asch point out, "the electorate would probably see some additional spending as a cheap price to pay to avoid a return to conscription."[59]

Readers may also be concerned about linking continuation pay to performance; it could erode the value of selfless service or the necessity of being a team player. The impact of this recommendation is harder to ascertain. There may be unintended second- and third-order effects; however, any resulting competition could ultimately improve the quality of the force. Raters and senior raters would play an instrumental role in monitoring, counseling, and developing subordinates to minimize negative outcomes.

Finally, the argument could be made that implementing time for professional development sabbaticals would require a large cultural shift within the Department of Defense. Currently, the unorthodox career path often goes unrewarded, providing little incentive to deviate from the norm. This could be addressed with something as simple as linking promotions and selection for command to a broadening experience. If the Services truly want to retain top talent, senior leaders will find a way. Even these unrefined recommendations serve as an initial start point when seeking imaginative ways to recruit and retain talented individuals.

CONCLUSION

A cornerstone of the all-volunteer force is the continued ability of the military Services to recruit and retain high-quality individuals. Free tuition for college and a retirement system with earlier vesting on government contributions could make sustaining the all-volunteer force a challenge for military personnel planners in the future. To get ahead of the looming changes to recruitment and retention, the military Services could adopt a number of imaginative steps. Modifications to the current Post-9/11 GI Bill and revamping existing programs to grant college credit for military service will still allow recruiters to use financial assistance for college as an incentive for service. Linking a portion of the continuation pay multiplier to performance, increasing the

[59] John T. Warner and Beth J. Asch, "The Record and Prospects of the All-Volunteer Military in the United States," *Journal of Economic Perspectives* 15, no. 2 (Spring 2001): 188.

rate the government matches TSP contributions, and allowing midcareer servicemembers to opt in to a more flexible version of TRICARE will serve as critical financial incentives to bridge the midcareer gap. Finally, allowing for a professional development sabbatical will improve overall job satisfaction and organizational commitment. Maintaining the all-volunteer force is critical to giving the United States a competitive edge over near peer competitors.

The Price of War
A Study of Japanese Economic and Financial Strategy during the Russo-Japanese War

by Captain Vasilios Tasikas, U.S. Coast Guard[1]

> The thoughts of victory or defeat belong, properly, to the time before the fighting takes place.
>
> ~ Admiral Togo Heihachiro
> Imperial Japanese Navy

INTRODUCTION

On the frigid night of 8 February 1904, 10 Imperial Japanese Navy destroyers swept across the ocean with freezing spray and their decks coated with ice and approached the Liaodong Peninsula in the Yellow Sea.[2] Shortly before midnight, the heavy warships launched a surprise attack against the slumbering and fully illuminated Russian Navy's Pacific Fleet anchored in Port Arthur, Manchuria, China, successfully torpedoing two Russian battleships and a cruiser anchored in the shallow muddy waters.[3] Two days later, on 10 February, Japan formally declared war on Russia.[4]

The preemptive attack proved less effective than desired by the Imperial Combined Fleet commander, Admiral Togo Heihachiro.[5] Moreover, the Russians were able to rebound the following morning in a naval clash during the Battle of Port Arthur.[6] Aided by shore battery fire, the Russian fleet damaged four of Togo's six battleships, as well as a cruiser.[7] However, the psychological jolt of the strike at Port Arthur proved painfully demoralizing for the Russians.[8] From that day until the end of the 19-month war, Japan never relinquished the operational initiative.

From the beginning of the Russo-Japanese War, the general sentiment was that Japan had grossly miscalculated the risks of a military confrontation with a European power and was courting a crushing defeat.[9] Such predictions could not have been more wrong, as Japan proved a res-

[1] Capt Tasikas is a graduate of MCU's Marine Corps War College. This paper won the LtGen Paul K. Van Riper Writing Award for academic year 2017–18.
[2] Richard M. Connaughton, *The War of the Rising Sun and Tumbling Bear* (London: Routledge, 1988), 31.
[3] Dennis Warner and Peggy Warner, *The Tide at Sunrise: A History of the Russo-Japanese War, 1904–1905* (London: Frank Cass, 2002), 197. The Japanese torpedoes successfully hit two Russian battleships, the flagship *Tsarevitch*, the *Retvizan*, and a cruiser *Pallada*. The torpedo strike severely damaged each ship, but all three managed to remain afloat long enough to ground themselves in shallow waters of the port.
[4] Connaughton, *The War of the Rising Sun and Tumbling Bear*, 11.
[5] Connaughton, *The War of the Rising Sun and Tumbling Bear*, 34.
[6] Connaughton, *The War of the Rising Sun and Tumbling Bear*, 33.
[7] Connaughton, *The War of the Rising Sun and Tumbling Bear*.
[8] Connaughton, *The War of the Rising Sun and Tumbling Bear*, 43; Warner and Warner, *The Tide at Sunrise*, 20.
[9] Louis G. Perez, *History of Japan* (Westport, CT: Greenwood Press, 1998), 122.

olute and resilient foe.[10] Through operational brilliance, tactical genius, and soldiery discipline, Japan's military neutralized the Russian Pacific Fleet, seized Port Arthur after a six-month-long bloody siege, occupied the Korean Peninsula, and wreaked havoc against the Russian Army in a series of victorious land battles in Manchuria, culminating in the 1905 Battle of Mukden. Finally, in one of the most spectacularly lopsided encounters in modern naval history, the Japanese Imperial Fleet annihilated the Russian Baltic Fleet at the Battle of Tsushima.

There is no questioning Japan's military ingenuity in crafting its operational plans or the battle prowess of its forces in combat at sea and on land.[11] However, Japan's success did not rest entirely on military planning and execution. To be more specific, the imperial government's achievement in the Russo-Japanese War was largely the result of a well-developed policy-strategy match—one that incorporated an economic calculus as well as military considerations.

In preparation for a confrontation against a much stronger adversary, Japan's policy aims prepared a nation to wage war focused on limited objectives: wrestling back control of the Korean and the Liaodong Peninsula. However, the means to that end were costly, requiring the unprecedented mobilization of its country's capital, resources, and people. Leading up to the war, Japan embarked on a massive and expensive naval build up, while, during the war, funds were needed to maintain the 1 million soldiers sent to the front lines.[12] In terms of blood and treasure, the Japanese suffered more than 100,000 casualties, while spending approximately ¥1.5 to ¥1.7 billion, a total worth more than 50 percent of Japan's gross national product (GNP).[13]

While historians, military officers, and strategists have studied and written extensively on the operational facets of war, there is little coverage of how economics and finance influenced the military outcome.[14] This chapter addresses this gap in war strategy analysis. To achieve its strategic goals and bear the huge cost of war, Japan's leadership adopted radical but necessary economic reforms and implemented sound financial solutions. In short, Japan's national strategy was not conceived only through the prism of military planning; instead, it was a holistic strategy anchored in the economic instrument of national power.

ECONOMIC TRANSFORMATION

For Japan, the war was a coming of age of sorts. Prior to the arrival of U.S. commodore Matthew C. Perry in 1852, Japan adhered to a strict policy of national seclusion for more than two centuries, maintaining no foreign trade or diplomatic relations but for the limited exceptions with China, Korea, and Holland.[15] When Perry forced Japan to open its borders, the isolated

[10] Perez, *History of Japan*, 122.

[11] Julian S. Corbett, *Maritime Operations in the Russo-Japanese War 1904–1905*, vol. I (Annapolis: Naval Institute Press, 1994), 66.

[12] David C. Evans and Mark R. Peattie, *Kaigun: Strategy, Tactics, and Technology in the Imperial Japanese Navy, 1887–1941* (Annapolis: Naval Institute Press, 1997), 57–65; Kenneth P. Pyle, *The Making of Modern Japan* (Lexington, MA: D. C. Heath, 1996), 141; and Connaughton, *The War of the Rising Sun and Tumbling Bear*, 13. Estimated Japanese conscripts at 850,000.

[13] See G. C. Allen, *A Short Economic History of Modern Japan, 1867–1937* (London: Allen and Unwin, 1972), 48, estimated the cost at ¥1.5 billion; Takemoto Tomoyuki, "Patriotic Recession: Kyoto Responds to War," in *The Russo-Japanese War in Global Perspective: World War Zero*, ed. David Wolff et. al., vol. 2 (Leiden, NL: Brill, 2007), 277, estimated the cost at ¥1.7 billion; Giichi Ono, *War and Armament Expenditures of Japan* (New York: Oxford University Press, 1922), estimated the cost at ¥1.7 billion; and Rosella Capella Zielinski, *How States Pay for Wars* (Ithaca, NY: Cornell University Press, 2016), 89, estimated the cost at ¥1.98 billion.

[14] James Lacey, *Gold, Blood, and Power: Finance and War through the Ages* (Carlisle Barracks, PA: Strategic Studies Institute, U.S. Army War College, 2015), 2–3.

[15] Mitani Hiroshi, *Escape from Impasse: The Decision to Open Japan*, trans. David Noble (Tokyo: International House of Japan, 2006), xiii–xiv.

island country lacked a national currency and had no international credit standing.[16] It was also without a navy.[17] Moreover, by order of the Tokugawa Shogunate and under penalty of death, the Japanese citizenry were prohibited from traveling outside the country.[18] To compel compliance and ensure no island inhabitant would be tempted to leave, the law further mandated that all vessels be built less than 75 feet in length, with only one mast, and no larger than 500 *koku* (about 50 tons), making any craft unsuitable for ocean-going voyages.[19]

In the half century after Perry's arrival, Japan transformed itself into a great power with a great power navy. The modernization of Japan in the latter half of the nineteenth century "still stands as the most remarkable transformation ever undergone by any people in so short a time."[20] Its historical significance can hardly be overlooked. As one commentary suggested, "the rise of Japan to the position of a great power ranks along with the reconstruction of Germany as the most significant of the political changes of the fifty years before 1914."[21]

Japan's march to modernize began with the 1868–69 Meiji Restoration. Following the overthrow of the centuries-old Tokugawa Shogunate regime, the Meiji ruling elite radically reformed its island society from an isolationist, agrarian, and traditionalist nation into a modern imperial power.[22] The new regime instituted wide-ranging and sweeping reforms, manifestly aware of Japan's relative weakness to the industrially advanced Western powers.[23] Put another way, fearful that the country would be carved up and subjugated like China, the Japanese were more or less jolted into modernizing their country.[24] Doing so required vast changes to the nation's economic governance and structure, which touched every aspect of Japanese life.[25] By laying the foundations for a modern economy, Japan set the stage for its entry into the world of great power politics, a move with lasting geopolitical implications.[26]

As a first step toward reform, Japan established a stable national monetary policy by creating the yen (¥) in 1871. This kicked off a three-decade effort to consolidate the yen by removing all local forms of coins and notes from circulation. In the early 1870s, there were nearly 1,700 different issues of paper money in circulation, along with gold, silver, and copper coins of varying values. By the time the Japanese launched their surprise attack at Port Arthur, nearly all locally issued currency was discontinued, and the national government was the sole arbiter of

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[16] Edward S. Miller, "Japan's Other Victory: Overseas Financing of the Russo-Japanese War," in *Russo-Japanese War in Global Perspective: World War Zero*, ed. John W. Steinberg et al., vol. 1 (Leiden: Brill, 2007), 466.

[17] Abraham Feldman, "The Origin of the Japanese Navy," *Historian 7*, no. 2 (Spring 1945): 7, 130–46, https://doi.org/10.1111/j.1540-6563.1945.tb01079.x.

[18] Michael S. Laver, *The Sakoku Edicts and the Politics of Tokugawa Hegemony* (Amherst, NY: Cambria Press, 2011). Sakoku ("Closed Country") Edict of 1635, reads, in part, "1. No Japanese ships may leave for foreign countries; 2. No Japanese may go abroad secretly. If anybody tries to do this, he will be killed, and the ship and owner/s will be placed under arrest whilst higher authority is informed; 3. Any Japanese now living abroad who tries to return to Japan will be put to death."

[19] Yosaburo Takekoshi, *The Economic Aspects of the History of the Civilization of Japan*, vol. 2 (New York: Allen and Unwin, 2004).

[20] R. R. Palmer and Joel Colton, *A History of the Modern World*, 8th ed. (New York: Knopf, 1995), 582.

[21] G. C. Allen, *A Short Economic History of Modern Japan, 1867–1937* (New York: Routledge, 2003), 9.

[22] George C. Herring, *From Colony to Superpower: U.S. Foreign Relations since 1776* (Oxford, UK: Oxford University Press, 2008), 224.

[23] Yukiko Koshiro, *Imperial Eclipse: Japan's Strategic Thinking about Continental Asia before August 1945* (Ithaca, NY: Cornell University Press, 2013), 21.

[24] William Michael Morgan, *Pacific Gibraltar: U.S.-Japanese Rivalry over the Annexation of Hawaii, 1885–1898* (Annapolis: Naval Institute Press, 2011), 189; and Paul Kennedy, *The Rise and Fall of Great Power: Economic Change and Military Conflict from 1500 to 2000* (New York: Vintage Books, 1987), 206–7.

[25] See Andrew Gordon, *A Modern History of Japan: From Tokugawa Times to the Present* (New York: Oxford University Press, 2003) 61–138; and W. G. Beasley, *The Rise of Modern Japan: Political, Economic and Social Change Since 1850* (New York: St. Martin's Press, 2000), 54–69.

[26] Pyle, *The Making of Modern Japan*, 97.

the county's currency.[27] By 1897, Japan was ready to take the final step toward making the yen a tradable currency recognized by the great trading powers and pegged it to the gold standard, which stabilized imports and increased its ability to acquire foreign loans.[28]

Second, the government enhanced its ability to collect taxes by creating an efficient revenue administrative structure. In 1871, the government abolished its feudal regime; in 1888, it transferred political loyalty from village lords to administrative townships. This reduced administrative overhead from 76,000 Tokugawa village lords to 12,000 municipal-level civil servants. At the same time, Japan created a strong, centralized tax bureaucracy by establishing the Ministry of Finance.[29]

To facilitate revenue deposits and offset issues with large amounts of inconvertible paper, the Japanese introduced a modern banking system modeled on the American banking structure.[30] In 1873, the First National Bank was established; by 1879, more than 150 national banks were operational.[31] With an eye for continuous reform, the government abandoned the national banking system and created the Bank of Japan in 1882, a central banking system modeled on the European structure, mainly to restore parity between banking notes and to facilitate the financial activity of the state.[32] Five years later, the government established the Yokohama Specie Bank, the first bank specifically intended to finance foreign trade and foreign exchange.[33]

Third, Japan instituted major tax system reforms centered on overhauling the land tax. Historically, taxes were paid in rice based on a crop-sharing harvest-yield formula. Starting in the early 1870s, taxes were based on land size and collected in currency. Moreover, from 1875 to 1880, the government reduced local miscellaneous taxes, which numbered nearly 1,600, and imposed nationwide taxes on just 74 specified goods. Last, beginning in the mid-1880s, the government increased taxes on sake, tobacco, textiles, income, and custom duties.[34]

By destroying old institutions that were barriers to modernization, the government's financial reforms facilitated the rapid industrialization of the Japanese economy.[35] From 1873 to 1903, Japan's foreign trade grew a staggering 1,120 percent, from ¥49.7 million to ¥606.6 million.[36] Between 1889 and 1902, Japan's average annual growth rate ballooned to 2.8 percent.[37] With a shift toward urban and industrial sectors, Japan's population leapt from 34 million in 1875 to more than 46 million by the start of the war.[38] Regarding revenue capacity of the central government, Japan's structural changes proved fruitful as well. In 1876, total revenue was ¥57.8 million; by 1903–4, its tax revenue jumped to ¥224.4 million.[39]

SECURING COMMAND OF THE SEA

Contingency preparations against Russia came soon after the First Sino-Japanese War (1894–95). As with the war with Russia a decade later, the war with China focused on Korea. Korea's geographic proximity made it a "dagger pointing at the heart of Japan"; a bridgehead for invasion to the archipelagic nation. The distance from Pusan, Korea, to Shimonoseki, Japan, is

[27] Zielinski, *How States Pay for Wars*, 89, 97.
[28] Miller, "Japan's Other Victory," 468.
[29] Zielinski, *How States Pay for Wars*, 90.
[30] Harold M. Vinacke, *A History of the Far East in Modern Times* (New York: Appleton-Century-Crofts, 1941), 118–19.
[31] Vinacke, *A History of the Far East in Modern Times*.
[32] Allen, *A Short Economic History of Modern Japan*, 45.
[33] Vinacke, *A History of the Far East in Modern Times*, 119.
[34] Zielinski, *How States Pay for Wars*, 89–90.
[35] Kenneth Scott LaTourette, *The Development of Japan* (New York: Macmillan, 1918), 163.
[36] K. Asakawa, *The Russo-Japanese Conflict: Its Causes and Issues* (London: Archibald Constable, 1905), 2.
[37] Cyril E. Black et al., *The Modernization of Japan and Russia: A Comparative Study* (New York: Free Press, 1975), 18.
[38] Asakawa, *The Russo-Japanese Conflict*, 2.
[39] Zielinski, *How States Pay for Wars*, 90; and Allen, *A Short Economic History of Modern Japan*, 49.

a mere 218 km, approximately halfway between lies the Japanese island of Tsushima. At the height of the age of imperialism, Japanese military strategists concluded that security of the Japanese homeland hinged on blocking a foreign power from controlling Korea. Moreover, those same strategists were convinced that Korea could not be secured without seizing the Liaodong Peninsula with its strategically located seaport of Port Arthur. Conversely, the Korean and Liaodong peninsulas came to be viewed as a gateway for Japanese Imperial expansion into Manchuria.[40]

Japan's military victory proved decisive, utterly destroying the Chinese fleet during the war.[41] The follow-on 1895 Treaty of Shimonoseki, among other things, required China to renounce its claim of suzerainty of Korea; to pay a large indemnity; and cede the Republic of Formosa, Penghu Islands (or Pescadores Islands), and the Liaodong Peninsula, including the naval base at Port Arthur, to Japan.[42] Japan was unable to hold southern Manchuria, as Russia, acting in concert with France and Germany, forged the Triple Intervention, threatening war if Japan did not give up the Liaodong Peninsula.[43] To pile on to Japan's humiliation, within a few years Russia pushed its own troops into Manchuria, extended their Trans-Siberian Railroad through the Chinese region, and acquired a long-term lease at Port Arthur. [44] The acquisition of Port Arthur, for use as an ice-free Russian naval base, enraged the Japanese.[45] Russia's push deep into Manchuria now made military confrontation a proximate reality rather than an abstract speculation.

In the 1890s, the Japanese were in no position to confront Russia. Diplomatically, Japan was isolated. Economically, the government needed more revenue. Militarily, it was ill-prepared. The Japanese ambassador to Russia, Count Hayashi Tadasu, summed up Japan's predicament and options:

> At present, Japan must keep calm and sit tight, so as to lull suspicions nurtured against her; during this time the foundation of national power must be consolidated; and we must watch and wait for the opportunity in the Orient that will surely come one day. When this day arrives, Japan will decide her own fate.[46]

To Japan's ruling elite, it was obvious that confrontation was likely, and they started formulating plans for war against Russia. The first big step included, above all, a major naval buildup. It had no choice. From the start, Japan correctly concluded that command of the sea would largely decide the direction of the war.[47] To the Japanese, it was simple math — Russia was considered the third largest naval power and possessed a numerical naval advantage in the region.[48] Recognizing this fact, it became axiomatic that "no element was more important in Japan's vic-

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[40] Ramon H. Myers and Mark R. Peattie, eds., *The Japanese Colonial Empire, 1895–1945* (Princeton, NJ: Princeton University Press, 1984), 15–17.

[41] S. C. M. Paine, *The Sino-Japanese War of 1894–1895: Perceptions, Power, and Primacy* (New York: Cambridge University Press, 2003), 107–244.

[42] Connaughton, *The War of the Rising Sun and Tumbling Bear*, 4–5.

[43] Warner and Warner, *The Tide at Sunrise*, 54.

[44] Connaughton, *The War of the Rising Sun and Tumbling Bear*, 3–11.

[45] Warner and Warner, *The Tide at Sunrise*, 55.

[46] Count Hayashi Tadasu, Japanese ambassador to Russia, 1895, quoted in Kennedy, *The Rise and Fall of Great Power*, 208–9.

[47] Evans and Peattie, *Kaigun*, 59.

[48] Evans and Peattie, *Kaigun*, 90–91, 133. The Russian fleet consisted of 33 capital ships, including 12 battleships; 10 armored cruisers; 12 protected cruisers; 9 sloops; 35 gunboats; 49 destroyers; and 90 torpedo boats. Warner and Warner, *The Tide at Sunrise*, 163. The Russian Pacific Fleet included 7 battleships, 25 destroyers, 7 cruisers, 10 gunboats, and 17 torpedo boats.

tory at sea in [a war with Russia] than the quality of their ships."[49] The ambassador echoed the determined mindset of his countrymen, "If new warships are considered necessary we must, at any cost, build them."[50]

In building its new warships, Japan formulated a naval strategy built around the Six-Six Fleet principle—an Imperial Japanese Navy consisting at its core of six battleships and six armed cruisers. This Six-Six Fleet formula was considered the "key to defeating Russia." The naval formulation was deemed necessary to counter the Russian Pacific Fleet, move troops to Manchuria and Korea, and control the adjacent sea lanes.[51]

To meet its goal, Japan's government progressively raised taxes during the decade before the war with Russia, while increasing military expenditures twofold.[52] With imported steel and machinery, the Japanese intensified efforts to increase its shipyard production capacity, aiming at building midsize warships in-house.[53] However, these measures alone would be insufficient to fight the Russians at sea. Using a large portion of its indemnity from the Chinese, Japan purchased its modern naval fleet from abroad.[54] Japan had extracted ¥365 million in reparations from China, of which the government allocated ¥139 million to the Imperial Japanese Navy.[55] An additional ¥56.9 million was marked to the Imperial Japanese Army.[56] In addition, with a stabilized yen and low national debt, a creditworthy Japan had access to foreign capital markets.[57]

In this regard, the Six-Six Fleet program looked to future wars. In the nine years between the Sino-Japanese War and Russo-Japanese War, Japan was able to meet its resolute objective. Two *Fuji*-class battleships (*Fuji* and *Yashima*), ordered prior to the war with China, were already launched in Britain in 1896.[58] Japan procured four additional battleships from Britain: two *Shikishima*-class warships (*Shikishima* and *Hatsuse*), the *Asahi*, and Admiral Togo's flagship the *Mikasa*.[59] By the time the war commenced, Japan had also obtained seven first-class armored cruisers.[60] These heavy ships were complemented by the construction of 26 additional cruisers, 20 destroyers, and 90 torpedo boats.[61]

Japan initiated a modernization policy that amassed a naval force quantitatively at parity with the Russian Pacific Fleet, but also one that was qualitatively superior.[62] By the time war was imminent, Japan had grown to the fourth largest naval force with a fleet that was specifically designed to outmaneuver and outgun the Russian Navy.[63]

LIMITING THE COST BY LIMITING THE FIGHT

Even with a modernized navy, fighting a powerful European adversary was a calculated risk; to fight a war with several great power adversaries would be madness. The experience of 1895 Tri-

[49] Evans and Peattie, *Kaigun*, 65.
[50] Tadasu, quoted in Kennedy, *The Rise and Fall of Great Power*, 208.
[51] Mark Stille, *The Imperial Japanese Navy of the Russo-Japanese War* (Oxford, UK: Osprey Publishing, 2016), 6.
[52] Bruce W. Menning, "Neither Mahan nor Moltke: Strategy in the Russo-Japanese War," in *Russo-Japanese War in Global Perspective*, 135.
[53] Zielinski, *How States Pay for Wars*, 92.
[54] Kōzō Yamamura, "Success Ill-Gotten?: The Role of Meiji Militarism in Japan's Technological Progress," *Journal of Economic History* 37, no. 1 (March 1977), 127.
[55] Yamamura, "Success Ill-Gotten?"
[56] Yamamura, "Success Ill-Gotten?"
[57] Zielinski, *How States Pay for Wars*, 93.
[58] Warner and Warner, *The Tide at Sunrise*, 163.
[59] Warner and Warner, *The Tide at Sunrise*.
[60] Evans and Peattie, *Kaigun*, 90.
[61] Evans and Peattie, *Kaigun*.
[62] Warner and Warner, *The Tide at Sunrise*, 163.
[63] Warner and Warner, *The Tide at Sunrise*.

partite Intervention had taught Japan that it could not contend with multiple Western powers in the Far East.[64] It was acutely aware that its chances of success against the Russians drastically decreased if Russia was allied with another powerful naval state. Moreover, the cost of a multination fight would render a war beyond Japan's ability to pay.

Japan rightly concluded that success required it to prepare the international arena so as to confine the war to a one-on-one match with Russia.[65] The optimal strategic maneuver to accomplish this objective was to form an alliance with Great Britain, the world's greatest maritime nation and a nation who also had interest in checking Russia's rapacious appetite in the Far East and elsewhere.[66] In January 1902, the Anglo-Japanese Alliance was accomplished. While largely seen as a diplomatic coup with military implications, the treaty is also a diplomatic triumph with economic implications; the treaty had the effect Japan desired, which was to isolate the war and thus limit the cost. [67]

By the terms of the agreement, the signatories pledged to recognize each country's regional interest and spheres of influence, which included Japan's strategic and economic interest in Korea.[68] More importantly, the treaty had major strategic implications in Japan's military planning, as one scholar articulates:

> While the alliance did not commit either side to come to the aid of the other in case of hostilities with a single enemy, it did guarantee such support in the case of two or more antagonists. Japan gained not only the prestige of being linked to the world's foremost maritime nation, but also the freedom of action to plan hostilities against Russia without having to worry about the intervention of a second hostile power.[69]

In short, there were two prongs of mutual defense alliance. First, Great Britain and Japan promised to remain neutral if the other was to engage in a war with another country. Second, and more importantly, the alliance assured that Britain would provide military assistance if Japan were to be embroiled in a war with two or more powers.

The military clauses of the treaty were never triggered. Nevertheless, the alliance proved beneficial to Japan before and during the war.[70] For example, Britain facilitated the transaction between Japan and Italy for two armored cruisers.[71] Britain also provided half a million tons of superior coal to alleviate Japan's critical fuel shortage just prior to the commencement of hostilities.[72] Furthermore, the Anglo-Japanese accord turned the diplomatic tables on the Russians.[73] Whereas in 1895, Russia linked with France and Germany to diplomatically isolate Tokyo; now, it was St. Petersburg that was diplomatically alone.[74] When the czar suggested reviving the Tripartite Intervention, Germany politely declined, opting instead to remain neutral. France, an ally to Russia at the time, made overtures of possibly siding with Russia if war broke out in the

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[64] Evans and Peattie, *Kaigun*, 65.
[65] Evans and Peattie, *Kaigun*.
[66] Vinacke, *A History of the Far East in Modern Times*, 175–76.
[67] Stephen Howarth, *The Fighting Ships of the Rising Sun: The Drama of the Japanese Navy, 1895–1945* (New York: Antheneum, 1983), 40.
[68] Mikiso Hane, *Modern Japan: A Historical Survey* (Boulder, CO: Westview Press, 1992), 173.
[69] Evans and Peattie, *Kaigun*, 65.
[70] Ian H. Nish, *The Anglo-Japanese Alliance: The Diplomacy of Two Island Empires, 1894–1907* (London: Athlone Press, 1966), 213–14.
[71] Evans and Peattie, *Kaigun*, 65.
[72] Evans and Peattie, *Kaigun*, 67.
[73] Howarth, *The Fighting Ships of the Rising Sun*, 41.
[74] Howarth, *The Fighting Ships of the Rising Sun*, 41.

Far East.[75] However, in the end, France hesitated to expose its naval fleet to the British maritime menace and stayed out of the war.[76]

Regarding the short-term fiscal concerns, the mutual defense pact with Great Britain allowed Japan not only to anticipate dominating the Far East waters but to keep the war's cost from spiraling out of control. In the longer term, the alliance offered Japan access to sizable foreign loans without which Japan could not have financed the war against Russia.

SINEWS OF WAR

Despite Japan's rigorous planning, early estimates of the war cost were grossly underestimated. Using previous Sino-Japanese War figures as a template and underestimating the Trans-Siberian Railroad's ability to move Russian troop reinforcements to the eastern front, Japanese strategists estimated that the war could cost as little as ¥280 million.[77] If, however, the war lasted no more than a year and fighting could be limited to the Korean Peninsula, the Japanese military estimated the maximum war cost at ¥450–¥500 million.[78] However, the realities of twentieth-century warfare soon disabused governmental officials of these early notional appraisals.

The war was fought on a massive scale. The ferocity of fire was stunningly surprising with both belligerents experiencing carnage at a shocking rate.[79] On the battlefields of Manchuria, soldiers dug in for protracted trench warfare, fending off rapid-fire artillery and concentrated machine gun fire.[80] The siege at Port Arthur hardened to a prolonged bloodbath, costing the Japanese 60,000 battle casualties and another 35,000 casualties as a result of disease.[81] The Russians lost 31,000 men during the siege.[82] At the Battle of Mukden, the belligerents assembled nearly a half million combatants—200,000 Japanese soldiers pitted against 275,000 Russians—across a front extending roughly 145 km.[83] As one commentary remarked, "the Russo-Japanese War became one of the age's largest clashes, exceeded only by the American Civil War both in troop levels and cost during the century that separates the Battle of Waterloo from the call to arms of Summer 1914."[84]

Battling against the world's largest army and third largest navy required Japan to mobilize its resources to an unprecedented magnitude. The cost in terms of soldiers, logistics, and arms was unparalleled for the island nation. From the opening salvo at Port Arthur to the signing of the peace Treaty of Portsmouth in Kittery, Maine, the Russo-Japanese War lasted for 575 days. While small in terms of relative duration, the war proved costly in terms of blood and treasure. To meet troop mobilization demands, one out of five working-age Japanese males were drafted, deploying in 17 field divisions.[85] The price tag for this unforeseen mobilization was not cheap, costing nearly ¥3 million per day. By war's end, expenditures totaled more than ¥1.5 billion.[86] To put the price tag in perspective, the cost of the war was more than six times larger

[75] Vinacke, *A History of the Far East in Modern Times*, 177.
[76] Vinacke, *A History of the Far East in Modern* Times; and Howarth, *The Fighting Ships of the Rising Sun*, 41.
[77] Ono Keishi, "Japan's Monetary Mobilization for War," in *The Russo-Japanese War in Global Perspective*, 254–55.
[78] Keishi, "Japan's Monetary Mobilization for War," 2.
[79] Geoffrey Wawro, *Warfare and Society in Europe, 1792–1914* (New York: Routledge, 2000), 155.
[80] Wawro, *Warfare and Society in Europe*, 126.
[81] Warner and Warner, *The Tide at Sunrise*, 299–310, 441–48.
[82] Wawro, *Warfare and Society in Europe*, 155.
[83] Roten Kowner, *The A to Z of the Russo-Japanese War* (Plymouth, UK: Scarecrow Press, 2006), 244.
[84] Keishi, "Japan's Monetary Mobilization for War," 256.
[85] Pyle, *The Making of Modern Japan*, 141; and Keishi, "Japan's Monetary Mobilization for War," 76.
[86] Allen, *A Short Economic History of Modern Japan*, 48; Tomoyuki, "Patriotic Recession," 277; and Keishi, "Japan's Monetary Mobilization for War," 98.

than the Tokyo's normal yearly expenditures and more than 50 percent of annual its GNP.[87]

Japan also had to consider Russia's economic strength. At the turn of the twentieth century, Russia's GDP was seven times greater than Japan's, and its per capita income was two times greater.[88] With the relative strength of Russia, Japan could not afford to underestimate its adversary's full potential, especially if the war dragged on.[89] To mobilize its resources and effectuate its battle plans, Japan required sound management of its finances. In simple terms, it needed funds to prosecute the war.[90] As a result of government reforms stabilizing the currency and building an efficient national bureaucratic structure, Japan was able to effectively integrate taxation policy into its war-financing strategy.

One month after hostilities broke out, the Japanese government instituted a series of emergency measures relating to war financing.[91] The government increased taxes on land, mining, and targeted commodities (e.g., alcohol, sugar, and soy sauce), as well as raising rates on stamp and import duties.[92] It also imposed new consumption taxes on kerosene and wool textiles.[93] During the early stages of the war, the government also nationalized the tobacco industry.[94] One year into the war, the Japanese government further raised land, sales, excise, and license taxes, with sharp rises in taxes on consumer commodities such as sugar and kerosene.[95] It also imposed new taxes, including salt, traveling, and inheritance taxes.[96] Finally, it enlarged the scope of taxes beyond wool textiles to now include all textiles, most notably silk.[97]

While there were issues of inflation and some industrial sectors plunged into recession, the overall tax scheme proved effective. According to records, the wartime taxation scheme raised ¥182 million additional funds during the nearly two-year Russo-Japanese War.[98] Overall, the tax resources allocated for the war accounted for more than 10 percent of the war's cost.

To supplement its tax measures, as early as February 1904, Japan began a concerted campaign to sell government war bonds.[99] Before the war concluded, the government initiated five domestic bond issues.[100] While the bonds were unsecured, they proved attractive to domestic investors based on a favorable interest rate of 5 to 6 percent and a redemption period of five to seven years.[101] The war bond campaigns netted a total of ¥480 million.[102]

Domestic revenue raising resources, however, were not sufficient to meet the colossal finan-

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[87] Keishi, "Japan's Monetary Mobilization for War," 251. "In 1904 Japan's gross national product (GNP) was calculated at some ¥3 billion, while the central government's general account during FY 1904 stood at ¥277 million."
[88] Keishi, "Japan's Monetary Mobilization for War," 253. The author used 2007 dollar values, writing that in 1900, Russia's GDP was $8.3 billion, per capita was $60; Japan's GDP was $1.2 billion, per capita was $30.
[89] Warner and Warner, *The Tide at Sunrise*, 175.
[90] Lacey, *Gold, Blood, and Power*, 2.
[91] Masayoshi Matsumura, *Baron Kaneko and the Russo-Japanese War, 1904–05: A Study in the Public Diplomacy of Japan*, trans. Ian Ruxton (Morrisville, NC: Lulu Press, 2009), 179.
[92] Tomoyuki, "Patriotic Recession," 273; Zielinski, *How States Pay for Wars*, 91; and Keishi, "Japan's Monetary Mobilization for War," 9
[93] Zielinski, *How States Pay for Wars*, 91.
[94] Matsumura, *Baron Kaneko and the Russo-Japanese War*, 179.
[95] Tomoyuki, "Patriotic Recession," 273; Zielinski, *How States Pay for Wars*, 91; and Keishi, "Japan's Monetary Mobilization for War," 100.
[96] Zielinski, *How States Pay for Wars*, 91.
[97] Zielinski, *How States Pay for Wars*.
[98] Tomoyuki, "Patriotic Recession," 274. Indicates that textiles, especially silk, were the largest industry to suffer. In Kyoto, textiles accounted for more than 86 percent of total employees Keishi, "Japan's Monetary Mobilization for War," 98; and Tomoyuki, "Patriotic Recession," 277. Estimates that tax increases resulted in ¥180 million.
[99] Tomoyuki, "Patriotic Recession," 278.
[100] Keishi, "Japan's Monetary Mobilization for War," 100.
[101] Tomoyuki, "Patriotic Recession," 278.
[102] Keishi, "Japan's Monetary Mobilization for War," 100.

cial stresses in this war.[103] Foreign loans were critically needed. At the beginning of the war, this was no easy task, for most Western powers were betting against a Japanese victory.[104] However, three factors helped Japan meet their wartime financial imperatives.

First, Japan's economic reforms of early years paid off immeasurably, but none more so that then when it established the yen in 1871 and adopted the gold standard in 1897. These two measures hugely bolstered foreign investors' confidence in Japan's financial stability. Pegging the yen to gold guaranteed the value of the yen against the world's major currencies and gave Japan international economic respectability. In a single stroke, Japan became a member of the select club of nations whose economies and currencies were central to the operation of the international economy.[105]

Second, the serendipitous meeting between the Japanese banker Takahashi Korekiyo and American Jewish financier Jacob H. Schiff proved fortuitous for Japan achieving its financial exigencies.[106] Acting in his role as vice president of the Bank of Japan, Korekiyo traveled to London in April 1904 to persuade the British to lend needed war funds.[107] The first round with Britain financers proved less than satisfactory. Originally promising to float a £10 million bond, the London financiers decided to underwrite an initial tranche of £5 million at 6 percent interest.[108] What at first seemed like a ruinous impasse turned into a godsend. At a dinner party in London, Korekiyo met Jacob Schiff, senior partner in the American banking firm of Kuhn, Loeb, and Company.[109]

During an age where the United States' official stance was characteristically neutral in overseas wars, private citizens, often wealthy bankers and businessman, acted as unofficial agents to serve out U.S. foreign policy goals.[110] Incensed by the Kishinev massacre of 1903 and the general plight of the oppressed Jewish diaspora in Russia, Schiff was an ardent anticzarist.[111] He hoped that the war with Japan would lead to the czar's fall, replacing it with a liberal regime, and, thus, improving the plight of Russian Jews.[112] Through his bank, Schiff supplied the other half of the £5 million.[113] While the war's outcome remained largely uncertain, in November 1904, Schiff once again helped the Japanese secure a second loan for £12 million at 6 percent interest.[114] This loan, as with the last, was unwritten equally in London and New York.[115] Not

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[103] Additional miscellaneous domestic funds totaled ¥120 million, which included funds diverted from special accounts (e.g., forestry fund, educational fund), proceeds from governmental property sales, receipts from the South Manchurian and Korean railways, captured articles and trophies, and voluntary contributed funds. Rounding out the war's price tag are loans raised for postwar expenditures. See Keishi, "Japan's Monetary Mobilization for War," 97–103.

[104] Perez, *History of Japan*, 122; and Miller, "Japan's Other Victory," 471.

[105] Janet Hunter, "The Limits of Financial Power: Japanese Foreign Borrowing and the Russo-Japanese War," in *Great Power and Little Wars: Limits of Power*, ed. A. Hamish Ion and E. J. Errington (Westport, CT: Praeger, 1993), 147–48.

[106] Gary Dean Best, "Financing a Foreign War: Jacob H. Schiff and Japan, 1904–05," *American Jewish Historical Quarterly* 61, no. 4 (June 1972): 314; and Miller, "Japan's Other Victory," 471–72.

[107] Miller, "Japan's Other Victory," 471–72.

[108] Best, "Financing a Foreign War," 314–15.

[109] Miller, "Japan's Other Victory," 471–72.

[110] Herring, *From Colony to Superpower*, 446, 468.

[111] Herring, *From Colony to Superpower*, 351–52. Between 1903 and 1906, Russia experienced as many as 300 such pogroms as the organized killings of Jews that were either condoned or sanctioned by the government. At the time, Kishinev was the capital city in the czarists Bessarabia Province, present day Moldova, where nearly half of the towns 125,000 residents were Jewish. In April 1903, Easter Sunday, 47 Jews were killed by mob violence, hundreds were wounded, thousands of houses were burned, and Jewish business were looted. For a detailed account of the Kishinev massacre, see Edward H. Judge, *Easter in Kishinev: Anatomy of Pogrom* (New York: NYU Press, 1992).

[112] Herring, *From Colony to Superpower*, 352.

[113] Best, "Financing a Foreign War," 315.

[114] Best, "Financing a Foreign War," 315–16.

[115] Best, "Financing a Foreign War."

only that, Schiff led the effort to block U.S. and European loans to Russia during the war.[116]

Third, battlefield triumphs upgraded Japan's creditworthiness.[117] By 1905, Japan had achieved a series of military successes and had taken Port Arthur. Westerners' perceptions of the war outcome shifted.[118] Once disinclined to think that the tiny island nation could achieve sustained combat success against its heavyweight adversary, foreign confidence in Japan's military was greatly enhanced as it marched from one victory to the next. As one contemporary observer noted, "Europeans and Americans were amazed and dumbfounded at the surrender of Port Arthur, and the single victory at Mukden. Their sympathies were enlisted toward Japan, and the capitalists competed with one another in subscribing to our loans."[119]

In March 1905, with its increased standing both in the military and financial spheres, Japan secured a third foreign loan, this time a substantially larger amount with better terms than the last two; financiers underwrote a £30 million loan at 4.5 percent. Following the spectacular naval victory at Tsushima, Japan floated another bond for £30 million at 4.5 percent.[120] By any means, this was viewed as an "international financial coup." While defeating Russia on the battlefield and at sea was a marvel of military prowess, Japan also demonstrated remarkable financial prowess. With limited prior experience in overseas finance, Japan had tapped into global financial markets on a massive scale to fund the war.[121] In a little more than a year, between May 1904 and July 1905, the Japanese secured four overseas loans totaling £82 million or approximately ¥800 million.[122]

The foreign loans filled the financial gap needed to pay for the war. However, securing the loans was not an automatic financial fix. Monetary measures were also needed. The financial issue stemmed from the fact that the loan revenues did not flow into Japan's accounts quick enough to pay for the immediate cost of supplying, feeding, and fueling the military.[123] The immediacy of the war effort caused the money to be spent before the revenue from the loans were raised. In this situation, the Bank of Japan played a critical role in meeting the government's urgent pecuniary request by implementing bridge financing measures, that is short-term borrowing arrangements to pay for immediate cost.[124] By doing so, the central bank abandoned its independent monetary role. However, these measures were indispensable, because "Japan would never have been able to finance its Russian war without the Bank of Japan's effective monetary policy."[125]

CONCLUSION

Prior to the Russo-Japanese War, Russia's imperialistic push into the Far East seemed unobstructed both politically and militarily. Russia's eastern expansion produced little European interference. In addition, Russian military conflicts with Asian powers were relatively effortless.

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[116] Herring, *From Colony to Superpower*, 352.
[117] Hunter, "The Limits of Financial Power," 147.
[118] Best, "Financing a Foreign War," 316.
[119] Ushisaburo Kobayashi, *War and Armament Loans of Japan* (New York: Oxford University Press, 1922), 76.
[120] Best, "Financing a Foreign War," 316–19.
[121] Miller, "Japan's Other Victory," 472.
[122] Best, "Financing a Foreign War," 313; and Keishi, "Japan's Monetary Mobilization for War," 100.
[123] Keishi, "Japan's Monetary Mobilization for War," 261.
[124] Keishi, "Japan's Monetary Mobilization for War," 251–52. The term *bridge financing* refers to "temporary funding that will eventually be replaced by permanent capital from equity investors or debt lenders." In venture capital, a bridge is usually a short-term note (6–12 months) that converts to preferred stock; in addition to receiving interest, a bridge lender receives warrant coverage to compensate the investor for taking an early risk in a company. Kenneth H. Marks et al., *The Handbook of Financing Growth: Strategies, Capital Structure, and M&A Transactions*, 2d ed. (Hoboken, NJ: John Wiley, 2009), 593.
[125] Keishi, "Japan's Monetary Mobilization for War," 268.

With such little resistance, the czarist's aims in Asia seemed predetermined and inevitable. Just one year before the start of the war with Japan, Sergey Ulyevich Witte, the Russian finance minister, wrote to Czar Nicholas II, "Given our enormous frontier with China and our exceptionally favorable situation, the absorption by Russia of a considerable part of the Chinese Empire is only a question of time."[126] But in the early twentieth century, Russia's ambitions in the Far East were checked by an unlikely foe.

Some may attribute Japan's superior training, national zeal, or operational genius for its military success in the Russo-Japanese War. In their book, *Kaigun*, David C. Evans and Mark R. Peattie maintain that Japanese naval reforms in tactics and quality of arms were the most powerful element of the Japanese success.[127] Others assess that the Japanese demonstrated greater acuity at the operation level of warfare, and offset Russia's advantage through "effective use of mobility, maneuver, and command and control."[128] In addition, Dennis Warner and Peggy Warner, in their seminal tome on the war, *Tide at Sunrise*, contend that the Japanese had the political will to win whereas Russia did not:

> In Russia the cradle and the tomb were both coffins; in Japan a man died to save his spirit. The serf demanded food in his belly; the samurai would forgo all for the Emperor. The Tsar of all the Russians sought Russian hegemony over Manchuria and far beyond; the Emperor of Meiji believed he was fighting for his country's life.[129]

However, these lines of thinking are the wrong lesson to absorb from the Russo-Japanese War—at best they are incomplete. Although not immaterial, the assumption poses that Japan could win an all-out war with Russia by its sheer will and desire coupled with its perfected training and sound operational plans. Countering these views, Julian S. Corbett in his definitive book, *Classics of Sea Power*, explains:

> After the event we are inclined to attribute the result to moral qualities and superior training and readiness of the victors. These qualities indeed played their part, and they must not be minimized; but who will contend that if Japan had tried to make war with Russia, as Napoleon made his, she could have fared even as well as she did? She had no such preponderance as Clausewitz laid down as a condition precedent to attempting to overthrow of her enemy—the employment of unlimited war.[130]

Simply put, Japan could not win a conventional victory against Russia by mere soldierly will or military genius. Having the preponderance of power, Russia was simply too big and too strong to be completely defeated in a war of attrition despite its regional weaknesses in East Asia. Instead, Japan devised well-planned economic reforms and well-executed financial schemes to ready its military to achieve limited objectives against a strong rival. In straightforward terms, Japan brilliantly modernized its administrative apparatus to effectively mobilize its resources, allowing it "to punch above its weight."[131] Echoing this sentiment of how fiscal power translates to war-time military power, a former U.S. Treasury secretary wrote:

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[126] Henry Kissinger, *Diplomacy* (New York: Touchstone, 1994), 173–74.
[127] Evans and Peattie, *Kaigun*, 129–30.
[128] Maj William Hammac, USA, *The Russo-Japanese War of 1904–1905 and the Evolution of Operational Art* (Fort Leavenworth, KS: School of Advanced Military Studies, U.S. Army Command and General Staff College, 2013), 56.
[129] Warner and Warner, *The Tide at Sunrise*, 176.
[130] Julian S. Corbett, *Some Principles of Maritime Strategy* (Annapolis: Naval Institute Press, 1988), 79.
[131] Lacey, *Gold, Blood, and Power*, ix.

> The movements of the armies, the great battles that were fought with varying success on both sides, so absorbed the public attention that comparatively little interest was felt in the measures that were adopted to provide the means to meet the enormous and daily increasing demands upon the treasury. It was the successful general who was the recipient of public honors, not the man by whose agency the sinews of war were supplied; and yet but for the successful administration of the Treasury Department during the war, the Union would have been riven asunder.[132]

For all practical purposes, Japan would have preferred to avoid war with Russia. In terms of military might, natural resources, and industrial output, Meiji Japan was numerically inferior to czarist Russia. Yet, despite diplomatic efforts to avert it, war ensued.[133] The forces propelling the island nation on a collision course with a continental European power were ultimately too strong to counter. War prevailed because imperialistic ambitions proved exceedingly tempting to resist. And, war happened because of long-held grievances and national pride. But, victory was ultimately realized because Japan was best able to mobilize its national economic and financial resources for war.[134]

Following the Meiji Restoration of 1868, Japan recognized that its national security rested on implementing an audacious national program of modernization. In 1895, despite its military victory over China, Japan continued to acknowledge its economic and military weakness relative to European powers, acquiescing to Russia's demands to relinquish its hard-won possessions in lower Manchuria. Though the inflamed Japanese passions favored war, the country's governing elite wisely deferred war for almost a decade, embarking on a fervent economic program to ensure wartime readiness to face its hefty regional rival.

By 1905, after a largely successful war against a far superior rival, Japan's road to wartime success can, and should, be principally attributed to its economic reforms and its financial efficiencies, both in the long and short term. In other words, Japan demonstrated strategic thinking in broad political and economic contexts that allowed it to close the gap between its nation's aspirations and its national means. By the end of the Russo-Japanese War, Japan had proved it could achieve spectacular military success, but it also demonstrated its spectacular economic and financial achievements. It was only through these economic instruments of power that Japan was ready to achieve its national policy objectives through war.

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[132] Hugh McCulloch, *Men and Measures of Half a Century: Sketches and Comments* (New York: Charles Scribner's Sons, 1884), 182.

[133] See Ian Nish, *The Origins of the Russo-Japanese War* (London: Longman, 1985).

[134] Lacey, *Gold, Blood, and Power*, 1.

Add to the Commandant's Reading List
The Case for *Washington's Crossing*

by Captain Michael Cubillos, U.S. Marine Corps[1]

The Marine Corps Commandant's Professional Reading List (CPRL) is designed to enhance the professional development and critical thinking of Marines at all levels.[2] Books included on this list should be densely packed with valuable lessons and information to develop our men and women. *Washington's Crossing* by David Hackett Fischer is an outstanding narrative of George Washington's winter campaign of 1776–77, during which he led the overmatched Americans to a series of victories that changed the course of the American Revolution. There are many lessons that can be drawn from this book, but the most important lesson is that of leadership. By uniting a diverse group through inclusive leadership and making bold decisions during the fog of war, the book illustrates Washington as a man of great character. All Marines would benefit from reading *Washington's Crossing*, but it is especially pertinent to young officers and should be added to the CPRL "CMC's Choice" or "Primary Level–Officer" list.

George Washington's character enabled him to become the leader Americans needed at the time. Fischer describes Washington's personal creed, which was a "philosophy of moral striving through virtuous action and right conduct."[3] He lived by a code of honor—a combination of physical and moral courage and stamina that was essential to be a true gentleman and leader.[4] He displayed this courage and stamina many times throughout the winter campaign. During the Battle of Princeton, Washington "led his men straight into the center of the battle, within thirty paces of the British line," leaving his troops "deeply moved by his courage."[5] Another critical component of Washington's character was his strong sense of ethics. British and Hessian soldiers had inflicted many cruelties on Americans throughout the war, but Washington issued strict orders regarding the treatment of noncombatants and enemy soldiers alike.[6] He insisted that enemy officers "be well treated" and that enemy soldiers be treated in a manner that they "may have such principles instilled into them during their Confinement, that when they return, they may open the Eyes of their Countrymen."[7] All Marines adhere to the core values of honor,

[1] Capt Cubillos is a student at MCU's Expeditionary Warfare School. This paper was cowinner in the Krulak Center Trenton Essay Contest sponsored by the Marine Corps University Foundation for academic year 2018–19.
[2] "Commandant's Professional Reading List," Marine Corps University Research Library, 18 April 2019.
[3] David Hackett Fischer, *Washington's Crossing* (New York: Oxford University Press, 2004), 13.
[4] Fischer, *Washington's Crossing*.
[5] Fischer, *Washington's Crossing*, 334.
[6] The term *Hessians* refers to German troops hired by the British to fight during the American Revolution. They were principally drawn from the German state of Hesse-Kassel, although soldiers from other German states also served in America. Fischer, *Washington's Crossing*, 276.
[7] Fischer, *Washington's Crossing*; and *The Papers of George Washington*, Revolutionary War Series, vol. 7, *21 October 1776–5 January 1777*, ed. Philander D. Chase (Charlottesville: University of Virginia Press, 1997), 482–84.

courage, and commitment.[8] Young officer training is tied directly to five horizontal themes of officership, the first of which is to be "a man or woman of exemplary character."[9] There is no better example than that of George Washington during the winter campaign.

Washington faced many significant leadership challenges, one of which was the undisciplined and diverse nature of the Continental Army. He developed a leadership style that eventually would unite his "cantankerous Yankees, stubborn Pennsylvanians, autonomous Jerseymen, honor-bound Virginians, and independent backcountry men in a common cause."[10] To unify his troops, Washington solicited input from his subordinates, "listened more than he talked and drew freely from the best ideas that were put before him."[11] In this manner, not only did he improve his own understanding of the situation and the options available to him, but he developed a sense of ownership among his "army of free spirts."[12] Marine Corps leaders have the same challenge today as George Washington did in 1776, though perhaps on a grander scale. Marines come from all walks of life, and it is the leader's responsibility to promote a sense of belonging, ownership, and loyalty among their people to achieve a common mission.

The winter campaign of 1776–77 has cemented itself in American lore because of Washington's bold decision to cross the Delaware River on Christmas Day to wage an attack on Trenton, in colonial New Jersey. The crossing took place on the heels of many failures and amid a fierce nor'easter that threatened to derail the operation before contact with the enemy. The difficult crossing was followed by a cold, wet march into battle that left them several hours behind schedule.[13] By 0800 the next morning, Washington and his men came upon the enemy with complete and total surprise: "Both American wings attacked at nearly the same moment, through a heavy squall of snow that masked their approach."[14] Days later he would make the difficult decision, with input from his war council, to cross the Delaware again—under worse conditions—and establish a defense at Trenton. There they achieved another "great victory," and set the stage for yet a third bold and aggressive decision: to attack at Princeton.[15] Washington's plan to use his army's superior mobility and attack the enemy at a weak point (a great example of maneuver warfare) was another critical decision made in the fog of war.[16] After a difficult battle, the Americans prevailed, their actions shifting the tide of the war.[17] George Washington made difficult decisions to attack time after time. His aggressiveness and bias for action is exactly what we hope to develop in all our Marine leaders.

Washington's Crossing is a Pulitzer Prize-winning book full of lessons on military discipline, tactics, the nature of war, and more. Above all, it is a noteworthy example of leadership at its best. Fischer contrasts Washington's leadership with that of the British and Hessian leaders throughout the war, and the reader can see the implications of different leadership styles at each stage of the campaign. The Marine Corps prides itself on strong leadership; its leaders are of strong character, able to inspire their people for a common cause, and have a bias for action. Marine leaders will have trouble finding a more comprehensive example of leadership than this work. Without a doubt, it should be included in the CPRL.

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[8] *MCTP 6-10B, Marine Corps Values: A User's Guide for Discussion Leaders* (Washington, DC: Headquarters Marine Corps, 2 May 2016), 2-7.
[9] "The Basic School," Training Command, U.S. Marine Corps, accessed 8 September 2018.
[10] Fischer, *Washington's Crossing*, 266.
[11] Fischer, *Washington's Crossing*, 316.
[12] Fischer, *Washington's Crossing*, 266.
[13] Fischer, *Washington's Crossing*, 225.
[14] Fischer, *Washington's Crossing*, 235.
[15] Fischer, *Washington's Crossing*, 307.
[16] Fischer, *Washington's Crossing*, 308.
[17] Fischer, *Washington's Crossing*, 324.

Add to the Commandant's Reading List
The Case for *Washington's Crossing*

by Captain Charles Kelly, U.S. Army[1]

In reference to the importance of professional military reading, former secretary of defense James N. Mattis wrote, " 'Winging it' and filling body bags as we sort out what works reminds us of the moral dictates and the cost of incompetence in our profession."[2] This statement poignantly expresses the price of unpreparedness in war. The Commandant of the Marine Corps' Professional Reading List seeks to aid Marines in their pursuit to avoid the perils described by Secretary Mattis. The 35th Commandant, General James F. Amos, aptly summarized the intent of the Professional Reading List in a letter to the Corps: "the study of military history offers the inexpensive chance to learn from the hard-won experience of others, find a template for solving existing challenges, and avoid making the same mistakes twice."[3] Few books more appropriately accomplish this than *Washington's Crossing* by David Hackett Fischer. *Washington's Crossing* presents the acute details of the British, Hessian, and American forces during the American Revolution and offers clear lessons on both the tangible and intangible aspects of war. *Washington's Crossing* merits inclusion on the Commandant's Professional Reading List as required reading for company grade officers, because it provides a remarkable example of combat leadership, offers a timely warning on the price of arrogance in war, and effectively demonstrates the historical foundation of our military system and the humane ethics underlying our ethos today.

In his seminal work on the theory of war, Carl von Clausewitz highlighted some of the essential qualities required for successful military leaders. Among them are courage, intellect, determination, and self-control.[4] *Washington's Crossing* is replete with accounts of George Washington embodying these characteristics. His courage, and its subsequent effect on the soldiers he served, is captured on numerous occasions throughout the book and is notably on display as American soldiers retreated across the Assunpink Creek, a tributary of the Delaware River. While under fire and amid mass disorder, Washington moved to the bridge, the center of danger and chaos, and sat stoically on his horse guiding his men across the river.[5] Private John Howland wrote that "the firm, composed and majestic countenance of the General inspired confidence and assurance."[6] Another such example is at the Battle of Princeton. A young naval

[1] Capt Kelly is a student at MCU's Expeditionary Warfare School. This paper was cowinner in the Krulak Center Trenton Essay Contest sponsored by the Marine Corps University Foundation for academic year 2018–19.
[2] Geoffrey Ingersoll, "General James 'Mad Dog' Mattis Email about Being 'Too Busy to Read' Is a Must-Read," *Business Insider*, 9 May 2013.
[3] "Commandant's Reading List–A Complete List," USMC Officer, July 2015.
[4] Carl von Clausewitz, *On War*, trans. Michael Howard and Peter Paret (Princeton, NJ: Princeton University Press, 1976), 116, 117, 122.
[5] David Hackett Fischer, *Washington's Crossing* (New York: Oxford University Press, 2004), 300.
[6] Fischer, *Washington's Crossing*, 300.

officer described seeing Washington "brave all the dangers of the field and his important life hanging as it were by a single hair with a thousand deaths flying around him."[7] Deeply moved by his courage, a young officer wrote, "Believe me, I thought not of myself."[8] These examples and many others demonstrate the type of selfless leadership Washington displayed. The vivid scenes reveal the epitome of combat leadership and inspire today's Marines with an example to emulate.

Washington's leadership does not stop at combat courage. In closely examining both the British and American war councils during the war, Fischer illuminates Washington's humility and intellect: "He had learned to work closely with his subordinates. Washington met frequently with them in councils of war and encouraged a free exchange of views. He also listened more than he talked and drew freely from the best ideas that were put before him."[9] Fischer continues to describe Washington's leadership style by stating that "Washington was at the center of all these decisions, functioning more as a leader than a commander; always listening, inspiring, guiding; rarely demanding, commanding, coercing."[10] These timeless leadership lessons from our nation's first commander in chief are consistent with the traits expected of today's Marine leaders.

In the post–World War II era, the United States established itself as the preeminent military across the globe, and Operation Desert Storm (1990–91) further codified this belief. In the late eighteenth century, Great Britain and the Hessian soldiers who fought in the American Revolution held a similar status and introspectively believed they were without equal. *Washington's Crossing* shines a light on the arrogance of the British and Prussian forces and the associated deadly consequences. In reflecting on the Hessian defensive preparations at Trenton, a lieutenant remarked about Colonel Johann G. Rall, the Hessian commander at Trenton, "It never struck him that the rebels might attack us, and therefore he made no preparations against an attack . . . on the whole we had a poor opinion of the rebels."[11] This lack of respect for the Americans enabled Washington to achieve surprise and seize the initiative on the Hessian garrison at Trenton. When the Hessians tried to counterattack, Rall again underestimated the American's abilities: "Colonel Rall decided to fight the Americans by attacking directly against their main strength. . . . It was a mistake of historic consequence."[12] The annals of warfare document the cost of arrogance well. As Arther Ferrill wrote of the ancient Persian armies in *The Origins of War*, "It did not require military genius for Persian commanders to avoid the pitfalls of their campaigns. . . . Their problem was overconfidence lapsing into carelessness . . . carelessness led to error, and error to defeat."[13] The perceived status of America's military as a hegemon without equal renders us highly susceptible to this same ruinous trap. This lesson is especially powerful in *Washington's Crossing*, because Fischer emphasizes arrogance as a large contributing factor to our nation's victory for independence.

Last, *Washington's Crossing* provides Marines with historical context regarding the foundation of our nation's military and the policy of humanity underlying our current ethos. The internal struggles during the war gave rise to civilian control over the military, which is still honored today: "George Washington set the example . . . he worked hard to establish the principle of civilian control over military affairs, and always respected it."[14] Aside from the important struc-

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[7] Fischer, *Washington's Crossing*, 334, 335.
[8] Fischer, *Washington's Crossing*.
[9] Fischer, *Washington's Crossing*, 315, 316.
[10] Fischer, *Washington's Crossing*, 366.
[11] Fischer, *Washington's Crossing*, 191.
[12] Fischer, *Washington's Crossing*, 243.
[13] Arther Ferrill, *The Origins of War: From the Stone Age to Alexander the Great* (London: Thames and Hudson, 1986), 123.
[14] Fischer, *Washington's Crossing*, *368*.

tural foundations, the American Revolution established a precedent for the values and ethics still espoused in our nation's military. For example, "George Washington and high commanders never threatened to deny quarters to an enemy. . . . Washington ordered that Hessian captives would be treated . . . with the same rights of humanity for which Americans were striving."[15] The Hessian troops were amazed by the kindness extended to them from the Americans, especially when considering the maltreatment of American prisoners.[16] During this nation's most desperate, existential struggle, our forefathers refused to compromise on principles of morality. They set a high standard, and it is our job to carry the torch.

The oft-quoted Otto von Bismarck said, "Only a fool learns from his own mistakes. A wise man learns from the mistakes of others."[17] *Washington's Crossing* is worthy of inclusion on the Commandant's Professional Reading List as required reading for company grade officers, because it provides a remarkable example of combat leadership, offers a timely warning to the price of arrogance in war, and effectively communicates the historical origins of our military system and the humane ethics underlying our ethos today. *Washington's Crossing* provides today's Marines an excellent opportunity to learn from the successes and mistakes of the past and powerfully illustrates how our values and nation emerged from the immense struggles of our forefathers, the giants upon whose shoulders we now humbly stand.

[15] Fischer, *Washington's Crossing*, 377, 378.
[16] Fischer, *Washington's Crossing*, 378.
[17] Ryan Holiday, *Ego Is the Enemy* (New York: Portfolio/Penguin, 2016), 216.

On Stable Ground

Remotely Operated Unmanned Ground Vehicles Enhancing Department of Defense Compliance with the Law of Armed Conflict

by Major Harlye S. M. Carlton, U.S. Marine Corps[1]

> I'm telling you right now, 10 years from now if the first person through a breach isn't a friggin' robot, shame on us.[2]

INTRODUCTION

From lightweight, throwable robots weighing a few pounds to 40-ton mine-clearing vehicles, the Department of Defense (DOD) relies on unmanned ground vehicles (UGVs) that are remotely operated to accomplish critical missions and save lives.[3] UGVs are a "powered physical system with (optionally) no human operator aboard the principal platform, which can act remotely to accomplish assigned tasks."[4] They are "remotely operated" because a human operator is controlling the UGVs' actions.[5] As with a rifle, the UGV is acting as an extension of that operator. Therefore, regardless of whether the UGV and operator are colocated, U.S. forces' use of UGVs must comply with the law of armed conflict (LOAC).

As the DOD increasingly develops and relies on remotely operated unmanned systems to complete missions previously performed in person by humans, the distance between the system operators and the dangers of the battlefield have created concerns that the use of unmanned systems will result in decreased compliance with LOAC.[6] These concerns are often raised in the context of UGVs' aerial counterpart, the unmanned aerial vehicle (UAV). For example, some analysts have expressed concern that lack of risk to U.S. forces will cause system operators to

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[2] Cheryl Pellerin, "Work: Human-Machine Teaming Represents Defense Technology Future," DOD News, 8 November 2015.

[3] While other agencies of the U.S. government may also operate unmanned systems, this chapter focuses on the DOD's use of unmanned systems. Sources use different terminology with respect to unmanned systems. This chapter will refer to such terms as *unmanned ground vehicles* (UGV) and *unmanned aerial vehicles* (UAVs). The term *unmanned systems* encompasses both UAVs and UGVs. *Development and Utilization of Robotics and Unmanned Ground Vehicles* (Washington, DC: Joint Ground Robotics Enterprise, Office of the Secretary of Defense, 2006).

[4] *Unmanned Systems Integrated Roadmap, FY 2013–2038* (Washington, DC: Under Secretary of Defense Acquisitions, Technology, and Logistics, 2013). The DOD outlines its "vision and strategy for the continued development, production, test, training, operation, and sustainment of unmanned systems technology" in *Unmanned Systems Integrated Roadmap*, 1.

[5] The UGVs discussed here are remotely operated by humans, as opposed to those that are "autonomous."

[6] See P. W. Singer, "Military Robots and the Laws of War," *New Atlantis* (Winter 2009). "When U.S. forces went into Iraq, the original invasion had no robotic systems on the ground. By the end of 2004, there were 150 robots on the ground in Iraq; a year later there were 2,400; by the end of 2008, there were about 12,000 robots of nearly two dozen varieties operating on the ground in Iraq."

lower the threshold of system use, or that a "video game mentality" will desensitize operators.[7] However, UGVs provide capabilities distinct from both humans and UAVs that improve the ability of DOD personnel to conduct operations within the requirements of LOAC. DOD's use of UGV capabilities enhances compliance with LOAC because UGVs increase battlespace awareness, improve strike accuracy, and mitigate against potentially harmful human factors.

This chapter contributes to debate about unmanned systems by drawing attention from the sky and aiming it at the ground. While the use of UAVs has been heavily analyzed and debated, UGVs have received comparatively little attention. While UGVs do not conduct aerial strikes, the lack of analysis regarding UGV use is surprising considering the wide range of UGV capabilities and how UGVs often operate closer in proximity to combatants and civilians than UAVs. Moreover, analysis that is applicable to UAVs is not always applicable to UGVs. The uses, environmental considerations, and LOAC-enhancing capabilities of UAVs and UGVs are quite different. Failure to articulate and consider these differences can prevent forces from maximizing the use of UGVs and may lead to regulations intended for UAVs applying to UGVs as well. These possible outcomes would not only put the United States at a technological disadvantage, they may prevent the United States from benefiting from this technology that enhances LOAC compliance.

To make this argument, this chapter reviews the principles of LOAC as discussed in DOD reports and manuals and in scholarly writings and applies them to remotely operated UGV use. This chapter begins by defining and describing UGVs, UAVs, LOAC, and outlining the debate surrounding the use of unmanned systems in combat. Next, this chapter differentiates UGV capabilities from those of UAVs and humans and explains how UGVs provide the following benefits to U.S. forces: increased awareness of the battlespace, improved strike accuracy, and mitigation against potentially harmful human factors. The chapter then explains how those benefits enhance DOD compliance with LOAC. The subsequent section discusses and responds to concerns with potential LOAC violations involving UGV use. This chapter concludes by looking ahead to DOD use of autonomous systems and cautioning against unnecessary regulations on their development and use.

BACKGROUND

Unmanned Ground Vehicles

Terminology pertaining to unmanned systems is often misused.[8] Carefully distinguishing the concepts of *unmanned* and *autonomous* alleviates confusion.[9] The DOD's *Unmanned Systems Integrated Roadmap* (USIR) explains that whether the system is *manned* depends on whether it is carrying a human operator. This definition is distinguishable from an *autonomous* system, which refers to whether the system can make decisions and react "without human interaction."[10] Therefore, the USIR explains, when a system is controlled remotely by a human operator, it is not

[7] Philip Alston, *Report of the Special Rapporteur on Extrajudicial, Summary or Arbitrary Executions, Addendum: Study on Targeted Killings*, U. Doc A/HRC/14/24/Add.6 (Geneva: United Nations General Assembly, 2010), hereafter Alston report.
[8] *Unmanned Systems Integrated Roadmap*, 15.
[9] It is important to make this distinction, as authors have provided many definitions for unmanned systems. For example, in 2001, Congress stated for purposes of a particular section, "[a]n aircraft or ground combat vehicle has 'unmanned advanced capability' if it is an autonomous, semi-autonomous, or remotely controlled system that can be deployed, re-tasked, recovered, and re-deployed." Floyd D. Spence National Defense Authorization Act for Fiscal Year 2001, Pub. L. No. 106-398, § 220, 114 Stat. 1654A-1, 1654A-38–1654A-40 (2000); Harlye Carlton, "Unmanned Ground Vehicles: Offensive Use and the Security Dilemma" (unpublished manuscript, Marine Corps University, 3 December 2017).
[10] *Unmanned Systems Integrated Roadmap*, 15.

autonomous. Likewise, when a system is autonomous, it is not controlled remotely by a human.[11] Although current DOD use of UGVs may lack a human operator physically colocated with the UGV, human oversight is inherent in their operation and programing. This chapter analyzes UGVs that are remotely operated by humans; autonomous vehicles are outside the scope of this work.[12]

Using unmanned systems in war brings numerous benefits, including enhanced warfighting capabilities and reduced troop casualties, operational costs, and environmental harm.[13] In a 2006 report to Congress entitled *Development and Utilization of Robotics and Unmanned Ground Vehicles*, the DOD expressed the importance of unmanned systems when it said, "Today's battlefield environment unequivocally demonstrates the military utility of robotics applications in combat."[14] The report continued this discussion by stating robots are being destroyed rather than servicemembers being wounded, which is the "preferred outcome."[15] The USIR states that UGV integration into new military domains will continue, partially because of the important and varied roles UGVs played in Iraq and Afghanistan.[16] UGVs provide capabilities that range across a broad range of mission sets to include intelligence, surveillance, and reconnaissance (ISR), command and control (C2), logistics, transport, explosive ordinance disposal (EOD), force protection, and engineering.[17]

Unmanned Aerial Vehicles

The uses and capabilities of UAVs provide important context for the debate surrounding lawful UGV use and how UGVs enhance U.S. force compliance with LOAC. A UAV is "[a]n aircraft that does not carry a human operator and is capable of flight with or without human remote control."[18] The missions performed by UAVs include offensive antiair warfare, electronic attack, electronic warfare support, armed reconnaissance, air interdiction, strike coordination and reconnaissance, multisensory imagery reconnaissance, aviation support to tactical recovery of aircraft, personnel and air logistical support, and aerial escort.[19]

Examples of UAVs currently in use by U.S. forces are the General Atomics MQ-9 Reaper and AeroVironment RQ-11 Raven. The MQ-9 Reaper is a medium-altitude, armed, "long-endurance remotely piloted aircraft that is employed primarily against dynamic execution targets

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[11] *Unmanned Systems Integrated Roadmap*.

[12] The DOD has increased the use of unmanned systems in the last decade; the majority are remotely operated and not autonomous. *Defense Science Board Summer Study on Autonomy* (Washington, DC: Defense Science Board, 2016). The four levels of autonomy are (1) nonautonomous/teleoperated (operator controlling every movement), (2) supervisory autonomy (the operator specifies movements and the system completes the task), (3) task autonomy (operator specifies a task and the system processes and creates a course of action), and (4) full autonomy (system creates and completes its own tasks). Jai Galliot, *Military Robots: Mapping the Moral Landscape* (New York: Routledge 2016). The scope of this chapter is limited to level 1.

[13] Galliot, *Military Robots*, 38–43.

[14] *Development and Utilization of Robotics and Unmanned Ground Vehicles*, 9.

[15] *Development and Utilization of Robotics and Unmanned Ground Vehicles*.

[16] *Unmanned Systems Integrated Roadmap*, 6.

[17] *Command and control* is defined as: "The exercise of authority and direction by a properly designated commander over assigned and attached forces in the accomplishment of the mission. Command and control functions are performed through an arrangement of personnel, equipment, communications, facilities, and procedures employed by a commander in planning, directing, coordinating, and controlling forces and operations in the accomplishment of the mission." *Doctrine for the Armed Forces of the United States*, JP 1 (Washington, DC: Joint Chiefs of Staff, 2017); and *Unmanned Systems Integrated Roadmap*, 7.

[18] *Command and Control of Joint Air Operations*, JP 3-30 (Washington, DC: Joint Chiefs of Staff, 2014).

[19] *Unmanned Aircraft Systems Operations*, MCWP 3-42.1 (Washington, DC: Headquarters Marine Corps, 2016), 1-7–1-8.

and secondarily as an intelligence collection asset."[20] It has a range of 1,850 kilometers (km), has a cruise speed of 230 miles per hour, and weighs 4,900 pounds. It may also carry up to four air-to-ground (AGM)-114 Hellfire missiles, which are laser guided and provide antiarmor and antipersonnel capabilities.[21] The RQ-11 Raven provides low-altitude ISR and targeting information in real time. It has a 10-km range, has a cruise speed of 26 miles per hour, is hand launched, and weighs 4.8 pounds.[22] These assets provide the ability to locate, target, and directly engage enemies from a great distance. While some oppose the use of armed drones for killing enemies, prominent sources have agreed that the use of armed drones is not prohibited by LOAC per se, and that no intrinsic drone features prevent their operators from complying with LOAC.[23]

While the United States' use of both UAVs and UGVs must comply with LOAC, their capabilities and the environments in which they operate differ. Thus, while literature and analysis conducted on UAVs provides helpful insight into UGV use, it is not always applicable. For example, while UAVs have the ability to provide sustained reconnaissance and overwatch without detection, UGVs' ability to provide these assets without detection are limited due to their location on the Earth's surface. Additionally, while UAVs primarily provide observation and strike capabilities from the sky, UGVs provide observation and strike capabilities from the ground level or below and with smaller weapons systems. Another example are UGVs' abilities to provide precise and targeted improvised explosive device (IED) diffusion and carry-away assistance—a capability different from those of UAVs. As a result of these and other differences, UGVs provide unique ways to enhance compliance with LOAC.

Law of Armed Conflict

LOAC "is that part of international law that regulates the resort to armed force; the conduct of hostilities and the protection of war victims in both international and non-international armed conflict; belligerent occupation; and the relationship between belligerent, neutral, and non-belligerent states."[24] LOAC includes "treaties and customary international law applicable to the United States."[25] LOAC has been developed specifically accounting for the unique context of war, and therefore receives priority over all other laws.[26] Additionally, any subsequently created laws must be consistent with LOAC.[27]

Codifying this vast array of treaty and customary international law, the *Department of Defense Law of War Manual* recognizes five LOAC principles: military necessity, humanity, proportionality, distinction, and honor.[28] These principles translate into "basic rules of conduct taught to

[20] "MQ-9 Reaper," U.S. Air Force, fact sheet, 23 September 2015.
[21] "MQ-9 Reaper."
[22] "RQ-11B Raven," U.S. Air Force, fact sheet, 31 October 2007.
[23] See generally Frederic Megret, "The Humanitarian Problem with Drones" (conference, The Legal and Ethical Limits of Technological Warfare Symposium, University of Utah, 1 February 2013), explaining that arguments against the use of armed drones include the one-sidedness of the risk of harm, risk to noncombatants, their clandestine nature, and concerns regarding oversite; and "Panel Discussion on Ensuring use of Remotely Piloted Aircraft or Armed Drones in Counterterrorism and Military Operations in Accordance with International Law, including International Human Rights and Humanitarian Law: Ensuring the Use of Drones in Accordance with International Law" (27th session of Human Rights Council, Geneva, 22 September 2014), concurring with the United National General Assembly.
[24] *Department of Defense Law of War Manual* (Washington, DC: Office of General Counsel, Department of Defense, 2016), paras. 1.3, 1.3.1.2. The *DOD Law of War Manual* uses this definition to define law of war, however, the manual recognizes the terms *law of war* and *law of armed conflict* (LOAC) are often used interchangeably. This chapter will use the term LOAC.
[25] *DOD Law of War Manual*, para. 1.3.
[26] *DOD Law of War Manual*, para. 1.3.2.1.
[27] *DOD Law of War Manual*, para. 1.3.2.2, citing *Murray v. The Charming Betsey*, 6 U.S. 64, 118 (1804).
[28] *DOD Law of War Manual*, para. 2.1.

soldiers from initial entry training" and throughout their careers.[29] These principles are binding on members of the DOD during all armed conflicts and military operations.[30] Additionally, the principles provide a baseline that U.S. servicemembers must follow in the absence of more specific guidance, and work together as a system.[31]

The first principle, *military necessity*, "justifies those measures not forbidden by international law which are indispensable for securing the complete submission of the enemy as soon as possible."[32] Under the military necessity principle, the measure taken "must be leveraged to gaining a military advantage—in the circumstances ruling at the time—as a direct result of their use."[33] Stated as a prohibition by The Hague Conventions, military necessity mandates a belligerent not "destroy or seize the enemy's property, unless such destruction or seizure be imperatively demanded by the necessity of war."[34] The second principle, *humanity*, "forbids the infliction of suffering, injury, or destruction unnecessary to accomplish a legitimate military purpose."[35] This principle applies to both combatants and noncombatants.[36] In addition to minimizing unnecessary suffering, it seeks to rid emotional hazards, such as "personal interests, anger, animosity, or revenge" from the conduct of war.[37]

Third, the *proportionality principle* requires "that even where one is justified in acting, one must not act in a way that is unreasonable or excessive."[38] This requires balancing the justification for an action against the expected harm to determine whether the harm is disproportionate to the justification.[39] While the nature of war creates the near certainty of incidental damage to civilians and civilian objects, the principle of proportionality limits damage as much as possible.[40]

The fourth principle, *distinction*, "obliges parties to a conflict to distinguish principally between the armed forces and the civilian population, and between unprotected and protected objects" when determining what is a lawful military target.[41] The principle of distinction ultimately aims to reduce the amount of suffering experienced during war. The fifth principle, *honor*, "demands a certain amount of fairness in offense and defense and a certain mutual respect between opposing military forces."[42] Honor is important because it assists in the implementation of LOAC. It is a type of good faith between combatants that the other side will abide by LOAC. Likewise, it is a breach of honor to take advantage of the other side's adherence to LOAC.

LOAC dictates the actions of the humans actively participating in hostilities regardless of the means and methods they use to achieve their military ends.[43] Thus, even as technologies

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[29] Geoffrey S. Corn et al., *The Law of Armed Conflict: An Operational Approach* (Frederick, MD: Wolters Kluwer Law & Business, 2012), 112.
[30] *DOD Directive 2311.01E, DoD Law of War Program* (Washington, DC: Department of Defense, 22 February 2011).
[31] Corn et al., *The Law of Armed Conflict*, 112; and *DOD Law of War Manual*, para. 2.1.2.
[32] *The Law of Land Warfare*, FM 27-10 (Washington, DC: Department of the Army, 1976), para. 3a.
[33] Yoram Dinstein, *The Conduct of Hostilities under the Law of International Armed Conflict*, 3d ed. (Cambridge, UK: Cambridge University Press, 2016), 8.
[34] Convention (IV) Respecting the Laws and Customs of War on Land and its Annex: Regulations Respecting the Laws and Customs of War on Land, art. 23, 18 October 1907, 36 Stat. 2277, 205 Consol. T. S. 277.
[35] *DOD Law of War Manual*, para. 2.3.
[36] Corn et al., *The Law of Armed Conflict*, 118–19.
[37] Corn et al., *The Law of Armed Conflict*, 119.
[38] *DOD Law of War Manual*, *supra* note 26, at para. 2.4.
[39] *DOD Law of War Manual*, para. 2.4.1.2.
[40] *DOD Law of War Manual*.
[41] *DOD Law of War Manual*, para. 2.5.
[42] *DOD Law of War Manual*, para. 2.6.
[43] See Rain Liivoja, "Technological Change and the Evolution of the Law of War," *International Review of the Red Cross* 900, no. 1168 (December 2015). "The law of war governs the conduct of hostilities and offers protection to persons not taking part in hostilities—all quite irrespective of the means and methods of warfare the belligerents adopt and other technology that they use."

evolve and develop, the actions of those humans using the technology must still comport with LOAC. Therefore, because this chapter address UGVs remotely operated by US forces, the US use of UGVs must comply with LOAC. However, as shown herein, the capabilities provided by UGVs do more than just ensure compliance, they enhance the United States' ability to comply with LOAC.

The Unmanned Systems Debate

Scholars, academics, activists, members of the military, and other stakeholders have promulgated a robust debate about the use of unmanned systems—usually UAVs—in war. Their arguments include perceptions about entering war (the "threshold problem"), targeted killings outside of declared conflict zones, targeted killings generally, and accountability (the "responsibility gap").[44]

George R. Lucas Jr.'s article "Industrial Challenges of Military Robotics" discusses the "threshold problem" theory in the larger context of technological innovations and applies it specifically to the use of unmanned systems.[45] This theory proposes that all the efforts aimed toward lowering risk to life and property may inadvertently also lower the threshold for decision makers to enter that conflict. A by-product is that unmanned systems—hiding the "true cost" of war—enable governments to participate in wars without the full consent of the public.[46] Thus, between lowering threshold for entering conflict and bypassing the full measures a government requires for entering into a conflict, unmanned systems may cause a state actor to engage in armed conflict when it is not militarily necessary.[47] Jai Galliot counters this argument by highlighting that improved technology associated with unmanned systems, such as high resolution photos and videos, bring the "horrors of war" directly to the public.[48] He argues these images of war will make it less likely "the public will underestimate the moral gravity of war," thereby countering the "threshold problem" theory.[49] These opposing views demonstrate that unmanned system capabilities may raise or lower the threshold for entering into a conflict.

Targeted killings raise numerous international law concerns regarding the use of force and the conduct of warfare.[50] Targeted killing is "the deliberate assassination of a known terrorist outside the country's territory (even in a friendly nation's territory), usually (but not exclusively) by an airstrike."[51] The unmanned systems conducting these strikes—UAVs—reach distant and remote areas, conduct the strike, and return to their starting point in a matter of hours, all without requiring the accompaniment of a human on the mission. Such operations have raised some of the most difficult questions, especially because they often occur outside of declared conflict zones. One such question is whether the United States may be unnecessarily bringing risk to civilians without reliable "on the ground" information due to the lack of forces present in the country. In such cases, remotely located UAV operators must rely solely on cameras and sensors,

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[44] See generally, Mary Ellen O'Connell, *Unlawful Killing with Combat Drones: A Case Study of Pakistan, 2004–2009*, Notre Dame Legal Studies Research Paper No. 09-43 (Notre Dame, IN: Notre Dame Law School, 2010); Oren Gross, "The New Way of War: Is There a Duty to Use Drones?," *Florida Law Review* 67, no. 1 (January 2016): 8–11; and Galliot, *Military Robots*, 212.

[45] George R. Lucas Jr., "Industrial Challenges of Military Robotics," *Journal of Military Ethics*, no. 10 (2011): 274, 276, https://doi.org/10.1080/15027570.2011.639164.

[46] Lucas, "Industrial Challenges of Military Robotics."

[47] See Lucas Jr., "Industrial Challenges of Military Robotics."

[48] Galliot, *Military Robots*, 131.

[49] Galliot, *Military Robots*, 132.

[50] O'Connell, *Unlawful Killing with Combat Drones*, 2.

[51] Gabriella Blum and Phillip B. Heymann, "Law and Policy of Targeted Killing," *Harvard National Security Journal* 1, no. 145 (2010). For additional definitions, see Gregory S. McNeal, "Targeted Killing and Accountability," *Georgetown Law Journal* 102, no. 681 (2014).

items that can be affected by weather and terrain.[52] Other questions revolve around whether the country in which the UAV strikes are occurring provided consent, and whether that consent is even necessary if the United States is acting in self-defense.[53]

In addition to the concerns regarding targeted strikes outside of declared conflict zones, the debate includes concerns about UAV-conducted targeted strikes generally. Harold H. Koh, legal advisor at the Department of State during the Obama administration, identified such concerns, including whether it is lawful to target enemy leaders, whether targeted killings "fai[l] to provide adequate process," and whether they constitute "assassinations," which are unlawful under domestic law.[54] While Koh argues the United States is acting in self-defense and the enemy's status as belligerents justifies the use of targeted killings, others, such as Professor Philip Alston, former United Nations special rapporteur on extrajudicial, summary, or arbitrary executions (2004–10), take a different view. According to Alston, the United States' claim to self-defense is "expansive and open-ended" and threatens international rule of law. He further argues that targeted killings are legal only during armed conflict against those directly engaged in combat and that any state that conducts "targeted killing must demonstrate that its actions comply with laws of war."[55] Therefore, Alston argues, the United States should disclose when, where, and why certain individuals are killed along with the legal justification for said killings.[56]

Regarding accountability, should an alleged LOAC violation occur, U.S. forces must investigate and, where appropriate, hold individuals accountable. Holding individuals accountable allows the United States to demonstrate that it takes LOAC seriously, serves as a deterrent to the individuals and to others, and brings justice for the victims.[57] A challenge to accountability is the *responsibility gap*, which is defined as "the inability to identify an appropriate locus of responsibility" for actions during armed conflict.[58] Michael Walzer, in his book *Just and Unjust Wars: A Moral Argument with Historical Illustrations*, asserts that "assignment of responsibility is . . . critical" because "there can be no justice in war if there are not, ultimately, responsible men and wom-

[52] O'Connell, *Unlawful Killing with Combat Drones*, 6.

[53] O'Connell, *Unlawful Killing with Combat Drones*, 18. "Without express, public consent of the kind the U.S. received from Afghanistan and Iraq, Pakistan is in a position to claim the U.S. is acting unlawfully, even bringing a future legal claim for compensation." See Harold H. Koh, "The Obama Administration and International Law" (speech, Annual Meeting of the American Society of International Law, Washington, DC, 25 March 2010). Koh says, "as a matter of international law, the United States is in an armed conflict with al-Qaeda, as well as the Taliban and associated forces, in response to the horrific 9/11 attacks, and may use force consistent with its inherent right to self- defense under international law."

[54] Koh, "The Obama Administration and International Law." Koh's answers to these concerns were as follows: "(1) leaders of an enemy force are belligerents and therefore lawful targets, (2) a state engaged in self-defense or armed conflict—such as the US—is not required to provide due process to targets, and (3) a state engaged in self-defense or armed conflict—such as the US—using precision weapons to target belligerent leaders is not considered an 'assassination'."

[55] Philip Alston, "Statement of U.N. Special Rapporteur on U.S. Targeted Killings without Due Process," ACLU, 3 August 2010, hereafter Alston statement.

[56] Alston statement.

[57] "Commanders have a duty to investigate reports of alleged law of war violations committed by persons under their command or against persons to whom they have a legal duty to protect." *DOD Law of War Manual*, para. 18.4.3; for example, the Uniform Code of Military Justice, as amended by the National Defense Authorization Act for Fiscal Year 2017, states courts-martial shall consider the impact of the crime on the victim and the need for the sentence to: (1) reflect the seriousness of the offense; (2) promote respect for the law; (3) provide just punishment for the offense; (4) promote adequate deterrence of misconduct; (5) protect others from further crimes by the accused; (6) rehabilitate the accused; and (7) provide, in appropriate cases, the opportunity for retraining and return to duty to meet the needs of the service. National Defense Authorization Act for Fiscal Year 2017, Pub. L. No. 114- 328, § 5301, 114 Stat. 2000, 2919–20 (2016) (effective date to be determined by the president, but no later than 1 January 2019.).

[58] Galliot, *Military Robots*, 211.

en."[59] Galliott discusses how it is difficult to attribute responsibility in the context of technology in the military because many mishaps involve "multifaceted mistakes commonly involving a wide range of persons, not limited to end users, engineers, and technicians."[60] Thus, it is difficult to attribute a causal connection—and thereby, responsibility—to any one person or action.[61] Galliott also describes how the distance between the actor and the event further exacerbates the problem of assigning responsibility. This distance may affect the operator's ability to comprehend the range of consequences for their actions through no fault of their own, further mitigating responsibility.[62] The bureaucracy involved in the use of UAVs to conduct strikes also poses a challenge for assigning responsibility. As discussed by Gregory S. McNeal, many individuals involved in the decision-making process are "deep within the military or intelligence bureaucracies of the Executive Branch . . . far removed from public scrutiny."[63] Between the technological aspects of UAV strikes and the number of people involved in the decision-making process, accountability may be difficult to achieve.

While important with respect to UAVs, these debates are not entirely applicable to UGVs because UAVs and UGVs operate in different environments and have different capabilities and mission sets. Regarding the threshold problem, while UGVs provide distance between operators and the enemy—along with the accompanying relative safety for the operator—the distance is far less than the thousands of miles provided by UAVs. The degree of operator safety provided by UAVs when compared to UGVs is so different that the current "lowering the threshold" arguments do not automatically apply to UGV use. Additionally, unlike with UAVs, the United States does not generally use UGVs for targeted killing. Yet, much of the literature on the debate involving unmanned systems centers around their use for targeted killings. Furthermore, UGVs may not face the same accountability issues as their aerial counterparts. While many individuals are likely involved in the programming and construction of both UAVs and UGVs, usually far fewer individuals are involved in the operation and use of UGVs than UAVs. This differentiation voids the UAV accountability argument as applied to UGVs. The environment and capabilities provided by UGVs—as discussed in the following sections—demand separate analyses from those conducted on UAVs.

DISCUSSION

Increased Awareness of the Battlespace

UGVs that Increase Battlespace Awareness

The increased awareness of the battlespace provided by UGVs permits U.S. forces the ability to conduct a more in-depth assessment of how to proceed in various scenarios. The DOD defines *battlespace awareness* as "knowledge and understanding of the operational area's environment, factors, and conditions, to include the status of friendly and adversary forces, neutrals and noncombatants, weather and terrain, that enables timely, relevant, comprehensive, and accurate assessments, in order to successfully apply combat power, protect the force, and/or complete the mission."[64] Timely and accurate information about the battlespace allows U.S. forces to accomplish the mission while preventing unnecessary harm to those forces and protected persons

[59] Galliot, *Military Robots*, quoting Michael Walzer, *Just and Unjust Wars: A Moral Argument with Historical Illustrations*, 4th ed. (New York: Basic Books, 2006), 287–88.
[60] Galliot, *Military Robots*, 215.
[61] Galliot, *Military Robots*.
[62] Galliot, *Military Robots*, 216, where it cites Katinka Waelbers, "Technological Delegation: Responsibility for the Unintended," *Science and Engineering Ethics* 15, no. 1 (2009): 51–52, https://doi.org/10.1007/s11948-008-9098-x.
[63] Gregory S. McNeal, "Targeted Killing and Accountability," *Georgetown Law Journal*, no. 102 (2014): 681–794.
[64] *Joint and National Intelligence Support to Military Operations*, JP 2-01 (Washington, DC: Joint Chiefs of Staff, 2004), GL-10. This definition was removed from subsequent versions of this publication.

and objects. Numerous UGVs currently in use by the DOD provide increased awareness of the battlespace, largely through their ISR, C2, and EOD-specific reconnaissance capabilities.[65]

Intelligence, Surveillance, and Reconnaissance

The intelligence provided by ISR is essential for commanders because it provides a picture of the enemy's current and future activities and highlights the enemy's strengths and weaknesses, thereby facilitating the friendly force decision-making process.[66] The USIR lists the ultra-light reconnaissance robot (ULRR) as a UGV with ISR capabilities.[67] One such ULRR used by the DOD is the QinetiQ NA Dragon Runner 10 (DR10).[68] The DR10 provides visual reports to operators, positions counter IEDs, delivers remote sensors, gathers intelligence, and conducts surveillance.[69] It is also durable enough to be thrown or driven into the area of interest and can provide visual reports during the day or at night.[70] The DOD also uses ReconRobotics' Throwbot and OmniTech's Toughbot to provide intelligence on the battlespace.[71] These small, throwable robots provide short-range reconnaissance and building-clearing abilities and can operate across a range of military environments including austere, rugged terrain.[72] They are remotely operated and provide real-time feedback. They also provide the unique capability of displaying the situation behind walls, in different rooms, and in small spaces of a structure otherwise not visible to troops on the ground or from the air.

Command and Control

C2 provides the direction and authority required for mission accomplishment. Having clear lines of communication with subordinate commands and higher headquarters ensures the correct people have the information they need to oversee operations. A UGV that enhances C2 capabilities is the U.S. Air Force's robotrencher, which the Engineering Installation Squadrons use to install communications systems. This UGV performs excavation and trenching missions in hazardous areas while the operator is physically separated from the UGV.[73] UAVs do not provide similar excavation and trenching capabilities. The ability to create lines of communication without exposing troops to dangerous terrain expands the opportunity to provide C2 in terrain where a unit may have otherwise had limited communication.

Explosive Ordinance Device Missions

Numerous UGVs provide the ability to confirm and diffuse IEDs from a distance. Three examples of such UGVs are the Man Transportable Robot System (MTRS), BomBot, and Remote Ordnance Neutralization System (RONS).[74] The MTRS provides "stand-off ability to locate,

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[65] While connectivity and mechanical issues may hinder the proper functioning of UGVs, this chapter assumes the UGVs will operate as intended.

[66] *Marine Corps Intelligence, Surveillance, and Reconnaissance Enterprise Plan, 2015–2020* (Washington, DC: Headquarters Marine Corps, 2014), 8.

[67] *Unmanned Systems Integrated Roadmap*, 7.

[68] Mike Reese, "QinetiQ's Ultra Light Reconnaissance Robot Selected by RSJPO," Unmanned Systems Technology, 18 June 2012.

[69] Reese, "QinetiQ's Ultra Light Reconnaissance Robot Selected by RSJPO"; and Carlton, "Unmanned Ground Vehicles," 7.

[70] Carlton, "Unmanned Ground Vehicles," 7.

[71] *Development and Utilization of Robotics and Unmanned Ground Vehicles*, 13.

[72] *Development and Utilization of Robotics and Unmanned Ground Vehicles*; ArmyRecognition, "Throwbot XT—ReconRobotics Tactical Micro Robot System for Army Swat Law Enforcement Security," YouTube, 8:23, 23 January 2013; and "Toughbot Data Sheet," Omnitech Robotics, accessed 21 February 2018.

[73] *Development and Utilization of Robotics and Unmanned Ground Vehicles*, 14.

[74] *Development and Utilization of Robotics and Unmanned Ground Vehicles*, 7, 12–14.

identify and clear landmines, unexploded ordnance and improvised explosive devices."[75] The BomBot is a small, lightweight, fast UGV that drops a C4 explosive charge near an IED and, if practicable, drives away before remotely denotating the C4 charge and IED.[76] The RONS is used by EOD technicians for "reconnaissance, access, render safe, pick-up and carry away and disposal activities."[77] Many of these EOD-support UGVs have "sophisticated claw-like grippers, high-powered zoom cameras and nuclear, biological and chemical sensors."[78] These UGVs provide sensory and dismantling capabilities and imagery not available from the air and that humans could not provide without personally approaching the suspected IED.

Ways the UGVs Increase Battlespace Awareness

The ISR-enhancing UGVs provide increased awareness of the battlespace in ways unique from the abilities of humans or UAVs. First, the UGVs' small size allows entry into areas such as tunnels or pipes that humans could not fit and that would be blocked from view from the sky.[79] This reconnaissance and surveillance is especially important in the urban environment, where the United States has been operating within for the past decade because of the enemy's practice of planting IEDs below the Earth's surface. Due to the concealed nature of such IEDs, a servicemember may not know of its presence without stepping on or driving over the IED, likely resulting in injury or death. UGVs, however, provide the ability to see within these well-concealed areas from afar, thereby painting an in-depth picture for the commander and for troops on the ground while reducing risk to servicemembers. Second, ISR-oriented UGVs provide the ability to look within larger structures in real time to better identify individuals or objects that may be in a building prior to U.S. forces entering that structure. Confirming the presence of combatants or IEDs within a structure is critical to U.S. forces deciding how to proceed on a mission across the range of military operations. Third, these UGVs—particularly the DR10, Throwbot, or Toughbot—provide the ability to gather intelligence without informing the enemy of the presence of American forces. This allows U.S. forces to observe combatants conducting their activities uninterrupted. Undetected observation of the enemy enhances the ability to confirm whether the individuals are combatants, anticipate future enemy operations, and—depending on the type of mission—gather evidence for possible follow-on criminal proceedings.

The C2-enhancing UGVs provide increased awareness of the battlespace for commanders in ways more unique and expansive than humans alone. More areas are available for laying communications lines or other C2 requirements where a commander does not want to risk the lives of their forces or where the commander does not have many troops to spare. This is especially important in remote or hazardous areas where U.S. forces require communications capabilities to conduct operations. Where a commander may have conducted an operation without enhanced communication capabilities, now the commander may decide to use the Robo-Trencher or a similar engineering UGV to install communication equipment and have better control over an operation. This additional C2 capability would allow a commander, through communications, to better understand the situation in the area, thereby decreasing the chance for accidental LOAC violations.

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[75] "Man Transportable Robot System (MTRS) Increment 2," Army Acquisition Support Center, accessed 2 December 2017.

[76] *Development and Utilization of Robotics and Unmanned Ground Vehicles*, 12.

[77] *Development and Utilization of Robotics and Unmanned Ground Vehicles*, 14.

[78] Galliot, *Military Robots*, 24.

[79] Toughbots may be lowered on a string down wells, pipes, or mine shafts and driven inside air ducts. "Toughbot Data Sheet."

Increased Awareness of the Battlespace Enhances Compliance with LOAC

Increased awareness of the battlespace enhances DOD personnel compliance with the LOAC principles of military necessity, humanity, and distinction. Turning first to military necessity, an individual's determination of whether something is militarily necessary will be subjective and will depend on the specific facts and circumstances of a situation.[80] UGVs can enhance U.S. forces' ability to ensure their actions comply with the military necessity principle because UGVs improve the ability to directly observe areas prior to entry or attack. Such observation allows forces to have the most up-to-date information on specific facts and circumstances, allowing them to make better informed decisions. Without UGVs, based on otherwise available intelligence such as that provided by UAVs, U.S. forces may justify destroying a building due to reports that the enemy is using it for unlawful purposes. However, the use of UGVs may provide timely information about the activities occurring or the people present within that building—which are not visible from the sky—that no longer justifies the destruction of that building. Conversely, these UGVs may confirm information about the activities occurring within a building that justifies destruction.

Just as with intelligence, increased C2 can also reduce the occurrences where a commander perceives it is militarily necessary to destroy property or take other similar actions to accomplish the mission. Without C2, commanders may be cut off from subordinate commands passing valuable information, which degrades the ability to successfully accomplish the mission. Commanders enhance their ability to accurately perceive the situation and make a military necessity decision, thereby reducing the chance of an accidental LOAC violation if they can lay more communications lines due to reduced risk to troops.

The humanity principle requires safeguarding injured or surrendering forces and protecting civilians, civilian objects, medical personnel, and buildings when such destruction serves no military purpose.[81] The principle of humanity also requires the elimination of unnecessary suffering. The increased battlespace awareness provided by UGVs allows U.S. forces to better identify legally protected people and objects prior to continuing military engagement. For example, if an enemy combatant is incapacitated while American forces are clearing a building, the unique access and visibility within the building provided by UGVs may allow them to identify that the enemy combatant is injured and unable to continue hostilities. As a result, U.S. troops may cease fire earlier and reduce unnecessary suffering and damage to the area. Commanders may also ensure increased battlespace awareness—and the resulting compliance with the humanity principle—without increasing risk to their troops because of the ability to remotely operate the UGV from a position of relative safety.

Turning to the principle of distinction, increased awareness of the battlespace enables U.S. forces to more rapidly and accurately determine whether individuals are combatants or engaging in hostile acts. UGVs provide the ability to observe the enemy at a closer distance and in areas that would not be observable by the human eye or from the sky. Additionally, closer, undetected observation of areas can allow U.S. forces to determine whether individuals are enemy combatants before they can blend in with noncombatants. This ability to accurately determine the status of individuals is vital in the current environment where the enemy engages in asymmetric warfare, often seeking to blend in with the local population. This increased awareness of the battlespace will allow American troops to better distinguish protected from unprotected persons, thereby enhancing compliance with LOAC.

[80] *DOD Law of War Manual*, para. 2.2.3.
[81] *DOD Law of War Manual*, para. 2.3.2.

Improved Strike Accuracy

UGVs that Improve Strike Accuracy

The DOD defines a *strike* as "an attack to damage or destroy an objective or a capability."[82] *Accuracy* refers to the ability of that strike to hit the intended target.[83] UGV capabilities improve strike accuracy when the DOD uses UGVs as weapons platforms; this increased strike accuracy enhances U.S. forces' ability to comply with LOAC.

Two examples of UGVs that are also weapons systems are the armed robotic vehicle (ARV) and the tactical unmanned ground vehicle (TUGV). The ARV was originally intended to support the force "with reconnaissance capabilities to target the enemy and weapon systems to engage and destroy the enemy."[84] Weighing in at 9.3 tons, the ARV has two settings: one for reconnaissance and one for offensive weapons engagement. On the reconnaissance side, the ARV has the ability to detect and recognize targets with enough dependability to use line-of- sight, beyond line-of-sight (BLOS), and non-line-of-sight (NLOS) assets. The ARV is armed with a "medium caliber cannon, missile system and a machine gun system."[85] The TUGV, which is a U.S. Marine Corps program, has the ability to carry a range of cameras, such as forward-looking infrared (FLIR), sensors, and weapons systems, including the shoulder-launched multipurpose assault weapon and M240 and M249 medium and light machine guns. It also carries nonlethal capabilities, such as a smoke system and an antipersonnel breaching system. It can be operated up to 4 km from the vehicle.[86] Additionally, UGVs with the primary function of combat support may be fitted with weapons ranging "from less-than-lethal rubber pellet shotguns to deadly machine guns and rocket launchers," providing more strike options for U.S. forces.[87]

Ways the UGVs Increase Strike Accuracy

These UGVs provide the ability to have improved strike accuracy from that provided by human or aerial capabilities alone by improving the range of visibility. When combined with cameras, scopes, and sensors, UGVs enable humans to see farther and more clearly, particularly when the UGV uses BLOS and NLOS capabilities. The FLIR capabilities provided by the TUGV allow operators to "ensure targeting capability in all weather, under the widest range of battlefield conditions."[88] These capabilities provide the ability to have accurate strikes each time from distances and over terrain not possible with humans alone.

UGVs provide improved strike accuracy when compared to their aerial counterparts, because UGVs can fire from more angles and can employ smaller weapons systems than UAVs. Regarding the angles of employment, UAVs fire largely from the air to the ground, limiting their ability to provide fires on targets inside of buildings without destroying the entire building or surrounding structure. UGVs, however, may fire from the ground or from inside the building, leaving the structure intact. Additionally, UGVs are stationary and can attempt another strike immediately if they miss their targets the first time. If a UAV misses its target, it must turn around to attempt another strike. These steps take time and provide an opportunity for the enemy to escape or seek additional cover. Concerning the employment of smaller weapons,

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[82] *Joint Operations*, JP 3-0 (Washington, DC: Joint Chiefs of Staff, 2017), xx.

[83] See "Accuracy versus Precision," Celebrating 200 Years, National Oceanic and Atmospheric Administration, 12 May 2017. Speaking of accuracy in terms of measurements, the National Oceanic and Atmospheric Administration defines accuracy as "how closely a measurement or observation comes to measuring a 'true value' " and uses four cases of rifle shots to distinguish accuracy from precision.

[84] *Development and Utilization of Robotics and Unmanned Ground Vehicles*, 16.

[85] *Development and Utilization of Robotics and Unmanned Ground Vehicles*, 17.

[86] *Development and Utilization of Robotics and Unmanned Ground Vehicles*, 18.

[87] Galliot, *Military Robots*, 82.

[88] *Marine Corps Concepts and Programs, 2000* (Washington, DC: Headquarters Marine Corps, 2000), 153.

while UAVs fire larger payloads, such as the 100-pound AGM-114 Hellfire missile, UGVs can fire small arms.[89] Two examples of small arms carried by the TUGV are the M249 and M240 machine guns, which fire 5.56 mm and 7.62 mm rounds, respectively.[90] These small arms leave a smaller footprint and signature than their airborne counterparts, allowing for more accurate target acquisition with less opportunity for detection.

Improved Strike Accuracy Enhances Compliance with LOAC

Improved strike accuracy on the battlefield permits greater compliance with the LOAC principles of proportionality and distinction. Looking first at proportionality, this principle requires combatants to "refrain from attacks in which the expected harm incidental to such attacks would be excessive in relation to the concrete and direct military advantage anticipated to be gained."[91] Applying these concepts to armed UGVs, first, with increased accuracy from reconnaissance capabilities and direct fire weapons, combatants using UGVs reduce the risk for collateral damage that would make the attack disproportionate to the gained military advantage. If there is a high value target in the window of a building, in some circumstances, it may be worth damaging the entire building to acquire that target. However, the availability of UGVs with direct fire weapons would allow operators to view the target and fire small arms into the window without destroying the rest of the building. Depending on the circumstances, it may not be proportional to destroy the building to reach that target.

The proportionality principle also requires taking any feasible actions necessary to protect civilians and protected objects, and the availability of small arms on UGVs helps meet this requirement.[92] Using the same example of the high value target in the window, that building may be a hospital or civilians may be in the building. By using the direct fire small arms available on UGVs rather than a Hellfire missile from a MQ-9 Reaper, the entire building—and potentially civilian lives—could be saved. The capabilities provided by UGVs would permit a more proportionate attack in numerous circumstances, while allowing U.S. forces greater standoff, thereby ensuring greater compliance with LOAC and increased safety for U.S. servicemembers.

Turning to distinction, combatants have the duty and obligation to distinguish themselves from the civilian population and to refrain from using protected objects for prohibited purposes. However, under LOAC, combatants still have the obligation to distinguish themselves from protected civilians and objects even where the combatants' enemies fail to distinguish themselves from the civilian population.[93] The UGVs' reconnaissance capabilities provided by FLIR and day camera technologies allow U.S. forces to carefully observe the enemy and distinguish them from the civilian population, even where the enemy attempts to blend in with protected persons. Once observed, the increased accuracy provided by the UGVs assists American forces in maintaining compliance with distinction by reducing the chance of mistakenly striking a noncombatant and by reducing the potential for collateral damage.

Mitigating against Potentially Harmful Human Factors

UGVs enhance U.S. servicemembers' ability to comply with LOAC by reducing the likelihood of stress-related incidents caused by human factors. Human factors are "[t]he physical, cultural, psychological, and behavioral attributes of an individual or group that influence perceptions, un-

[89] "Hellfire Family of Missiles," U.S. Army Acquisition Support Center, accessed 12 January 2018.
[90] *Development and Utilization of Robotics and Unmanned Ground Vehicles*, 18.
[91] *DOD Law of War Manual*, 61.
[92] *DOD Law of War Manual*, 61.
[93] *DOD Law of War Manual*, 64.

derstanding, and interactions."[94] According to a Marine Corps training manual, human factors may be internal and external. Internal human factors include sleep loss, surprise, uncertainty, isolation, fear, stress, cohesion, comradeship, and will. External human factors include weather, darkness, violence, "Soldier's Load," terrain, and environment. The training manual then lists nine stress-causing elements common to the combat environment: (1) confusion and lack of information; (2) casualities; (3) violent, unnerving sights and sounds; (4) feelings of isolation; (5) communication breakdowns; (6) individual discomfort and fatigue; (7) fear, stress, and mental fatigue; (8) continuous operations; and (9) homesickness.[95] All of these factors impact the mental state of U.S. forces.

The mental state of forces has a real and apparent impact on how those forces conduct themselves on the battlefield. The Mental Health Advisory Team (MHAT) IV, established at the request of the commanding general, Multi-National Force-Iraq, found that soldiers and Marines were more than twice as likely to engage in unethical behaviors on the battlefield when they were angry than when they had low levels of anger. These unethical behaviors included unnecessarily damaging Iraqi property or physically hitting or kicking noncombatants.[96] Similarly, the MHAT found that soldiers who screened positively for other mental health issues, such as anxiety, depression, or acute stress "were twice as likely to engage in unethical behavior compared to those Soldiers who did not screen positive."[97] Some of the experiences that led to these behaviors included having a member of one's unit become a casualty or handling the remains of deceased forces.[98] UGVs reduce combat-associated stressors by providing stand-off distance between U.S. forces and danger.

By putting distance between U.S. forces and danger, UGVs provide a sense of security and prevent the deaths of servicemembers. This capability is highlighted through the servicemembers' use of UGVs to identify, diffuse, and remove IEDs. IEDs have wounded and killed hundreds of servicemembers during the course of the wars in Iraq and Afghanistan. The Pentagon's Joint Improvised-Threat Defeat Organization has estimated that between "half to two-thirds of Americans killed or wounded in combat in the Iraq and Afghanistan wars have been victims of IEDs planted in the ground, in vehicles or buildings."[99] The injuries and deaths caused by IEDs are especially stressful for U.S. forces because the IEDs often are not seen ahead of time, they can strike any time, and usually the perpetrator who laid the IED is not held accountable. The MTRs, BomBots, and RONS previously discussed are examples of UGVs that assist with IED disposal, particularly their ability to disarm an IED from a safe distance or carry it away from an area to provide mental assurances to U.S. forces. Similarly, the Robo-Trencher permits distance between human operators and exposure to IEDs and enemy fire while the UGV digs trenches that are important for communications lines. These capabilities are distinct from those provided by UAVs, as they lack the ability to disable and carry away IEDs. Additionally, while UAV camera systems can provide some early detection of IEDs, UGVs are specifically built for this capability and the information is readily accessible to their operators. The UGVs ability to provide standoff and early detection also reduces the number of U.S. casualties, thereby reducing the emotional stress of losing a companion on the battlefield.

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[94] *Joint Intelligence*, JP 2-0 (Washington, DC: Joint Chiefs of Staff 2013), GL-8.

[95] "Human Factors," B130916 (handout, The Basic School, Marine Corps, 2015), 5–6.

[96] *Mental Health Advisory Team (MHAT) IV, Operation Iraqi Freedom 05-07, Final Report* (San Antonio, TX: Office of the Surgeon Multi-National Force-Iraq, Office of the Surgeon General, U.S. Army Medical Command, 2006), 38, hereafter *MHAT Final Report*.

[97] *MHAT Final Report*.

[98] *MHAT Final Report*, 39–40.

[99] Gregg Zoroya, "How the IED Changed the U.S. Military," *USA Today*, 18 December 2013, where it cites statistics from the Pentagon's Joint Improvised-Threat Defeat Organization.

While the humans operating the UGVs are still susceptible to human factors, the use of UGVs reduce the operators' direct exposure to danger, and possibly save the lives of members of their unit. The standoff and reduced casualties provided by UGVs may alleviate the stress of experiencing direct combat, saving the U.S. forces from the emotional distress of being in danger, losing a member of their unit, or handling remains. This reduction in potentially harmful human factors could make a difference in the unit's compliance with LOAC.

ARGUMENTS AGAINST UGV USE

As previously discussed, a robust debate surrounds the United States' use of unmanned systems. While most concerns apply uniquely to UAVs, two key arguments are also applicable to UGV use. One such argument is using unmanned systems to conduct war will reduce the risk to American forces, therefore policy makers, commanders, and troops will interpret who may be killed—and by what means—too expansively.[100] The notion underpinning this argument is the relative safety provided by unmanned systems would provide "psychological distance and disconnection."[101] This distance and disconnection would result because the U.S. operator would not "share with his foes even those brief minutes of danger that would give them a bond of mutual risk."[102]

While the use of UGVs would reduce the risk to American troops, there are specific reasons to expect this knowledge will not affect how U.S. forces target their enemies. They are taught LOAC and targeting principles throughout their careers, and they can face administrative or criminal consequences for violating those principles.[103] Additionally, the U.S. military already has weapons and technologies that provide the safety of standoff, such as sniper fires and artillery. It is unclear how the availability of UGVs would expand how U.S. forces target their enemies or who they target to the point where they violate LOAC. Due to mandatory LOAC training, consequences for violations, and how the United States already uses weapons that provide standoff, this argument fails to illustrate how the use of UGVs would contribute to LOAC violations.

The second argument promulgated by opponents is that removing humans from the battlefield will dehumanize war, providing a video game mentality and making LOAC violations more likely.[104] The concern is that when the consequence-free mentality of the virtual world is transferred to the battlefield, the operators become "*too* calm, too unaffected by killing."[105] However, operators of remote weapons systems who are separated from the immediate vicinity of combat still experience the stressors of combat and take their jobs as seriously as those physically present. For example, even using the extreme distance circumstance of UAV operators conducting and analyzing strikes on battlefields, most of these U.S. operators do not experience desensitization. According to one commander, servicemembers stationed at Langley Air Force Base in Hampton, Virginia, are "exposed to the most gruesome things . . . that could happen on a battlefield. . . . They find mass graves; they witness executions." According to a doctor overseeing the team

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[100] Alston report, 24.

[101] Singer, "Military Robots and the Laws of War," 42.

[102] Singer, "Military Robots and the Laws of War."

[103] *DODD 2311.01E, DOD Law of War Program* (Washington, DC: Department of Defense, 9 May 2006), para. 5.7. "The Heads of the DoD Components shall…[i]nstitute and implement effective programs to prevent violations of the law of war, including law of war training and dissemination."

[104] Alston report, 25.

[105] Singer, "Military Robots and the Laws of War," 42. Singer also refers to Dave Grossman's book *On Killing: The Psychological Cost of Learning to Kill in War and Society*, saying, "disconnecting a person, especial via distance, makes killing easier and abuses and atrocities more likely." See Dave Grossman, *On Killing: The Psychological Cost of Learning to Kill in War and Society* (New York: Back Bay Books, 1995); and Singer, "Military Robots and the Laws of War," 42.

of physicians and psychologists embedded with the unit, this exposure impacts these troops "as human beings." The commander commented on the weight of the decisions they make, saying that "their job is to decide who on that battlefield gets blown up, and who on that battlefield gets protected." This has led to the Air Force treating the trauma associated with remote combat the same as those located at the site of the combat.[106]

This example demonstrates how even though individuals may be physically separated from combat and operating weapons and technologies remotely, they are not acquiring a video game mentality where they are desensitized to the realities of war. They are heavily involved in the situation and may be held as accountable for their actions as those colocated with the weapons in combat. UGV operators would be closer to combat than the aforementioned UAV operators. They would be able to experience more sensations of combat than just sight to include hearing, scent, and touch. As such, this video game mentality argument against the use of UGVs similarly fails when confronted with evidence to the contrary.

CONCLUSION

The United States uses a wide array of remotely operated UGVs to conduct critical and life-saving missions across the range of military operations. The partnership between manned and unmanned systems promises to grow as Congress shows interest and the ability to finance additional research, development, and procurement of unmanned systems, particularly UGVs.[107] Although some have raised concerns about the legality of using unmanned systems to accomplish missions previously completed by humans, particularly with respect to UAVs, the United States is better equipped to comply with LOAC through its use of UGVs. They provide capabilities unique from their aerial counterparts and beyond what may be accomplished by humans alone. Specifically, UGVs enhance the American forces' ability to comply with LOAC by increasing awareness of the battlespace, improving strike accuracy, and mitigating against potentially harmful human factors on the battlefield.

While this chapter has focused on the use of unmanned systems remotely operated by humans, future phases of warfare will likely involve the use of autonomous robots and weapons systems. The ability to use autonomous systems lawfully faces two significant challenges: the requirement for a subjective analysis of the facts and circumstances at the time of action and the ability to hold violators of LOAC accountable.[108] While human oversight mitigates these challenges for the UGVs discussed here, future research should build on the concepts examined by analyzing the lawful use of UGVs with increasing levels of autonomy.

The ever-changing and increasingly complex nature of the U.S. operational environment will require the DOD to continue its development and use of UGVs.[109] While UGVs allow for a heightened ability to comply with LOAC, those capabilities require increased vigilance to ensure American personnel use UGVs responsibly and within legal limits. Throughout the development of UGV use, policy makers, DOD leadership, scholars, lawyers, commanders, and

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[106] Sarah McCammon, "The Warfare May Be Remote but the Trauma Is Real," NPR, 24 April 2017.

[107] In 2000, Congress set a goal for the DOD that one-third of operational ground combat vehicles are unmanned by 2015. Floyd D. Spence National Defense Authorization Act for Fiscal Year 2001, Pub. L. No. 106-398, § 220, 114 Stat. 1654A-1, 1654A-38–1654A-40 (2000). In 2016, the House of Representatives requested that the DOD provide an assessment of reaching this goal by 2021. H.R. REP. NO. 114-537 National Defense Authorization Act for Fiscal Year 2017, 114th Cong., 2d sess. (2016), 96. The National Defense Authorization Act for Fiscal Year 2017 authorized $39,282,000 for tactical unmanned ground vehicle system development and demonstration.

[108] See Singer, "Military Robots and the Laws of War," 43–44.

[109] See Galliot, *Military Robots*, 15, citing Yuri Balyko, "NATO's Unmanned Aerial Vehicles in Local Conflicts," *Military Parade*, no. 1 (2008): 36. "The US currently leads in the design, development and deployment of unmanned systems, but 55 other nations are proceeding in similar fashion and this number is steadily increasing."

small unit leaders must continue to analyze and discuss ethical and lawful ways to use UGVs. While an innovative technology or method often drives additional regulations and restrictions, it is important to allow the practices to develop within the current LOAC construct without unnecessary limitations. Additionally, stakeholders should differentiate between unmanned systems operating in the air, ground, and sea when conducting their analysis, accounting for the different environments in which they operate and the varying capabilities they provide. Increased restrictions on development or use based on a one-size-fits-all approach, fear, or unfamiliarity with UGVs could inadvertently give an advantage to an enemy that is not similarly restricted. U.S. forces have the obligation to comply with LOAC, therefore, their use of UGVs must also comply with LOAC. Moreover, the use of remotely operated UGVs keeps the United States on stable ground by enhancing DOD compliance with LOAC.

Interlinking Naval Combat Communication for the Twenty-first Century

by Gunnery Sergeant Zachary B. Williams

INTRODUCTION

Currently, U.S. Navy ship-to-shore communications with the United States Marine Corps during amphibious operations can be achieved via traditional VHF and or HF (very high frequency/high frequency) communications through almost irreplaceable, extremely technical long-range communications systems.[1] These systems have become dated, are easily intercepted, and can cause delays to offensive operations and the overall Marine Corps mission. By using updated communications systems that have been fielded but not merged into Marine Corps operations, we could be less dependent on VHF-based ship-to-shore communications with an interconnecting WiFi bubble, offering basic data packages to support every echelon of command with real world, immediate data capabilities that could possibly provide a higher level of control (interlinking) not previously seen.[2]

A key component to this system is Adaptive Networking Wideband Waveform (ANW2), which allows current Harris-based radios to function in a fully encrypted wireless bubble (up to National Security Agency standard per the secretary of the Navy's electronic key management system series) that, when connected to other troops, can transmit basic data packages to allow for such operations as voice over internet protocol (VOIP, or IP telephony) and video teleconference (VTC) data packages.[3] The system typically must be connected to a higher system that would act much like that of a modem, which are normally ground based or must be transported

[1] HF frequencies (between 3 and 30 megahertz) are transmitted from a base unit or handheld transceiver into the Earth's atmosphere. These radio signals bounce off the ionosphere and return to land, where they are received by another transceiver tuned into the same radio band. This form of propagation means HF radio signals can be sent and received across hundreds or even thousands of kilometers, which means data by way of HF radio is less likely to be distorted by terrain, such as buildings or mountains. VHF radio waves operate in a band between 30 and 300 megahertz, and they travel over line of sight, making them ideal for local communications over a few kilometers, which is perfect for indoor applications or at multiple locations. For more on the Navy's concepts and approaches, see *Naval Command and Control*, Naval Doctrine Publication 6 (Washington, DC: Chief of Naval Operations, Department of the Navy, 1995), 31–45, 51–65. For a Marine Corps-specific discussion, see *Expeditionary Operations*, Marine Corps Doctrinal Publication 3 (Washington, DC: Headquarters Marine Corps, 1998), 29–59, 89–143. Dated but still useful, also see *Principal Technical Characteristics of Marine Corps Communications-Electronic Equipment*, Technical Manual 2000-15A (Washington, DC: Headquarters Marine Corps, 1975), 1, for a listing by type.

[2] The importance of sea power is argued in Colin S. Gray, *The Leverage of Sea Power: The Strategic Advantage of Navies in War* (New York: Free Press, 1992), 263–77.

[3] L3Harris Technologies is an American technology company that produces wireless equipment, tactical radios, electronic systems, night vision equipment, and both terrestrial and spaceborne antennas for use in the government, defense, and commercial sectors. They specialize in surveillance solutions, microwave weaponry, and electronic warfare.

via tactical vehicles or larger systems to operate with the supporting fuel and generator to support the systems.[4]

Another component includes the Mobile User Objective System (MUOS) that operates like a constellation of satellites to provide global coverage for most active forces. The system is currently controlled and maintained by the U.S. Air Force. MUOS is fully encrypted via the onboard radio system and the jump control sites around the world. The system provides the operator with a more robust and proven version of satellite communications on the move that is used by the U.S. Army in multiple combat zones. It is easy to set up, currently uses Marine Corps and Navy systems, and can be applied to all amphibious assault vehicles (AAV), landing craft air cushions (LCAC), and almost any rolling stock system in the current command.[5]

THE WAY AHEAD

With a type three switch, a connection could be established between the ANW2 and the MUOS platforms. Once connected, this would give the commander a low cost, tactical "WiFi" cloud generator. Users could then be added to that network much like that of normal household via other tactical based radios systems. This clearly would enhance essential capabilities.

For example, the ANW2 (wireless internet) platform established in an AAV or any form of amphibious system could now communicate as a standalone platform. The commander's vehicle thus becomes a primary WiFi cloud generator with other pulling services, video, or maps. AAV and other combat systems could advance inland to the 50-mile mark free of supporting communications elements to link back to their supporting elements. The options open to Marine Expeditionary Unit—comprised of a Marine Air-Ground Task Force with an aviation combat element, a ground combat element, a logistical element, and a command element—commanders would be workable and attractive to the Services. By using VTC with voice options with active AAV crews in combat, full data packages could be sent to instantly relay issuing orders with a visual via a tablet-based system. Blue-on-blue (friendly fire) issues would be dramatically reduced due to improved ground awareness. Commanders would receive instant feedback on ground conditions that could easily be observed. With simple data packages, commanders can even watch the weapon control systems firing in the command center and know which AAV is in active combat.[6]

Logistics is another key area to consider. Those who maintain these systems in a near peer environment can certainly be vulnerable to losses. When they occur, the Service will quickly lose its low density systems that are the workhorses of the data pull operation. With a few additional steps, however, we can reduce or mitigate the level of loss, shorten the replacement time, and reduce the overall fiscal cost of replacement. Instead of having to order a new $250,000 VSAT-L (very small aperture terminal-large, or two-way satellite ground station), the Service can instead use one of the thousands of radio systems currently fielded to the Marine Corps and Navy. Indeed, the key reason to connect the two Services' systems is to achieve overall cost reductions. The MUOS platform requires a multiband radio transfer to function in the field on all levels, which would run into cost and replacement issues. ANW2 is already fully capable of running on

[4] Consider John Williamson, ed., *Jane's Military Communications*, 21st ed. (Coulson, UK: Jane's Information Group, 2000), especially the chapters on "Ground Tactical; Communications," 1–118, and "Naval Systems and Equipment," 195–238.

[5] See LCdr Vinny DiGirolamo, USN, ed., *Navy Command and Control: Policy, Programs, People, and Issues* (Fairfax, VA: AFCEA International Press, 1991), 1–68.

[6] See *Supporting Arms Coordination in Amphibious Operations*, Marine Corps Warfighting Publication 3-31.6 (Quantico, VA: Marine Corps Development and Education Command, 2004), especially the chapters on command and control and communications.

all radios in the inventory with a firmware download. By making one radio capable of pulling the Services, we can enable multiple radios to pull that same Service with minimal stop loss from user to point of presence.[7]

System	Price per unit
VSAT-L	$295,000
AN/PRC-117G	$32,000

The way ahead is clear. If the system is properly merged, the Marine Corps could eventually move it to other rolling stock and or manpack systems. Commanders could watch gun lines fire and, from the forward observer radio, personally evaluate the impact via VTC to see if steel is on target—all while on a single network. Instead of relying on rolling VHF shots to communicate with the command, tank commanders can now engage with total independence from communications assists. Combat operations centers could be as simple as power, laptops, and a tactical radio to pull data, enabling full data packages in places we cannot attempt with our bigger systems at much faster set up rates. Last, the primary reason to connect the two systems is that of overall cost avoidance. The MUOS platform requires a multiband radio transfer to function that, to field on all levels, would run into cost and replacement issues. ANW2 is already capable of running on all radios in the inventory with a simple firmware download. So, by making one radio capable of pulling the services, we can enable multiple radios to pull that same service.[8]

In conclusion, the Marine Corps can fully adapt a wireless data program to support ship-to-shore operations, allowing commanders the option of the full spectrum of the technical operating world with the ease of going onto a technical site and saying, "I need that." These actions can be done with most of the current inventory that is already owned, can be replaced due to combat loss at a fraction of the price, and can allow a level of control that has never before been seen.

[7] For an overall operational consideration, see Milan Vego, *Operational Warfare at Sea: Theory and Practice* (London: Routledge, 2009), especially the chapters on "Operational Functioning," 69–74, and "C4," 75–98.

[8] For more on the naval aspect and ships and their functions, see *Jane's Fighting Ships, 2007–2008* (Coulsdon, UK: Jane's Information Group, 2007), 873–929. For more on the Marine Corps and the challenges of communications in an amphibious assault, see Allan R. Millett, *Semper Fidelis: The History of the United States Marine Corps* (New York: Macmillan, 1980), dealing with the early trials in "Amphibious Warfare and the FMF, 1919–1939," 319–43.