



JFQ

Joint Force Quarterly

Issue 101, 2nd Quarter 2021

Multidomain Battle

Jointness Replaced by Kongness?

Strategic Overmatch:
East Meets West

Rethinking Morthra's Role in
21st-Century Kaiju Warfare

Joint Force Quarterly

Founded in 1993 • Vol. 101, 2nd Quarter 2021
<https://ndupress.ndu.edu>

GEN Mark A. Milley, USA, Publisher
Lt Gen Michael T. Plehn, USAF, President, NDU

Editor in Chief
Col William T. Eliason, USAF (Ret.), Ph.D.

Executive Editor
Jeffrey D. Smotherman, Ph.D.

Senior Editor and Director of Art
John J. Church, D.M.A.

Internet Publications Editor
Joanna E. Seich

Copyeditor
Andrea L. Connell

Book Review Editor
Brett Swaney

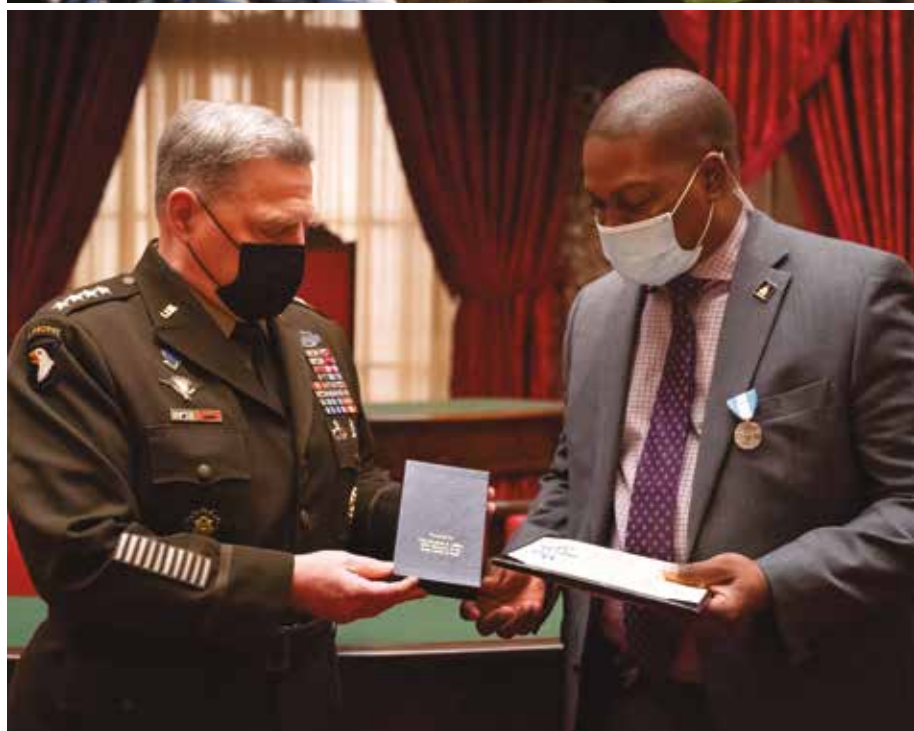
Assistant Internet Publications Editor
Jen Russell

Creative Director
Marco Marchegiani, *U.S. Government Publishing Office*

Advisory Committee
BrigGen Jay M. Barger, USMC/*Marine Corps War College*; RDML Shoshana S. Chatfield, USN/*U.S. Naval War College*; BG Joy L. Curriera, USA/*Dwight D. Eisenhower School for National Security and Resource Strategy*; Col Lee G. Gentile, Jr., USAF/*Air Command and Staff College*; Col Thomas J. Gordon, USMC/*Marine Corps Command and Staff College*; Ambassador John Hoover/*College of International Security Affairs*; Cassandra C. Lewis, Ph.D./*College of Information and Cyberspace*; LTG Michael D. Lundy, USA/*U.S. Army Command and General Staff College*; MG Stephen J. Maranian, USA/*U.S. Army War College*; VADM Stuart B. Munsch, USN/*The Joint Staff*; LTG Andrew P. Poppas, USA/*The Joint Staff*; RDML Cedric E. Pringle, USN/*National War College*; Brig Gen Michael T. Rawls, USAF/*Air War College*; MajGen W.H. Seely III/*Joint Forces Staff College*

Editorial Board
Richard K. Betts/*Columbia University*; Eliot A. Cohen/*The Johns Hopkins University*; Richard L. DiNardo/*Marine Corps Command and Staff College*; Aaron L. Friedberg/*Princeton University*; Bryon Greenwald/*Joint Forces Staff College*; COL James E. Hayes, USA/*National War College*; Douglas N. Hime/*Naval War College*; Kathleen Mahoney-Norris/*Air Command and Staff College*; Bert B. Tussing/*U.S. Army War College*

Cover 2 images (top to bottom): Sailor rests after combating fire aboard USS *Bonhomme Richard*, San Diego, July 14, 2020 (U.S. Navy/Christina Ross); General Mark A. Milley, Chairman of the Joint Chiefs of Staff, awards Capitol Police Officer Eugene Goodman with Joint Meritorious Civilian Service Award and U.S. Constitution in Old Senate Chamber for actions taken to protect lawmakers and others during January 6, 2021, attack on Capitol building, Washington, DC, February 25, 2021 (DOD/Carlos M. Vazquez II); Airman Kendra Middleton competes in high jump during Air Force Invitational at Cadet Field House, Colorado Springs, Colorado, January 23, 2021 (U.S. Air Force/Trevor Cokley)



In This Issue

Forum

- 2 Executive Summary
- 4 Deter in Competition, Deescalate in Crisis, and Defeat in Conflict
By Glen D. VanHerck
- 11 Design Thinking
By Daniel E. Rauch and Matthew Tackett
- 18 Buy Now, Get Paid with Diversity Later: Insights into Career Progression of Female Servicemembers
By Monica Dziubinski Gramling and Warren Korban Blackburn
- 25 Gray Is the New Black: A Framework to Counter Gray Zone Conflicts
By Heather M. Bothwell

JPME Today

- 31 Educating Our Leaders in the Art and Science of Stakeholder Management
By Alexander L. Carter
- 36 Conquering the Ethical Temptations of Command: Lessons from the Field Grades
By Clinton Longenecker and James W. Shufelt

Commentary

- 46 Flawed Jointness in the War Against the So-Called Islamic State: How a Different Planning Approach Might Have Worked Better
By Benjamin S. Lambeth

Features

- 55 The Future Joint Medical Force Through the Lens of Operational Art: A Case for Clinical Interchangeability
By Joseph Carvalho, Jr., and Enrique Ortiz, Jr.



About the Cover

Paratrooper with U.S. Army's 173rd Airborne Brigade Combat Team surveys battlefield during U.S. Army Europe–directed annual exercise Saber Junction, held at Grafenwoehr and Hohenfels training areas, Germany, August 20, 2020 (NATO)

- 59 Sustaining Relevance: Repositioning Strategic Logistics Innovation in the Military
By Paul Christian van Fenema, Ton van Kampen, Gerold de Gooijer, Nynke Faber, Harm Hendriks, Andre Hoogstrate, and Loe Schlicher
- 69 Embracing Asymmetry: Assessing Iranian National Security Strategy, 1983–1987
By Spencer Lawrence French

Recall

- 78 Accelerating Adaptation on the Western Front and Today
By Justin Lynch

Book Reviews

- 84 Adaptation Under Fire
Reviewed by Bryon Greenwald
- 85 Losing the Long Game
Reviewed by Thomas C. Greenwood
- 86 Strategic Humanism
Reviewed by Christopher Kuennen

Joint Doctrine

- 88 U.S. Joint Doctrine Development and Influence on NATO
By George E. Katsos
- 96 Joint Doctrine Update

Joint Force Quarterly is published by the National Defense University Press for the Chairman of the Joint Chiefs of Staff. *JFQ* is the Chairman's flagship joint military and security studies journal designed to inform members of the U.S. Armed Forces, allies, and other partners on joint and integrated operations; national security policy and strategy; efforts to combat terrorism; homeland security; and developments in training and joint professional military education to transform America's military and security apparatus to meet tomorrow's challenges better while protecting freedom today. All published articles have been vetted through a peer-review process and cleared by the Defense Office of Prepublication and Security Review.

NDU Press is the National Defense University's cross-component, professional military and academic publishing house.

The opinions, conclusions, and recommendations expressed or implied within are those of the contributors and do not necessarily reflect the views of the Department of Defense or any other agency of the Federal Government.

Copyright Notice

This is the official U.S. Department of Defense edition of *Joint Force Quarterly*. Any copyrighted portions of this journal may not be reproduced or extracted without permission of the copyright proprietors. *JFQ* should be acknowledged whenever material is quoted from or based on its content.

Submissions and Communications

JFQ welcomes submission of scholarly, independent research from members of the Armed Forces, security policymakers and shapers, defense analysts, academic specialists, and civilians from the United States and abroad. Submit articles for consideration to ScholarOne, available at <https://mc04.manuscriptcentral.com/ndupress>, or write to:

Editor, *Joint Force Quarterly*

NDU Press
300 Fifth Avenue (Building 62, Suite 212)
Fort Lesley J. McNair
Washington, DC 20319
Telephone: (202) 685-4220/DSN 325
Email: JFQ1@ndu.edu
JFQ online: ndupress.ndu.edu/jfq
2nd Quarter, April 2021
ISSN 1070-0692



U.S. Air Force pilot Captain Melanie Ziebart, one of six Air Force pilots flying F-35B Lightning II stealth multirole fighters in Marine squadrons to disseminate inter-Service tactics and strengthen joint force capabilities, on flight deck of amphibious assault ship USS America, flies with 31st Marine Expeditionary Unit Marine Fighter Attack Squadron (VMFA) 121 Green Knights, Gulf of Thailand, March 7, 2020 (U.S. Navy/Jonathan Berlier)

Executive Summary

An early conversation I had with Admiral Mike Mullen just after becoming the Editor in Chief of *Joint Force Quarterly* centered on a crucial request: “Bill, I need you to make sure I can read what our next generation of senior leaders are thinking about, what matters to them. At my level, it is very hard to hear what they have to say.” It is important to note that every Chairman, beginning with General Colin Powell in 1993, has encouraged in *JFQ* a range of topics they may not necessarily agree with, yet nonetheless state they *need to read* these ideas. With the words of General Powell and Admiral Mullen as guidance, our team has constantly sought out the best ideas and the best way to communicate them to you. While we

have been successful over the past 100 issues, we must continue to remain focused on what you need us to be: the voice of the joint force.

In *JFQ* 1, General Powell wrote, “Don’t read the pages that follow if you are looking for the establishment point of view or the conventional wisdom. Pick up *JFQ* for controversy, debate, new ideas, and fresh insights—for the cool yet lively interplay among some of the finest minds committed to the profession of arms.” After 100 issues, this continues to be our informal mission statement.

While you will find many articles that reinforce the military status quo, our authors and readers have done their best over the years to sound off on what they see as the “facts on the ground,” which often clash with conventional wisdom.

Success in furthering any profession comes from seeking to do better than was done in the past, through careful examination, debate, and refinement of arguments and facts, ultimately leading to revising and renewing techniques, tactics, procedures, process, policies, and doctrine. A constantly evolving and ever-changing environment moved forward by people and ideas, both good and bad, which are seen through the lens of time.

Journals like *JFQ* allow our rising leaders to express themselves in a way that is often not available any other way up the chain of command. Military journals continue to help move the profession of arms forward in ways that rapid-fire, light-speed mediums cannot. And it is hard to say what will endure in this instant gratification, 24/7 news

cycle, Twitter-driven world. We should not abandon our more traditional means to read, process information, and make lasting decisions on important issues. Industry data show that despite the promise of paperless offices and e-readers wiping out traditional print media, readers of all ages, and especially “digital natives” under 35, continue to use both, and for different purposes. Digital natives still read physical magazines and books to gain the deeper learning experience those media provide. Electronic media is proving to be useful for quick bursts of information that may be interesting, but not something the reader needs to hold in long-term memory or study as one would for an academic examination. In print, you do not have the distractions that accompany an online experience, but we are there as well for those who need to have Google or Twitter at the ready.

As we begin the first of our next one hundred issues, our Forum offers four important views on current national security issues: defense of the homeland, military planning, diversity inclusion, and gray zone conflicts. Discussing military issues in defending the homeland, the commander of U.S. Northern Command and the North American Air Defense Command, Glen D. VanHerck, gives us a tour of his unique responsibilities. To improve military planning, Daniel Rauch and Matthew Tackett offer their ideas on using design thinking to enhance our chances of developing better operational and strategic choices. Long a subject of strong opinions, Monica Dziubinski Gramling and Warren Korban Blackburn provide their research results about the impact of integration of women in the military profession. While the focus has been on peer competition in recent years, Heather Bothwell helps us do a better job dealing with the “in between” or gray zone conflicts that have become endemic these days.

JPME Today has two excellent articles that discuss leadership, long a valuable and lasting conversation from our *JFQ* authors. The military has often incorporated business lexicon into its concepts, and with interesting results. Helping those in leadership positions

understand who “gets a vote” and why they matter, Alexander Carter discusses the ways to learn about how best to manage one’s mission stakeholders. As military officers rise up in responsibilities, so do temptations to do the wrong thing, potentially damaging a career and more importantly risking the lives of those they lead. For those of you in the field grades, long our target demographic, Clinton Longenecker and James Shufelt have some practical advice to keep you on the right path to success.

Looking for a lively debate? In Commentary, classic operational to strategic reporting on wars we have fought has been hard to come by. There are a few notable exceptions, such as the research of one of our veteran *JFQ* authors, Benjamin Lambeth, who brings us his view on how the initial war against the so-called Islamic State was fought.

Planners know the universal truth of planning: you always have to plan for areas you do not have the expertise to do properly. In Features, we offer a great selection of articles on medical force issues, strategic logistics, and a look inside the Iranian national command during the Iran-Iraq War of the 1980s. Mixing operational art and medical force structure considerations, Joseph Carvalho, Jr., and Enrique Ortiz, Jr., discuss how best to meet that challenge. A team of researchers from the Netherlands, Paul Christian van Fenema, Ton van Kampen, Gerold de Gooijer, Nynke Faber, Harm Hendriks, Andre Hoogstrate, and Loe Schlicher, offers their views on how advance innovation in strategic logistics in the military. Helping us to look more deeply into Iranian strategy in one of the longer and more horrific wars of the Middle East in modern times, Spencer Lawrence French breaks down their national security strategy from 1983 to 1987.

In Recall, Justin Lynch furthers our understanding of how the Great War of 1914–1918 can still provide lessons on the importance of adaptation for today’s joint force. In Joint Doctrine, George Katsos returns with his views on how the North Atlantic Treaty Organization has been influenced by U.S. joint doctrine development. As always, we offer three

excellent book reviews and the Joint Doctrine Update.

In 1993, General Powell encouraged members of the joint force to “Read *JFQ*. Study it. Mark it up—underline and write in the margins. Get mad. Then contribute your own views.” What do you think? How do you read *JFQ*? How can we make it better suited to the world you find yourself in? We are soon posting up a way for you to provide us more feedback. Watch this space. In the meantime, read on! *JFQ*

WILLIAM T. ELIASON
Editor in Chief



Airman with 321st Contingency Response Squadron security team patrols with Ghost Robotics Vision 60 prototype at simulated austere base during Advanced Battle Management System exercise on Nellis Air Force Base, Nevada, September 3, 2020 (U.S. Air Force/Zachary Rufus)

Deter in Competition, Deescalate in Crisis, and Defeat in Conflict

By Glen D. VanHerck

The North American Aerospace Defense Command (NORAD) and U.S. Northern Command (USNORTHCOM), both located in Colorado Springs, Colorado, are two distinct commands, bound together

General Glen D. VanHerck, USAF, is Commander of U.S. Northern Command and North American Aerospace Defense Command.

and united in a common purpose—charged with the resolute mission of defending North America. NORAD defends the United States and Canada against threats in the air domain and provides aerospace and maritime warning. Founded in 2002 in the wake of 9/11, USNORTHCOM defends the United States against threats across all domains, conducts cooperative defense

activities with our allies and partners in North America, and, when required, supports Federal, state, and local agencies with unique military capabilities to conduct defense support of civil authorities.

Global Competition

Today, NORAD's and USNORTHCOM's missions continue to use a multitude of sensors including the 1980s North Warning System, our network of globally positioned ballistic missile defense radars, and the Integrated Undersea Surveillance System. As the world's security environment has evolved over time, our legacy systems have become increasingly challenged, even as our attention drifted away from the possibility of major conflict, especially the possibility of conflict in North America.

Since August 1990, when Iraq invaded Kuwait, our national focus

has been centered on the Middle East through operations *Desert Storm*, *Iraqi Freedom*, and *Enduring Freedom*. Meanwhile, our competitors' capabilities have advanced. Over this three-decade period, the United States developed strategies, plans, and capabilities focused on projecting power forward in order to take the fight to rogue regimes, violent extremist organizations, and other potential adversaries. This led to a tendency toward tactical thinking against individual actors, rather than the strategic thinking and analysis necessary to confront and compete with peer competitors. It instilled a preference for kinetic solutions over other options—including deterrence and an acquisition strategy that favored systems (often expensive) to confront single threats in one domain over multithreat, multidomain systems. These right-of-launch response plans, rather than left-of-launch denial and deterrence efforts, constrained our actions and decisionmaking.

Meanwhile, our competitors took this limitation as an opportunity to develop and advance capabilities that are specifically aimed at perceived seams in our homeland defenses and through a framework of constant global competition. Russia has developed a military doctrine that envisions nonnuclear strikes on an adversary's critical infrastructure to compel termination of an escalating conflict, and it has repeatedly demonstrated its ability to hold our homeland at risk through heavy bomber patrols near North America. Following one such patrol in December 2018, official Russian press highlighted that these flights could "pose a serious threat for the most important strategic facilities on U.S. territory." China, too, has developed a robust ability to threaten our critical infrastructure in the cyber domain and will likely field capabilities to do so with conventionally armed cruise missiles in the next 5 years. While China's intent for these capabilities is less clear, we suspect Beijing would use them to deter and frustrate our force flows across the Pacific in the event of a regional conflict. Finally, Vladimir Putin's *Strategy for Developing the Russian Arctic Zone and*

Ensuring National Security Until 2035 and the Chinese government's declaration of being a "near-Arctic state" are powerful indicators of their intent to exert influence in that region. Both competitors have pursued their efforts with national-level investments and a singular purpose: to compete with the United States in every domain.

In addition to our peer competitors, the United States continues to face threats from rogue regimes, such as Iran and North Korea, that attempt to hold the Nation at risk through proxies, cyber warfare, North Korea's nuclear weapons program, and advancements in missile technology.

We also face threats across the globe from corruption and poor governance engendered by transnational criminal organizations (TCOs), which are creating opportunities for economic competition, influence operations, and exploitation by our competitors—the very definition of unrestricted warfare. The destabilizing effects of TCOs can be seen at our border, in our cities, and even in our homes. Drug cartels have evolved past their traditional model of smuggling cocaine into the United States and have transitioned to moving precursor materials and guns to the south, fueling the flow of synthetic drugs into the United States as well as increasing instability south of the border. Cartel arsenals are competitive with our partners' law enforcement organizations and militaries, further challenging the legitimate monopoly of the state on the use of force.

Global competitors are confronting the United States from all directions and in all domains. These developments challenge our legacy warning and assessment systems. The stakes to defend the homeland are higher now than they have been in decades—and for NORAD and USNORTHCOM failure is not an option.

In this particular strategic security environment, it is imperative that we evolve our capabilities, force structures, authorities, and culture to confront the reality of constant global competition. We must embrace a comprehensive perspective to address these threats, develop a robust

and inclusive information-sharing ethos, modify homeland defense policy, and demand that we go faster in all aspects of planning, force design, force management, acquisitions, and budgetary policy. Through this approach, we can and will deter our competitors in competition, deescalate in crisis, and deny or defeat in conflict.

Global Perspective Lens

Our competitors' actions are *global*, not regional. We must match this reality; we cannot continue to apply a regional perspective to plans, force management and design, or a parochial approach to acquisitions. Regionally focused plans do not address the fact that our peer competitors or potential adversaries are not constrained by our organizational boundaries or our command and control. They are capable of exploiting one theater's crisis and flanking the United States in another, bypassing our surge layer of fielded forces to strike at the homeland and compromise our ability to reinforce when and where needed. Based on this capability, the current notion espoused in U.S. doctrine of a single supported commander, with all others supporting, is impracticable. Because potential adversaries' actions will likely be global, every combatant commander may simultaneously be both a supported—and supporting—commander. We must create global plans that have regional components, focused on strategies, plans, force management, and force design and development concepts that integrate homeland defense and strategic deterrence into every aspect of our defense, from planning to execution.

But current operational plans do not accomplish this goal. Generically, our OPLANs double- or even triple-task forces and resources, creating a competition for high-demand, low-density assets. That means, for example, in a crisis overseas, the Secretary of Defense, with advice from the Chairman as the Department of Defense (DOD) global integrator, will have to adjudicate competing requirements from multiple combatant commands to determine apportionment



USS *Connecticut* surfaces in support of Ice Exercise 2018, Beaufort Sea, March 10, 2018 (U.S. Navy/Micheal H. Lee)

of scarce resources—compromising response and, more importantly, ceding valuable and irreplaceable time to the adversary. OPLANs today need to move past this model, identify distinct requirements for each commander, and deconflict force apportionment in advance, knowing that simultaneous demands will exist in any large-scale crisis.

From a capabilities standpoint, we treat the homeland differently than other theaters. Because the homeland was a relative sanctuary for more than 30 years after the fall of the Berlin Wall, NORAD and USNORTHCOM forces have been trained and configured for day-to-day and steady-state operations, not for the possibility of conflict in the homeland. Today, we do not have a persistent capability to generate high-tempo sustained operations within the United States and Canada in response to crisis, and we have not routinely equipped or trained our continental-based forces to operate in all environments, especially the Arctic. Likewise, our air operations centers (AOCs) in the homeland possess a fraction of the personnel and capabilities of AOCs supporting other combatant commands. North America will likely be a theater of operations in any future

peer fight. We must regain the ability and mindset to be ready to fight tonight. Because our requirement is not to be ready for day-to-day operations—but to be prepared for crisis every day.

The good news is that the transition has begun. We are modifying our tactics, techniques, and procedures and renewing commitment to exercising our forces against worst-case scenarios. As an example, multinational polar exercises such as Arctic Edge, Northern Edge, and ICEX are increasing our readiness and presence in the Arctic, and we are conducting increasingly complex national-level exercises to engage in global competition.

If our competitors believe that they can destroy our will or ability to surge forces from the United States because of a perceived inability to defeat their attacks, they will be emboldened to aggressively pursue their strategic interests. In essence, this situation creates an opportunistic gap between our nuclear strategic deterrent and conventional deterrent capability for potential adversaries to exploit. This opportunity creates intent and, perversely, an incentive for adversary action. Put more boldly, a strategy that assumes unfettered power projection,

given the current strategic environment, is a *losing strategy*.

From that perspective, the necessity for cultural change should be self-evident. Every aspect of our strategy, planning, budgeting, acquisition, and policymaking should be viewed global, focused on all domains, and employ affordable kinetic and nonkinetic capabilities to address the complex and simultaneous character of future war. Adopting a truly global perspective makes our problems more solvable and affordable. Global plans that start with the homeland and its deterrence requirements should lead to more realistic requirements overall.

Policy, Budgeting, and Acquisitions

Adequate homeland defense requirements cannot be set without a supporting policy in place that outlines exactly what must be defended and to what extent. NORAD and USNORTHCOM must be prepared to protect continuity of government, our nuclear infrastructure, power projection capabilities, and key defense nodes. In addition, these two commands must be prepared to protect key commercial, economic, and utility infrastructure, on both sides of

the border, in addition to population centers. Through strong coordination with Office of the Secretary of Defense (OSD) and the Joint Staff, DOD has identified a definitive list of critical assets that will allow for the generation of informed requirements procurement priorities. Moreover, all aspects of policy, including both regulatory and statutory, should be reexamined to ensure that those charged with homeland defense have access to the full range of capabilities in all domains and are not inadvertently constrained by archaic policies written in a different era without consideration that our homeland is being held at risk.

Our acquisition processes are also written for a different era and built to protect from litigation rather than to spur innovation. These processes have reduced litigation risk by adding time-consuming review processes, which in turn have increased risk to national security. It has been this way since after the end of the Cold War. We live in a time where Moore's law, the concept that computing power doubles every 2 years though the cost of computers is halved, is a reality in every commercial and consumer industry. Unfortunately, this truth has not extended to defense technology or operations; we are not fully recognizing and capitalizing on how much technology is amplifying development. This has to change—our innovation requires the same sense of urgency that the Nation had during the Cold War.

To meet today's challenges, we have a range of tools in the science and technology arenas and through organizations such as the Defense Innovation Unit, the OSD Strategic Capabilities Office, and Canada's Innovation for Defence Excellence and Security program. Development of capabilities and systems using the full range of available tools could rapidly bring improved homeland defense to life, make significant headway toward improving homeland defense, and help close a widening gap between strategic and conventional deterrent capabilities.

Mind the Gap

The Nation's strategic nuclear deterrent remains the foundation of its defense. Deterrence by punishment, however, which depends on the adversary's fear of reprisal through nuclear retaliation to defend the United States, is not likely sufficient to address the wide array of threats we face today. For too long, the United States has implicitly relied on and assumed that the strategic nuclear deterrent is adequate to prevent our competitors from attacking our homeland.

In short, we have a deficient complementary conventional homeland defense deterrent capability to defend against or respond to smaller scale conventional attacks on the homeland. This growing gap between our nuclear strategic deterrent and our conventional deterrent capability is specific to our ability to defend the homeland and generate effects right here in North America. Unfortunately, this gap could be exploited by our competitors, kinetically or nonkinetically, with the belief that they might achieve their objectives and remain below the nuclear threshold. In this environment, the threat of a conventional attack on the homeland leaves military and national leaders with a grim choice: either preemptively attack, risking escalation up to or beyond the nuclear threshold, or absorb an attack and be prepared to respond by deploying the force or responding with nuclear weapons. None of these presents a good option. Lack of a credible conventional deterrent also raises the risk that tactical miscalculations could quickly escalate and lead to the possibility of nuclear conflict. While other deterrence options exist to bridge the gap, such as power projection through our long-range non-nuclear global strike capability, they too are escalatory in nature.

This capability gap limits our options, constrains our actions, and is potentially more costly in terms of both lives and resources. The gap needs to be closed through the development of flexible and responsive kinetic and nonkinetic conventional deterrents, including information operations that selectively unveil Special Access Program capabilities, and through

diplomatic and partnership efforts. Through unambiguous communication of our ability to counter threats below the nuclear threshold, we can achieve deterrence by denial.

Conventional deterrence by denial is additive to deterrence by punishment. Through both, we will complicate a potential adversary's decision calculus, degrade confidence in their planning, and sow doubt in their mind that they can successfully achieve their objectives. The critical capabilities we are developing to deter by denial and close the strategic-conventional deterrence gap are all-domain awareness, information dominance, and decision superiority.

Left of Defeat

We have consistently fixated on kinetic kill capabilities to meet all threats. Leadership, including myself, grew up and achieved success as tacticians and operators first. Kinetic capabilities are what we know and what we are comfortable with. But a reliance on platforms, delivery systems, and weapons alone leads to a responsive, rather than proactive strategy. Senior leaders need to be provided more options than kinetic capabilities. This can be accomplished by drawing attention to the left—left of defeat, and even left of launch, to focus priority efforts on identifying adversary delivery platforms and preconditions for action. We could maintain custody of delivery platforms and weapons from launch to impact, greatly expanding our range of options and time to respond. To accomplish this, we are pursuing a layered-defense approach that emphasizes the use of open data architecture and machine-enhanced processing to move decision space to the left.

The Framework

All-domain awareness is the first element of the framework required to meet today's challenges, especially as NORAD pursues modernization efforts to create a layered network of sensors along the approaches to North America. For air and missile threats, this effort includes enabling early indications and warnings through detection, tracking, identifi-



Marines with Combat Logistics Regiment 25, 2nd Marine Logistics Group, tow Ahkio sled containing cold weather gear, at U.S. Army Northern Warfare Training Center, Alaska, February 20, 2018 (U.S. Marine Corps/Sean M. Evans)

cation, characterization, warning, and attribution. With all-domain awareness and data-sharing, including the use of artificial intelligence (AI) and machine learning, information dominance, the second element of the framework, can be established (that is, the ability to operate inside an adversary observe-orient-decide-act loop). Once information dominance is achieved, decision makers can take action through flexible response options to deny or defeat the threat. These two tools together give us deterrence, and through that, decision superiority, the third element of the framework, from the tactical to the strategic levels of warfare. Creating deterrence, so that we do not have to fight, should be the ultimate goal.

All-Domain Awareness. Our priority within this framework is all-domain awareness sensors and systems that provide persistent and complete battlespace awareness, from subsurface to space and cyberspace. This essential capability

increases warning time for national leadership against multiple threats, expanding available response options. Fused data can also be transmitted across the globe to benefit every combatant commander and create global information dominance.

Advancements in all-domain awareness will inform much of the next 2-year budgeting cycle. If we cannot see the threat, we cannot defend against it. Systems such as improved over-the-horizon radars, polar communications through Proliferated Low-Earth Orbit communications, Joint All-Domain Command and Control (JADC2), fixed sea-bed surveillance system, undersea cable-laying ships, polar radars, and counter-small unmanned aerial systems (UAS) detection all appear on NORAD and USNORTHCOM's Integrated Priority List. Investment in these exceedingly capable technologies will ultimately allow the earliest detection of sea-launched cruise missiles and small UAS and hypersonic glide vehicles. It will

also give us a significant advantage in the remote regions of the Arctic, which is quickly becoming a key region of global competition.

Information Dominance. The future fight will be won or lost based on our ability to achieve information dominance by connecting data from all-domain awareness sensors to flexible and responsive decision superiority options. Effective information dominance systems must ingest, aggregate, process, display, and disseminate data quickly and reliably by leveraging the potential of AI and machine learning.

Information dominance begins with data. In many cases, the data is global and exists today. However, it needs to be pried from existing stovepipes, flattened, and brought into a DOD cloud-based computing environment in order to enable decision superiority. Decision superiority—the ability able to make faster and better decisions than our potential adversaries—will enable us to deter, deny,

and, if necessary, defeat attacks. A flattened data architecture is a prerequisite for this capability and requires cultural change. We need a committed effort to enforce data standards across all echelons and every procurement program and initiative, as well as an increased commitment to data-sharing with allies and partners. The commitment of the Joint Staff's Joint All-Domain Command and Control Cross-Functional Team to lead a new process to set data standards and improve JADC2 interoperability among all sensors and Services is an encouraging step in the right direction.

NORAD and USNORTHCOM are platform agnostic. The particular system chosen is not as important as its ability to be employed globally, across all domains, across all classification levels, and be accessible from the tactical to strategic levels. Affordability and rapid deployment are also key considerations. In redesigning how data is managed, information dominance initiatives, such as the JADC2 concept, will come to fruition and allow the joint force to win in competition or conflict in future information-centric warfare.

Decision Superiority. All-domain awareness and information dominance put decision superiority in the hands of decisionmakers. As a joint force, however, we must not confuse decision superiority with development of traditional kinetic defeat mechanisms. At its heart, decision superiority is about giving senior leaders options. Decision superiority expands the aperture beyond kinetic kill into nonkinetic solutions.

As an example, imagine a future scenario enabled by information dominance and decision superiority tools. In this setting, all-domain awareness sensors detect potentially aggressive activity from a peer competitor, and when processed, machine-enabled insights indicate that the peer competitor is readying bombers for a pending deployment that will heighten regional or global tensions. The analysis, enabled by fusing multiple intelligence and sensor information streams, is performed in a matter of minutes by an AI-enabled system, conducting millions of calculations based on hundreds

of images, much more efficiently than human analysts can accomplish. This frees up human operators to conduct higher order processing. The data on the bomber deployment is then used by the system to send an alert to decisionmakers, with a recommendation for courses of action to preposition long-range global strike capabilities or posture friendly air assets to intercept the competitors' aircraft outside of normal ground-based radar detection distances and prior to potential weapons release range. Or perhaps instead of deploying forces, the decisionmaker leverages the information space to message the competitor through action in another combatant commander's area of responsibility or passes the information to the State Department to achieve a diplomatic or political resolution. In any course of action, the competitor's objectives are either dissuaded or diminished based on proactive measures made possible with the expanded decision space.

Such a scenario is not far in the future. Information dominance tools will help us to better understand our competitors' potential courses of action based off of historically informed patterns of behavior and posture a response option at the decisive point ahead of need.

Decision superiority options are needed because our theory of victory cannot only be about achieving kinetic kills; that is a losing strategy, both militarily and financially. It will lead us down the legacy path of focusing on platforms instead of capabilities. Defeat mechanisms are enormously expensive, and when the shooting starts, in a sense, we have *already failed*. Shifting focus left of launch will vector our efforts on identifying earlier indications and warnings—looking at delivery platforms and preconditions for departure while also maintaining custody of air threats and missiles from launch to impact.

Ultimately, we need to get inside our potential adversaries' OODA loops. We need to know when aircrews are stepping to their aircraft, when ships and submarines are planning to sail, and when missile operators and systems are preparing to launch. If we know this information, then through responsive decision superiority options enabled

through information dominance tools, it permits the ability to overtly posture the sufficient number of forces before the adversary takes action. This supports a global system to prevent conflict and better defend North America.

Rapid Innovation

NORAD and USNORTHCOM are already moving concepts into prototypes and into operations, bringing an information dominant homeland defense architecture one step closer to reality. Project Convergence, JADC2, and small investments are already showing tremendous improvements in information dominance. One example of a model for the future is the Pathfinder program, which USNORTHCOM and industry partners have been working on for the past year and a half, with contracting assistance from the Defense Innovation Unit.

Pathfinder is now in use at our air defense sectors as a battle management tool. It ingests air domain sensor data from multiple sources, including commercial and military radars; leverages software automation; and uses machine learning models to produce a fused common operating picture and decision superiority tool. Pathfinder did not start by picking a specific solution or platform, and it was not approached as a military problem. Instead, it was approached as a *data* problem for industry partners to solve in order to improve air domain awareness.

With Pathfinder, our Air Battle managers are no longer required to manually correlate and compare track data from multiple sources and systems. Instead, the systems that feed Pathfinder provide a fused track and highlights anomalous behavior. With fused data, both operators and decisionmakers are afforded increased time and decision space.

The next step needed in developing additional tools such as Pathfinder is to aggressively pursue every commercial and military data source, in addition to incorporating data from our allies and partners. Through common data standards and combined networks, we will increase information dominance and achieve true all-domain



Autonomous system Origin prepares for practice run on August 20, 2020, during Project Convergence capstone event at Yuma Proving Ground, Arizona (U.S. Army/Carlos Cuebas Fantauzzi)

awareness. On a larger scale, NORAD and USNORTHCOM are continuing a partnership with the Services and other combatant commands to achieve information dominance. Last year, we partnered with U.S. Space Command and the Air Force in the Air Battle Management System (ABMS) Onramp 2, which was one of the largest joint force demonstrations in the past decade and highlighted the impact of new, innovative, and affordable capabilities against live threats to the homeland. Efforts such as these are serving to flesh out the JADC2 concept for the joint force.

Many attendees left the demonstration talking about and focused on tactical defeat actions, such as a howitzer shooting down a drone simulating a cruise missile. While that was spectacular, it was a secondary benefit and not the main achievement from Onramp 2. The ABMS network established during the demonstration used AI and machine learning capabilities to enable

information dominance. These nascent prototype capabilities are what was truly groundbreaking and serve as a model for increasing decision space from the strategic to the tactical level.

The same data environment was used for further experimentation in NORAD and USNORTHCOM's first Global Information Dominance Exercise in December 2020. NORAD and USNORTHCOM—in coordination with U.S. Southern Command, U.S. Indo-Pacific Command, U.S. Transportation Command, U.S. Strategic Command, and the Under Secretary of Defense for Intelligence and Security—convened a digital table-top exercise to prototype cross-combatant command AI-enabled early warning alerts of peer-level threat movements. The scenario was based on historic signal intelligence, electronic intelligence, and satellite imagery. These alerts generated possible enemy course of actions and recommended proactive blue force response options.

While both onramps were successful as demonstrations, they were not enough. The military must continue to provide even more expansive opportunities to highlight the importance of these capabilities to DOD and congressional leadership.

In this new era of rapid Global Power competition, where our competitors are aggressively pursuing advantages in the military, information, economic, and geopolitical ranges, North America is threatened from every vector and all domains. We must accelerate efforts to transform our culture and factor homeland defense into every acquisition, budget, force design, and management decision, so we can maintain advantages, outpace adversaries, and sustain strength at home. Through all-domain awareness, information dominance, and decision superiority, we will deter in competition, deescalate in crisis, and defeat in conflict. JFQ

B-1B Lancer assigned to 28th Bomb Wing, Ellsworth Air Force Base, South Dakota, undergoes preflight maintenance at Andersen Air Force Base, Guam, September 25, 2020, while participating in exercise Valiant Shield (U.S. Air Force/Nicolas Z. Erwin)



Design Thinking

By Daniel E. Rauch and Matthew Tackett

The COVID-19 pandemic is a poignant example of a rapidly changing operational environment (OE). The virus's spread has caused chaos in almost every personal and public sector throughout the world. Facts were sometimes slow to emerge, emotions were high, and conspiracies ran rampant. Political guidance from all sides shifted and was perceived as reactive by some parties. If given the vital responsibility, how would you approach the task of leading the

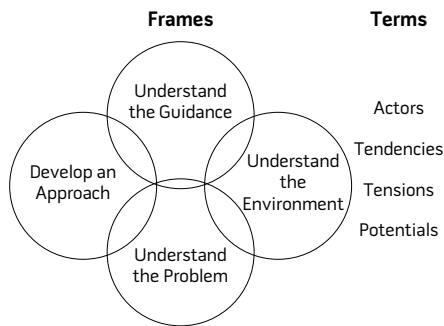
planning effort for the *next* pandemic? How would you assess the change to the OE and identify the key people and organizations involved and affected? Would your organizational readiness be drastically impacted? You probably have an intuitive response based on this latest pandemic. But can you validate those thoughts with facts and logic? Is there structure in your supporting narrative? Having a framework in place to assess problems is a start. Whether the next problem is a pandemic, a

counterinsurgency, an invasion, or a major unit reorganization, deliberately approaching those problems is essential to developing options, making sound decisions, and providing recommendations that can be understood by all. Design methodology offers a doctrinal approach to understanding, communicating, and developing approaches to situations, such as a pandemic, where structure can be elusive.

The U.S. military historically acts without developing a comprehensive approach to addressing what might happen once the shooting starts—and ends. Iraq, Afghanistan, and, to an extent, Syria are all recent examples of situations where

Colonel Daniel E. Rauch, USAF, and Colonel Matthew Tackett, USA, are Military Professors in the Joint Military Operations Department at the Naval War College.

Figure 1. Design Methodology



U.S. military involvement “solved” some elements of perceived problems but consequently created other issues. Following the invasion of Iraq in 2006, when the initial assessments seemed wrong and the situation was deteriorating simultaneously in Afghanistan, the Army began investigating alternative approaches to conceptual planning. Design methodology, now validated in joint doctrine, is the result of that inquiry. This methodology is used by planners at U.S. Central Command and U.S. Special Operations Command and, to a degree, at other unified commands, and is part of the curriculum at many U.S. professional military education institutions. Using the methodology will not guarantee a successful outcome and is not a panacea for solving pandemics or complex problems. It does, however, provide a general framework, supported by an underlying logic, for discussing problems and developing approaches.

What Is Design Methodology?

Design methodology is a model to aid in understanding and communicating cause-and-effect relationships in complex environments. Although imperfect, it may still be useful. Design methodology facilitates discourse, enables questioning of guidance and assumptions, and aids in articulating risk and opportunity in order to develop pragmatic options with an ends-ways-means balance. This article addresses the doctrinal application of design methodology at the political-strategic to operational level while also discussing the potential to employ design-think-

ing techniques at the operational and tactical levels. The intended audience for this article is military and civilian war college students, faculty, and others interested in understanding the basics of design. The article does not set out to discuss design through a theoretical lens, but rather to contextualize its value based on current joint doctrine. Design is not easy to conduct, but the framework and terminology of design methodology are understandable once conversant with aspects of the doctrinal reading.

Joint Publication (JP) 5-0, *Joint Planning*, the doctrine that includes design thinking, provides a structure or model to visualize, understand, and develop approaches to address complex problems. For the purposes of this article, complex or ill-structured problems may not be a single issue but rather a confluence of several nonlinear and dynamic issues interacting that affect the operating environment.¹ These problems are the most challenging to understand and solve. Unlike well-structured problems, leaders disagree about how to solve ill-structured problems, what the end-state should be, and whether the desired endstate is achievable. At the root of this lack of consensus is difficulty in agreeing on what the problem is.² Complicated or well-structured problems are defined as easy to identify because required information is available to solve the issues at hand. In addition, known methods—for example, math formulas—are available to solve these types of problems. While sometimes difficult to solve, well-structured problems display little interactive complexity and have verifiable solutions.³

Although complex problems exist at all levels, those problems at or above the operational level (for example, national security campaign planning at the geographical combatant, functional command, or four-star headquarters equivalent) are likely complex and well suited for design application. This methodology enables an informational discourse communicated through the lens of four “frames” and the common use of four terms (as reflected in figure 1). Operational art, which is inherent

in all aspects of operational design, “is the cognitive approach by commanders and staffs” (referred to henceforth as designers), “supported by their skill, knowledge, experience, creativity, and judgment to develop strategies, campaigns, and operations to organize and employ military forces by integrating ends, ways, means, and risks.”⁴ Moreover, “Operational design is the conception and construction of the framework that underpins a campaign or major operation and its subsequent execution.”⁵ The methodology of operational design is an attempt to provide structure on which to begin discourse in order to help commanders and planners understand the ends-ways-means-risk questions during planning.⁶

While there are other available methods to approach problem-solving, such as the Joint Planning Process or Lean Six Sigma, design is a relatively unpretentious, robust, and doctrinal tool that also supports a “recursive and ongoing dialogue.”⁷ Design’s structure allows operational-level military commanders to communicate with strategic leaders in terms those leaders understand. Design thinking, as addressed in JP 3-0, *Joint Operations*, allows designers to use this methodology when planning major joint operations or campaigns. Fully implementing a design team is resource intensive and suited for large organizations (for example, unified commands); however, the underlying thinking can be beneficial at all levels. Understanding what design is, as defined by current doctrine, is the first step to understanding the theory, and subsequently practicing, the methodology.

Benefits of Design

Design methodology directly supports divergent thinking—the skill of conceiving and considering multiple creative, diverse, and often contradictory approaches, and then treating each with equal intellectual rigor to identify the best approach(es). This skill and the subsequent discourse enable designers to visualize why the current environment differs from their previous experiences. Divergent thinking enables the

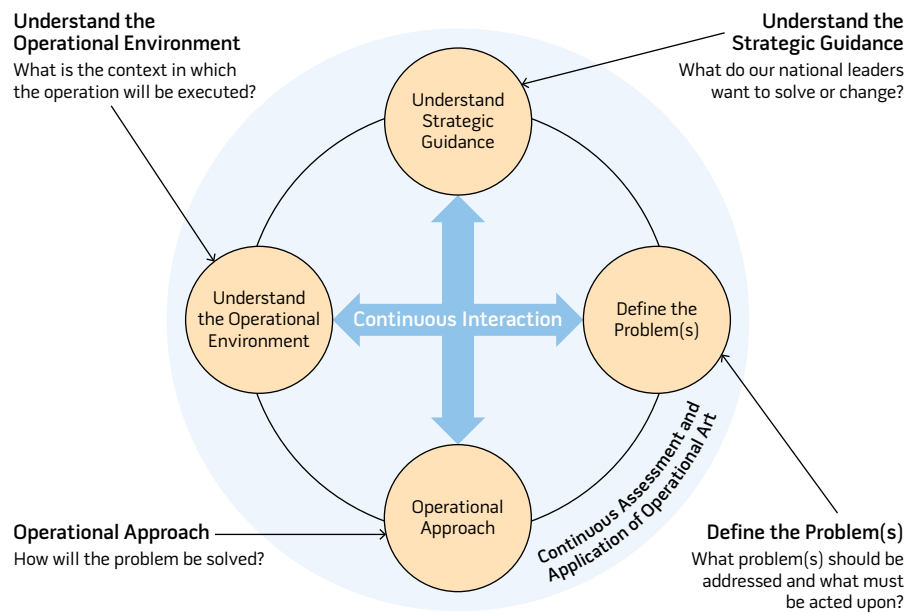
consideration of ideas other than those solutions that worked in past situations. Junior U.S. military officers spend much of their time dealing with well-defined issues, or complicated problems, that are most aptly addressed through structured approaches—but these experiences may create habits of thought and intuitive responses that are not conducive to generating solutions within truly complex environments. Intentionally employing a divergent thinking process to a diverse and uniquely experienced team (for example, epidemiologists and economists when dealing with a pandemic) has the potential of mitigating cognitive biases and developing options appropriate to the uniqueness of the situation.⁸ Design should pull the minds of designers out of linear processes and enable them to raise questions that identify additional risks or tensions, as well as opportunities or potentials.

Design, as codified in joint doctrine, helps commanders, staffs, and designers articulate complex relationships in a manner relatable to both senior military and civilian leaders. Design provides a plain but malleable framework to structure dialogue in a way that addresses problems. The terminology is simple and relatable among diverse groups. It is not military lexicon filled with acronyms and non-transferable concepts, nor is it arduous academic or scientific jargon that requires unique education to be comprehensible. When fully adopted and understood, design can assist the joint force in defining and addressing complex problems.

Design in Doctrine

Design is built on the iterative and supporting frames of understanding strategic guidance, the operational environment, the challenges of that environment, and the development of an approach that addresses a given problem (see figure 2). This framing is conducted with continuous interaction from and into previous and later frames. These frames can be envisioned as four rooms, and as one moves from room to room, the doors remain open to all rooms. One must go back and forth between rooms to understand and

Figure 2. Operational Design Framework



describe all of them. The model artificially separates the discussion of each frame, but the interaction of the frames cannot be overlooked. Designers may begin hypothesizing approaches at the beginning as a way to better determine the interaction between and within the frames. However, the OE and problem frames should be thoroughly understood in order to develop an actionable approach.

Throughout these framing discussions, four terms (from JP 5-0, chapter 4) are used continuously by strategic leaders to describe and facilitate clarity within frames: *actors*, *tendencies*, *tensions*, and *potentials*. Understanding the frames and terms goes beyond just knowledge of the capabilities and capacities of the relevant actors (individuals and organizations) or the nature of the OE. This understanding also provides context for decisionmaking and what facets of the problem are likely to interact, allowing commanders and planners to identify consequences and opportunities and to recognize risk.⁹

Understanding strategic guidance is a cornerstone of design and provides strategic or political objectives, desired endstates, force availability, and operational limitations. This guidance is the higher level culmination and the “why”

that balances ends, ways, means, and risk, and it must be continuously evaluated (and questioned) in order to confirm there are no changes. The information garnered by this strategy provides the lens through which designers are able to understand the OE. Often, they attempt to foresee the desired future state of the OE—the conditions that should exist when operations end—while fully recognizing that these frames are not sequential. Designers examine guidance, or questions asked within that guidance, and ensure that the right questions are answered. At times, guidance may be missing, incomplete, or rapidly changing. In this case, design methodology may assist in clarifying and completing guidance through an examination of the environment (including policy and political considerations).

Using graphics to capture the operational environment provides a doctrinally based technique that helps designers visualize systems as part of that environment.¹⁰ One way to visualize, understand, and depict the OE is as a complex adaptive system.¹¹ Designers identify the actors at play in the environment and then examine their tendencies in order to provide a “continuous and recursive refinement of situational understanding.”¹²

Actors are the individuals or groups within a specific system who operate to advance personal or other interests. Relevant actors might include states, governments, multinational actors, coalitions, regional groupings, alliances, terrorist networks, criminal organizations, cartels, families, tribes, multinational and international corporations, nongovernmental organizations, and others able to influence the situation either through, or in spite of, the established civil, religious, or military authorities.¹³ *Tendencies*, also part of understanding actors within the OE, reflect the inclination to think or behave in a certain manner. Tendencies are not considered deterministic; instead, they are models that describe the thoughts or behaviors of relevant actors. Tendencies help identify the range of possibilities that relevant actors may develop with or without external influence.¹⁴

As thought and discussion related to the current and desired systems continue, the commander and staff will begin to identify the problem frame—the factors that must be addressed in order to achieve the desired system conditions. Understanding the problem is essential to finding its solution. Essential activities continue to be thinking critically and conducting open and frank discussions with stakeholders, while considering their diverse perspectives, thereby discovering and understanding the underlying nature and essence of the problem and thus furthering understanding of the current OE.¹⁵ The precise problem is the one that defines the gap between the desired better state (defined by understanding the guidance) and the current state (defined by the actors, tendencies, potentials, and tensions of the OE).

The factors at play between actors and their tendencies impact *tensions* (for example, frictions, conflicts, and competitions) and include geographic, demographic, economic, religious, and resource consumption trends.¹⁶ Designers identify tensions by analyzing the context of the relevant actors' tendencies and potentials within the operational environment. Given the differences between existing and desired conditions in the environment, analysis identifies the positive,

neutral, and negative implications of tensions to determine the problem while understanding that the force's actions within the OE may exacerbate latent tensions.¹⁷ As designers identify these problems, they also hypothesize solutions along the way. During exploration of these frames, interactions are discovered, and a better understanding of the OE and problem is developed, which leads to different, and potentially better, approaches to this complex problem.

To reiterate, the problem that the operational approach must address is the gap between the current and the desired systems or conditions.¹⁸ The *operational approach*, as defined by JP 5-0, is a primary product of operational design, which allows the commander to continue the Joint Planning Process, translating broad strategic and operational concepts into specific missions and tasks in order to produce an executable plan.¹⁹ Failure occurs when designers apply the wrong (or any) solution to the wrong problem. Strong commanders and designers must consider the possible problem and its possible solutions without being tied to “their” solution. The problem statement identifies the areas for action that will transform existing conditions toward a better state, if not a desired endstate. Defining the problem extends beyond analyzing interactions and relationships in the OE. It also identifies areas of tension and competition—as well as opportunities and challenges—that commanders must address to transform current conditions in order to attain the desired endstate.²⁰

As better understanding emerges, the commander and staff determine broad actions (the operational approach to improve the environment) that can address the factors of actors, tendencies, and tensions. JP 5-0 names three purposes for developing an operational approach:

- It provides the foundation for the commander's planning guidance to the staff and other partners.
- It provides the model for execution of the campaign or operation and development of assessments for that campaign or major operation.

- It enables a better understanding of the operational environment and the problem.²¹

Designers develop approaches to achieve an endstate—or a better state—and improve the environment based on the guidance received. Understanding the environment and its actors and tendencies, and the problem and tensions associated with it, allows designers to identify *potentials*—inherent abilities or capacities for the growth or development of a specific interaction or relationship. Commanders need to identify opportunities they can exploit in order to influence the situation in a positive direction. When limited windows of opportunity open, the commander must be ready to exploit these to set the conditions that will lead to successful conflict transformation, and thus to transition.²² Not all interactions and relationships support achieving the desired endstate—design helps identify those that do and those that do not.

Understanding these terms, and how they influence the previously discussed frames, provides clarity in design discourse. Design is one of several tools available to help the joint force command and staff understand the broad solutions for mission accomplishment and the uncertainty in a complex OE. Additionally, design supports a recursive and ongoing dialogue concerning the nature of the problem and an operational approach to achieving the desired political or military objectives.²³ It is also important to understand the flexibility with initiating this concept. The process is not linear. The team can start by proposing solutions as easily as by listing actors—the goal is, through research and discourse, to gain the best possible understanding of all four frames before taking action.

The Artifact

The artifact, or output of a design team, will vary depending on the objective, the gravity of the situation, and the team's audience. The initial output may be to simply aid discourse at the national security level. The goal is to eventually create an initial operational approach that will be further defined



Soldier assigned to 209th Aviation Support Battalion, 25th Combat Aviation Brigade, 25th Infantry Division, uses hand signals during 25th Infantry Division Noncommissioned Officer and Soldier of the Year competition at Schofield Barracks, Hawaii, June 2, 2020 (U.S. Army/Sarah D. Sangster)

and debated during detailed planning. In doctrinal terms, the output is best described as level 1 planning detail, which can take many forms. Level 1 planning, per JP 5-0, involves the least amount of detail and focuses on producing multiple courses of actions to address a contingency. The product for this level can be a briefing, command directive, commander's estimate, or memorandum with a required force list. To inform higher level discourse, the output may be extremely descriptive of the environment and perceived problem. In order to move into detailed planning, the output must provide further planning guidance, the commander's intent, and sufficient description of the environment, problem, and approach. Whatever the desired use, bullet slides are generally an *inappropriate* format, as they often fail to capture the rich discourse and understanding of

the design team. The optimum output is a balance between prose narrative and pictures that capture the tendencies and tensions of relevant actors, along with the potentials and risks associated with the initial guidance.

General Martin Dempsey's July 2013 memorandum outlining options for intervention in Syria is a good example of level 1 planning detail that effectively enabled strategic discourse with policymakers.²⁴ His task was to provide military options. He provided those options in terms of ends-ways-means-risk and cost. His conclusion was rich with the portrayal of the complexity of the environment, the natural tensions between select actors, coupled with the potentials if acted on without a whole-of-government approach. This memorandum was written prior to the rise of the so-called Islamic State in 2014. At that time, the tension between acting or not acting

weighed against the tendency of a weakened Syrian regime that presented the potential for empowering extremists—a correct foreshadow that demonstrates understanding the environment. It is apropos to point out that Russia is not mentioned in this memo. Russia's entry into the environment was a significant change that altered the potential collapse of the Syrian regime—a demonstration of not fully understanding the actor(s) in, and potential(s) of, the environment.

Argument for Design

The evolution of design into what is now codified in doctrine has resulted in both positive and negative perceptions. After the invasion of Iraq, the Army began exploring design concepts to help tackle the complexity of the situation. The School of Advanced Military Studies at Fort Leavenworth studied and evaluated the Israeli version of

Table. Elements of Operational Design

Termination	Direct and indirect approach
Military endstate	Anticipation
Objectives	Operational reach
Effects	Culmination
Center of gravity	Arranging operations
Decisive points	Forces and functions
Lines of operation and lines of effort	

design developed by the Operational Theory Research Institute led by Brigadier General Shimon Naveh.²⁵ Naveh's theory derives from the interdisciplinary general systems theory introduced by a biologist in the 1930s—the concepts and associated terminology of which can be elusive without extensive study.²⁶ Naveh, a London-educated Ph.D. in military sciences, adapted general systems theory into a methodology to develop approaches for complex military problems, and termed the approach systemic operational design.²⁷ His adaptation created additional complex language drawn from his diverse education—even he would admit his concepts were “not for mere mortals.”²⁸ Critics of Naveh's work have even called the systemic operational design's terminology unintelligible.²⁹ What is currently codified in U.S. doctrine, however, is a pragmatic methodology for conceptual planning that can be understood with minimal study.

Joint doctrine does create some confusion by using *operational design* as the methodology (properly so) and then later as the *elements of operational design* (see figure 3). This makes the term sound both like a cognitive process and an artifact.³⁰ Interpreting section B, chapter 4, of JP 5-0 as *operational design methodology* may minimize the confusion associated with the *methodology* and the *elements* that compose the approach. Recognizing that joint doctrine is a compromise among the Services and that design evolved within U.S. ground forces (specifically the Army at Fort Leavenworth), it is advised to consult Army and Marine Corps publications for clarity. Neither Army Techniques Publication 5-0.1, *Army Design*

Methodology, nor Marine Air-Ground Task Force Staff Training Program Pamphlet 5-0.1, *Marine Corps Design Methodology*, suffer the same confusing language as joint doctrine. Both describe operational design methodology as a tool that supports the commander's use of operational art to develop an operational approach.³¹ The *Department of Defense Dictionary of Military and Associated Terms* also captures operational design as a methodology and an operational approach as an output. However, there are perhaps more significant issues contributing to the misunderstanding of design's place in the environment.

Some overzealous advocates believe design will always attempt to provide solutions to problems in a complex environment. Those that oversell its usefulness have also contributed to the misunderstanding of what design is and how and when it should be used. These individuals are easily identified, as they present examples of tactical or operational success through the lens of design but fail to examine the long-term condition of the environment. What design advocates seem to imply is that “design” is the manner of thinking associated with the methodology (that is, divergent, creative, critical, iterative). These are laudable skills that should be used at all levels of planning and execution. However, design is focused on identifying underlying causes and testing hypotheses that have the potential to influence the environment over 5 to 20 years (versus a 12- or 24-month deployment). The resources required to fully frame a complex environment and develop a workable cause-and-effect understanding can be significant. Those resources are unlikely to be available below the unified command level.

Design also has opponents, who believe it simply does not work based on their experiences. However, one must question these opponents' exact experiences with design and how they measure success. For example, did they expect that simply assembling a group and labeling it a “design team” would provide a solution? Were they oversold on what design brings to the table? Design facilitates understanding and communication, but it will not solve problems. The resources put toward understanding an ill-structured problem will certainly help, and the quality of the designer is essential to good output. Just as asking someone with little to no training or talent to paint a portrait will probably result in a poor product, executing design without the proper resources will also result in a poor outcome.

Design methodology is suited for the operational and strategic levels because it is resource-intensive. However, there may be a time when leadership at those levels is pressured to move to action before a reasonable understanding of the environment is available. This is when the thinking that underpins design must be executed at the tactical level. This is not optimal, but it is a reality. A tactical unit will not be resourced to fully understand the cause-and-effect relationships of the theater, but they can use design thinking skills to better approach the problems at hand. This is an example not of fully executed design methodology, but rather of implementing design thinking.

Conclusion

Design methodology is not the panacea for problem-solving. Design facilitates discourse, enables questioning of guidance and assumptions, and enables the articulation of risk and opportunity to arrive at a pragmatic ends-ways-means balanced concept. Like operational art and the Joint Planning Process, design is one more tool or model that can foster better thinking skills and provide a common language between the joint force and civilian senior leaders. However imperfect, some models are fundamentally useful. Understanding the joint doctrinal version of design should demystify the concepts sur-

rounding it. Time and resources may be required to implement design, but it is simple enough to understand. It may take a large organization to properly resource a design team, and the team will likely require significant outside resources in order to achieve the acceptable cause-and-effect understanding of a complex environment, but the cognitive skills associated with design methodology and design thinking are useful at all echelons.

Implementing design methodology does not guarantee a solution, but it may help articulate the gap (the problem) between the desired state and the current state, as well as the gap in ends, ways, and means (the approach). There are certainly cases in which the ways and means are not available to achieve the desired ends (based on the strategic guidance). Design should help articulate those cases and further the discourse of either changing guidance or creating new ways and means. An honest discourse will at the very least help clarify the risks when forced to take action in an environment where ends-ways-means gaps exist.

Is design thinking the right tool to apply to the next pandemic or to the next major large-scale military operation? Design thinking certainly has the benefit of forcing planners and experts supporting planning who have good ideas to articulate the logic of how their approach affects the environment, remains consistent with higher guidance, and ensures the problem is defined. Design thinking also allows planners and commanders to gain an appreciation for the perspective of, and impact on, other institutions and organizations. Deliberate, reflective, and structured thinking is essential to sound decisionmaking. Using a shared framework and vernacular that is understood by others makes discourse much easier. Most organizations will not be able to resource a sufficient design team to thoroughly understand an environment. However, applying the framework and thinking of design may highlight gaps in knowledge about the particular problem and avoid faulty intuition-based decisions. Design methodology is not a remedy for solving pandemics or all complex

problems, but it does provide a structure that evolved from an effective (but quite complex) framework to one that can be easily understood by any reasonably educated person. And it is in joint doctrine, so why not try it? JFQ

Notes

¹ Joint Publication (JP) 5-0, *Joint Planning* (Washington, DC: The Joint Staff, June 16, 2017), III-6.

² Army Techniques Publication (ATP) 5-0.1, *Army Design Methodology* (Washington, DC: Headquarters Department of the Army, July 1, 2015), 4-2.

³ *Ibid.*, 4-1.

⁴ JP 5-0, IV-1.

⁵ *Ibid.*, IV-1.

⁶ *Ibid.*, IV-1–IV-19.

⁷ *Ibid.*, IV-1.

⁸ For a more thorough discussion of critical thinking, divergent thinking, heuristics, and biases, see Peter A. Facione, *Critical Thinking: What It Is and Why It Counts* (Hermosa Beach, CA: Measured Reasons, LLC, 2015).

⁹ JP 5-0, IV-1–IV-2.

¹⁰ *Planner's Handbook for Operational Design*, Version 1.0 (Suffolk, VA: The Joint Staff, October 7, 2011), V.

¹¹ *Ibid.*, IV-1.

¹² JP 5-0, IV-2.

¹³ *Planner's Handbook for Operational Design*, V-14.

¹⁴ *Ibid.*, V-15.

¹⁵ *Ibid.*, V-10.

¹⁶ ATP 5-0.1, 1-4.

¹⁷ *Planner's Handbook for Operational Design*, V-15.

¹⁸ *Ibid.*, V-5.

¹⁹ JP 5-0, IV-1.

²⁰ *Ibid.*, IV-14.

²¹ *Planner's Handbook for Operational Design*, III-10.

²² JP 5-0, xxi.

²³ *Ibid.*, IV-6.

²⁴ Martin E. Dempsey, Letter to Senator Levin, July 19, 2013, available at <<https://www.globalsecurity.org/military/library/report/2013/dempsey-syria-sasc-letter-130719.pdf>>.

²⁵ Stefan J. Banach and Alex Ryan, "The Art of Design: A Design Methodology," *Military Review* (March–April 2009), 105–115.

²⁶ Ludwig von Bertalanffy, *General System Theory: Foundations, Development, Applications* (New York: George Braziller, Inc., 1968), introduction and chapter 4.

²⁷ For a better understanding of the evolution of the Operational Theory Research Institute's approach, see chapter 1 of Shimon Naveh, *In Pursuit of Military Excellence: The Evolution of Operational Theory* (London:

Frank Cass Publishers, 1997).

²⁸ To develop a clearer picture of the influence of Naveh's work on U.S. Army doctrine, see the following: Matt Matthews, "Interview with BG (Ret.) Shimon Naveh," Operational Leadership Experiences, Combat Studies Institute, Fort Leavenworth, KS, November 1, 2007, available at <<https://smallwarsjournal.com/documents/mattmatthews.pdf>>; Alex Ryan, "A Personal Reflection of Introducing Design to the U.S. Army," *The Overlap*, November 4, 2016, available at <<https://medium.com/the-overlap/a-personal-reflection-on-introducing-design-to-the-u-s-army-3f8bd76adcb2>>.

²⁹ Milan N. Vego, "A Case Against Systemic Operational Design," *Joint Force Quarterly* 53 (2nd Quarter 2009), available at <<https://apps.dtic.mil/dtic/tr/fulltext/u2/a515328.pdf>>.

³⁰ JP 5-0, IV-6–IV-19.

³¹ ATP 5-0.1, 1-4; Marine Air-Ground Task Force Staff Training Program Pamphlet 5-0.1, *Marine Corps Design Methodology* (Washington, DC: Headquarters Department of the Navy, May 2017).



Officer candidate stands at attention during Medal of Honor run at Officer Candidates School aboard Marine Corps Base Quantico, Virginia, August 15, 2019 (U.S. Marine Corps/Phuchung Nguyen)

Buy Now, Get Paid with Diversity Later

Insights into Career Progression of Female Servicemembers

By Monica Dziubinski Gramling and Warren Korban Blackburn

Lieutenant Colonel Monica Dziubinski Gramling, USAF, is Commander of the 375th Communications Support Squadron. Lieutenant Commander Warren Korban Blackburn, USN, is a Programmatic Analyst at U.S. Transportation Command.

The Department of Defense (DOD) recognizes the value that diversity brings to the joint force. In 2015, the Secretary of Defense directed DOD to establish an environment where all personnel have the opportunity to rise to the “highest level of responsibility as their abilities allow.”¹ Additionally, the directive promotes “a strategic vision for total force diversity and inclusion as a unifying core value and factor of readiness for Servicemembers and civilian employees.” The notion that diverse teams provide more creative and innovative solutions to problems is well researched and supported.² To reap the full benefits of diversity, DOD must foster intentional inclusivity. The Nation has made great strides toward inclusivity over the past few decades—today, for instance, women orbit the earth on

the International Space Station and patrol the depths of the ocean on Navy submarines. There are, however, hurdles yet to clear. DOD must address tangible and intangible program costs to develop an environment of inclusivity. Integrating women into typically male-dominated career fields requires resource investment in equipment, facilities, and processes. Decisionmakers must implement these accommodations now to build tomorrow's gender-inclusive leadership team.

The Costs of Gender Integration

Integrating women into a unit or environment that has been traditionally staffed exclusively by men costs the government resources. The 1994 Direct Ground Combat Definition and Assignment Rule specifically named costs of accommodating “berthing and privacy” as a valid reason to restrict women from filling specific positions.³ The Navy has cited “return on investment” as its reason for not opening positions to women on ships with scheduled decommissioning dates.⁴ Thus, the 2013 policy changes allowing women to fill previously closed positions in combat units have taken years to implement. Women are still not completely integrated into some units a full 3 years after the 2016 opening of “all” positions to women. Strategic-level studies and working groups have been commissioned in an effort to identify the process, facility, equipment, and other changes required to support mixed-gender teams in combat units and locations. The Government Accountability Office determined the Services conducted more than 40 studies between 2013 and 2015; the studies cost the Nation and DOD money, time, and labor force hours.⁵

Facilities and equipment constitute the most tangible costs of integrating women into previously male-dominated positions, while less tangible costs include the time and labor hours of navigating integration decisions when no processes exist. One of the most substantial changes was the repeal of the restriction referred to as the “collocation rule.” This

rule “could restrict units and positions that were doctrinally required to physically collocate and remain with direct ground combat units that were otherwise closed to women.”⁶ Its repeal in 2012 opened more than 13,000 positions and 6 additional specialties to women and authorized them to work and live in locations originally designed to support only men from a spatial and process prospective.⁷

Opening new locations for mixed-sex teams requires resources to transform facilities' sleeping quarters, showers, and toilets. Facility costs could include any level of support—from finding a tarp to divide a sleeping tent to house both sexes to procuring a building for a women's dorm. Leadership will likely use existing facilities to accommodate women in these environments. Repurposing existing spaces is a low-cost decision from a monetary standpoint, but it is not without other less tangible costs. Deployed members often share sleeping quarters with fellow unit members according to their respective shift schedules, duty responsibilities, and places of duty. When a location has only a small number of women, the women are normally given one room or building for sleeping quarters and bunked together, with minimal other considerations such as rank, unit, or specialty. Because these women will likely be from different units and working various shifts, living in the same small space could ruin their sleep schedules. Lack of sleep could have a cascading negative effect on morale, work performance, and—of utmost importance—workplace safety.⁸ The current process for assigning sleeping quarters is built for a *homogenous* team, and thus leadership must invest time to ensure that women have adequate accommodations that do not present unnecessary barriers to mission success.

Because integrating women into organizations comes with costs, a resource-constrained leader may exclude a female officer from a high-visibility opportunity—not as a matter of conscious discrimination, but in an effort to save government resources (for example, additional planning, organizational realignments, processes, or even

procurements). At a tactical level, commanders make decisions daily regarding how best to accommodate both sexes in the field. From basic training units to combat deployments, commanders are forced to adjust accommodations and “make it work” with what they have.

Career Progression

Potential costs or inefficiencies can arise when utilizing mixed-sex teams, especially if only men have traditionally filled the roles or worked at the location. A decision to avoid these investments can have negative second- and third-order effects for female officers' career progressions. Simply put, a leader's cost-based decision could unintentionally change the trajectory of an officer's career. Consider the following hypothetical situation: Two young officers volunteer for a high-visibility deployment to an austere hostile fire zone.⁹ Because the forward operating base has limited facilities and all current team members are men, the commander chooses to send the male officer instead of the female officer on the deployment to ease the logistic requirements of the already complicated short-notice deployment. What seemed like a simple and efficient decision at the time resulted in the female officer missing out on valuable operational experience and knowledge—which can lead to weaker records and missed promotion opportunities.

The male officer who deployed had a chance to learn his trade and demonstrate leadership during combat operations. His commander rewarded him accordingly with annual awards, decorations, and highly stratified performance reports. The female officer, who stayed at her home station, also demonstrated excellence and received the annual awards and reports expected during a steady-state non-combat environment. All things being equal, when these records are compared, demonstrated leadership in a combat environment is a more impressive accomplishment. A few years later, the same two officers will compete against each other for command selection. The male officer, the proven combat leader, is selected for

Figure 1. Navy Rank Distribution by Gender

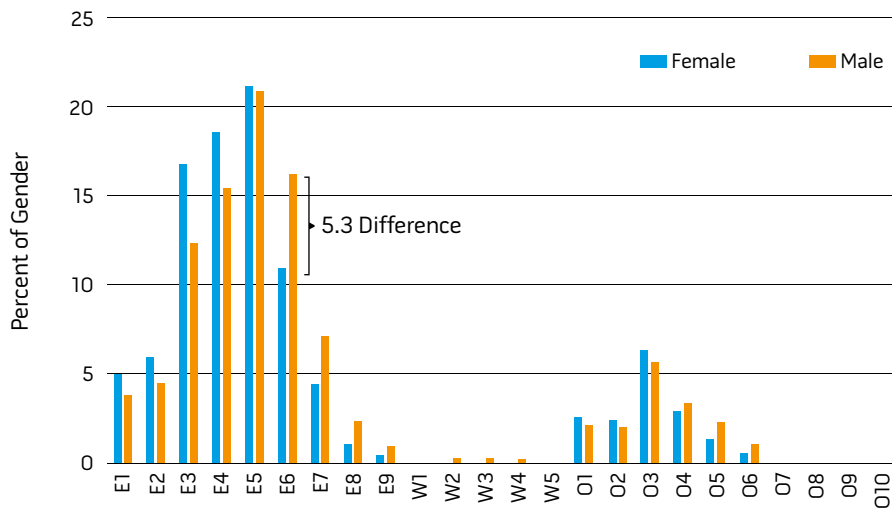
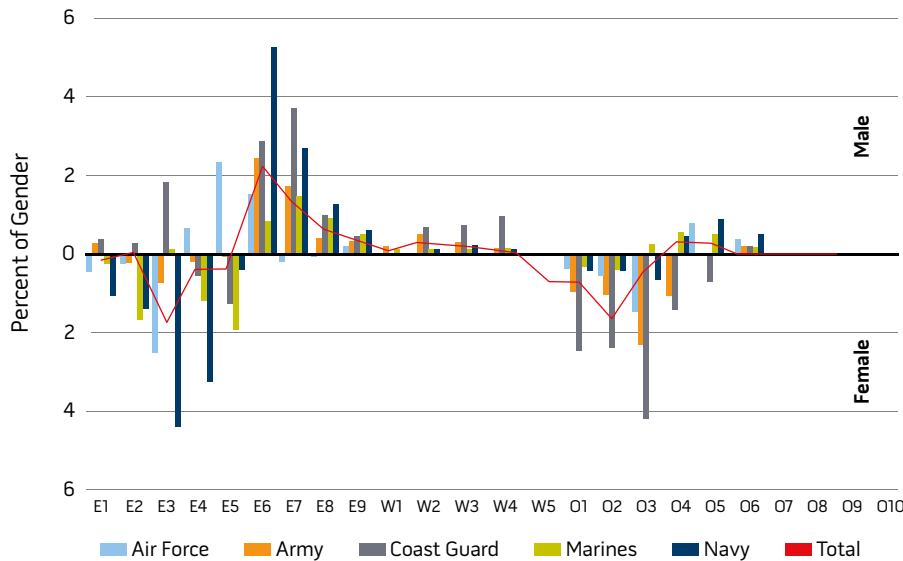


Figure 2. Gender: Rank Distribution



command based on the operational experience shown in the records. Selection and success as a commander are decisive points in career progression in all military branches.¹⁰

The second-order effect of command selection, or lack of selection, further compounds the problem facing the female officer: lack of experience. She has now missed the opportunity to garner command experience. Next, these officers will compete for professional military education selection, and the male officer, a graduated commander with combat experience, will be an easy choice over

the female officer, who did not command. This narrow example shows how a seemingly insignificant decision based on limited resources could have second- and third-order effects on an officer's career progression. It is possible that missed opportunities could cumulate in a less competitive record for promotion to the rank of O6.

Figure 1 shows data drawn from the 2018 Defense Advisory Committee on Women in the Services (DACOWITS) annual report. The figure indicates the percentage of men and women at a given rank specifically for the Navy. It is

important to compare the percentage of the genders at the various ranks and not look at simple numbers of personnel by gender because significantly more men than women are in the military.

On the surface, figure 1 depicts the same basic distribution across the ranks, indicating advancement across the ranks is similar.¹¹ DACOWITS also provided charts for the other Services. The Navy's chart revealed the highest difference at any rank, specifically at E6, between the sexes. Approximately 10.9 percent of women and 16.2 percent of men are at the E6 rank in the Navy, indicating a difference of 5.3 percent. All career-related factors being equal (for example, attrition, advancement opportunities), the percentages should be comparable—but the data reveal otherwise.

Figure 2 highlights the differences between the sexes across all ranks and Services. The difference of 5.3 percent, discussed for figure 1, is seen as the highest peak at E6 in figure 2. A DOD trend exists along the red line (total military) across the ranks, which shows greater percentages of men in ranks of E6 to E9 and O5 to O10 and greater concentrations of women in the lower ranks of E1 to E5 and O1 to O4.

But highlighting the lower percentage of women in a specific rank does not address why such discrepancies exist. Considerable research has examined female retention in the military, but few studies address whether the retention rate is due to differences in promotion potential.¹² It is difficult to separate retention from promotion because if Servicemembers are not retained, they cannot be promoted. A 2016 RAND study analyzed multiple factors in relation to career progression for both genders. Researchers could not infer from the results that family status, such as being married or having dependents, causes gender-related differences in retention or promotion potential. The study concluded that occupational disparities, such as career field assigned, were the main discriminators at the O5 retention milestone, and deployment experience emerged as the main discriminator for promotion to O6. Researchers have



Sailors assigned to USS *Porter* apply jubilee pipe patch during damage control competition at Naval Support Activity Souda Bay, Greece, October 24, 2017 (U.S. Navy/Krystina Coffey)

consistently shown that a history of key assignments and deployment experiences is directly related to promotion potential for both sexes. If resource considerations prevent female officers from selective opportunities to garner needed and valued experience, then they will not be as competitive for key assignments, education programs, and, ultimately, promotion. And the trend depicted in the figures above continues.

Submarine Integration

In 2011, the Navy submarine force used working groups to design a gender integration plan that incorporated the doctrines of processes, facilities, and equipment; its execution shows how successful female integration could be when leadership dedicates time and resources to inclusion efforts. The Navy's "silent service" made one of the

most dramatic changes to its 111-year history when four groups of female Sailors reported to the USS *Wyoming*, USS *Georgia*, USS *Maine*, and USS *Ohio*.¹³ The first group of female Sailors stepped on board the USS *Ohio* (SSGN 726) in 2011 with a carefully laid-out implementation plan developed by senior leadership.¹⁴ One O3 supply officer with prior surface ship experience reported at the same time as a nuclear-trained O2 officer. To ensure a successful experience, these officers were required to be well versed in their specialty and top performers in their respective fields. The supply officer had served previously on a surface ship and had a proven leadership record. Soon after, enlisted female Sailors reported aboard the submarine as well.

Berthing arrangements were easily arranged in the first group, as the supply

officer is typically given a two-person stateroom. Common-use heads were set up with ease, due to the close proximity of an already restricted-use head to approximately 10 officers who each live within 20 feet of it. A simple sign was made to signify that the head was occupied by a woman. To accommodate enlisted female Sailors, modifications were made to the ship to expand one of the two heads used by the male crew, and the other facility was dedicated for female use. This modification cost the crew "lounging" space, used for socializing while off watch, and construction costs. Other modifications have been requested by currently serving female submariners to account for height or strength challenges faced in the workplace. For example, emergency air breathing connections have been lowered on a few ships to accommodate the average height of female



Navy Sonar Technician (Surface) First Class Allison Coughlin mans helm of USS *Theodore Roosevelt*, Pacific Ocean, March 4, 2021 (U.S. Navy/Alexander Williams)

submariners. The Navy has stated that all future submarines will be designed for integrated crews.¹⁵

Submarine supply officers (male or female) serve only one tour on any submarine platform; those who serve on submarines gain a reputation for being the sharpest of their peers and are often selected for competitive high-visibility follow-on tours. A tour as a supply submariner will have a positive impact on the experience, knowledge, record, and promotion potential of the Sailor assigned.

The nuclear-trained submarine officer career path, once designated as submarine service, will typically progress under ship-to-shore rotation until the unrestricted line officer submariner is selected for command as an O5 or O6. Command is the pinnacle of the

submariner career and leads to competition for flag officer selection. It will take until approximately the year 2026 until the first cohort of women will be eligible to command a Navy submarine.¹⁶ Of the first 19 female submarine officers, 5 have decided to sign a contract to go back to sea as a department head: 4 are engineers and 1 is a navigator. These are typical selections for top-tier nuclear-trained officers. The remaining 14 women either left the military, will soon leave, or are serving elsewhere in the Navy—nearly the same retention rate as that of male submariners. Leadership acknowledges that it will take time and money to make the required equipment modifications during the submarines' scheduled overhauls and to build trained, integrated crews on every class of submarine. The

Los Angeles class of submarines, because of advanced age, will “age out” without integration modifications; however, the new *Columbia*-class ballistic missile submarines are being constructed with full integration in mind.¹⁷

There are female Sailors anxiously waiting to join the submarine fleet.¹⁸ The speed at which the Navy integrates each platform will influence the opportunities for these women to serve and gain experience from such high-visibility tours. This example shows a successful case study of expending integration planning time and resources to create accommodations for women in key assignments. The cost considerations were deliberately intertwined with the ship maintenance schedules to minimize mission impact. DOD needs to support future efforts to remove

limitations on the number of women accepted and accessioned into the elite submariner community.

Recommendations

It is imperative to provide an accepting and inclusive environment for both sexes. Simply having women on teams will not allow them to excel as professionals. What might DOD members do to remedy the disparity that might exist in a fiscally constrained environment? DOD could implement the following recommendations to attain the value of diversity:

- spend money and resources for modifications and accommodations
- educate decisionmakers
- review policies and processes for the removal of barriers
- build an inclusive future.

DOD must be willing to pay for the inherent costs of inclusion initiatives, such as upgrades or changes to facilities, equipment, and processes. Spending money and time incorporating women into the force is not a new idea. A Presidential memorandum from 2016 directed agencies to prioritize resources to expand professional development, key assignments, and career advancement opportunities of women and minorities.¹⁹ A minuscule investment tomorrow could create a more diverse senior leadership team 10 years from now.

Maya Angelou declared, “Do the best you can until you know better. Then when you know better, do better.” A key to successfully changing the culture of an organization is education. DOD must educate decisionmakers about the potential negative consequences a resource-based decision could have on the department’s diversity and inclusivity goals and Servicemembers’ careers. DOD should urge decisionmakers at all levels, from tactical-level unit deployment managers to Members of Congress, to consider the ripple effects resource decisions could have on gender inclusivity.

DOD leaders should review current policies and processes to identify any potential equality or career progression barriers they might be creating or

propagating. For example, the “Leaders First” policy, which is applicable to the Army and Marine Corps, requires female leaders and trainers to be in a unit prior to allowing junior enlisted women of the same branch to serve in the unit.²⁰ The other Services have added similar informal policies. The Navy, for instance, requires a specific number of trained and integrated female officers on a submarine crew prior to including enlisted women, as outlined in the submarine integration example above. The Air Force also has used an informal two-woman policy on some deployment, missile, and aircraft crews. Leaders intended these policies to be helpful from a resource, logistic, and safety perspective; however, such guidelines could be limiting the potential of those female Servicemembers who are ready to serve prior to the competitive units meeting all the stipulations required for integration.

Additionally, inadequate or antiquated processes designed to support all-male units must be identified and updated. Commanders and senior enlisted leaders spend far too much time analyzing situations and deciding how to make integrated teams work with existing resources; providing these leaders with processes for inclusive teams could alleviate the burden. DOD should re-vamp processes to assume that all teams would need accommodations for both men and women at any given number, not at a preset number. For example, it is inadequate to state a unit has eight spots for women due to lodging availability. A process needs to exist to support an integrated team for any number of gender mix. Setting a specified number of women does not support the DOD objective to match the best person, regardless of gender, with the job. It is time to stop prioritizing cost savings, efficiency, and convenience over equality in DOD. Identify the policies and processes that are limiting the potential of women and eliminate them.

DOD needs to build the joint force with gender inclusivity in mind and modify current and future initiatives as needed to accommodate gender-inclusive teams. Building the cost of inclusion

into the future DOD weapons systems, deployment packages, and training programs— even if it costs more money at the outset—will yield the dividends of a diverse and inclusive group of warfighters. For example, unisex personal protective equipment might be acceptable in some circumstances, but there are items that must be tailor-made based on an individual’s body shape. DOD must assume gender inclusivity for every program, unit, deployed location, and career field from the inception, and program the costs of accommodation as requirements to support warfighting readiness.

Conclusion

Gender inclusion comes with both tangible and intangible costs. Decisionmakers must pay these costs now, break down barriers for women, and ensure the development of experienced diverse leaders for the future. The various expenses associated with gender inclusion span items as obvious as funding a study to less apparent costs such as labor force hours spent on berthing or lodging arrangement plans and decisions. The hypothetical example above attests to how a seemingly small resource-based decision can change the course of an individual’s career progression. The analysis of DOD rank distribution by gender reveals a plain and sobering trend. The submarine gender integration strategy makes clear that planning and adequate resources can make available key assignments for female Servicemembers.

Establishing considered, intentional plans for gender inclusivity, as the submarine example demonstrated, and following the recommendations outlined herein will help DOD ensure equal opportunity for female Servicemembers. Many areas are ripe for further study and quantitative analysis in this area, given the numerous policy and processes changes since 2013. As DOD continues to implement changes, commit resources, and realize gender inclusivity, it will eventually reap the benefits of a diverse and inclusive joint force. JFQ

New from NDU Press

for the Center for Strategic Research

Strategic Forum 308

Baltics Left of Bang: The Southern Shore

By Marcel Hadeed, Mariusz Kaminski, Monika Sus, Brett Swaney, and Amelie Theussen



Detering and defending against Russian aggression in the Baltic Sea region prior to open hostilities,

or “left of bang,” is a political problem that requires a coordinated regional approach by the Baltic southern shore states—Poland, Germany, and Denmark—in conjunction with their North Atlantic Treaty Organization (NATO) and European Union (EU) allies. Despite common membership in NATO and the EU, the southern shore states hold differing strategic perspectives that reflect the challenges of a coordinated approach. These states should prioritize Baltic maritime security, regional mobility, and unconventional warfare capabilities in coordination with regional allies and partners. They should also leverage or enhance EU capabilities in cyber, information, and strategic communications to better deter and defend against Russian hostile measures.



Visit the NDU Press Web site for more information on publications at ndupress.ndu.edu

Notes

¹ Department of Defense Directive 1020.02E, *Diversity Management and Equal Opportunity in the DOD* (Washington, DC: Department of Defense, June 8, 2015), available at <www.esd.whs.mil/Portals/54/Documents/DD/issuances/dodd/102002p.pdf?ver=2019-03-11-081757-483>.

² Stephen Frost, “Why Diversity Initiatives Fail,” *HRZone*, October 20, 2017, available at <www.hrzone.com/lead/culture/why-diversity-initiatives-fail>.

³ Secretary of Defense memorandum, “Direct Ground Combat Definition and Assignment Rule,” Washington, DC, January 13, 1994, available at <www.govexec.com/pdfs/031910d1.pdf>.

⁴ Lory Manning, *Women in the Military: Where They Stand*, 10th ed. (Washington, DC: Service Women’s Action Network, 2019), available at <www.servicewomen.org/wp-content/uploads/2019/04/SWAN-Where-we-stand-2019-0416revised.pdf>.

⁵ Government Accountability Office (GAO), *Military Personnel: DOD Is Expanding Combat Service Opportunities for Women, but Should Monitor Long-Term Integration Progress*, GAO-15-589 (Washington, DC: GAO, 2015).

⁶ “Direct Ground Combat Definition and Assignment Rule.”

⁷ Manning, *Women in the Military*.

⁸ Wendy M. Troxel et al., *Sleep in the Military: Promoting Healthy Sleep Among U.S. Servicemembers* (Santa Monica, CA: RAND, 2015).

⁹ Based on real events informally collected; actual persons and events have been generically described to keep the situation anonymous.

¹⁰ *From Representation to Inclusion: Diversity Leadership for the 21st-Century Military* (Arlington, VA: Military Leadership Diversity Commission, 2011).

¹¹ Defense Advisory Committee on Women in the Services, *DACOWITS 2018 Annual Report* (Washington, DC: Department of Defense, December 2018), available at <<https://dacowits.defense.gov/Portals/48/Documents/Reports/2018/Annual%20Report/DACOWITS%20Annual%20Report%202018.pdf>>.

¹² Beth J. Asch, Trey Miller, and Gabriel Weinberger, *Can We Explain Gender Differences in Officer Career Progression?* (Santa Monica, CA: RAND, 2016).

¹³ “First Female Submarine Officers Prepared for Navy Challenges,” *Military Hub* (2011), available at <www.militaryhub.com/article?id=369>.

¹⁴ Ray Maybus, memorandum for the Secretary of Defense, “Department of the Navy Women in the Service Review Implementation Plan,” May 2, 2013, available at <<https://wiisglobal.org/wp-content/uploads/2013/05/Navy-WISR-Implementation-Plan1.pdf>>.

¹⁵ Steven Beardsley, “First Female Officer Reports to Submarine USS *Minnesota*,” *Stars and Stripes*, January 14, 2015, available at <www.stripes.com/news/navy/1st-female-officer-reports-to-submarine-uss-minnesota-1.323819>.


¹⁶ Jennifer McDermott, “Navy Hits Major Milestone for Women in Submarines,” *Christian Science Monitor*, March 8, 2018, available at <www.csmonitor.com/USA/Military/2018/0308/Navy-hits-major-milestone-for-women-in-submarines>.

¹⁷ William Cole, “Navy Boosts Number of Women on Submarines,” *Military.com*, May 8, 2018, available at <www.military.com/daily-news/2018/05/08/navy-boosts-number-women-submarines.html>.

¹⁸ Laura Towle, commander, Submarine Force Atlantic, Women in Submarines Representative, interview by Warren Korban Blackburn, May 5, 2019.

¹⁹ Presidential memorandum, “Promoting Diversity and Inclusion in the National Security Workforce,” Washington, DC, October 5, 2016, available at <<https://obamawhitehouse.archives.gov/the-press-office/2016/10/05/presidential-memorandum-promoting-diversity-and-inclusion-national>>.

²⁰ *HQDA Execution Order 097-16 to the U.S. Army Implementation Plan 2016-01 (Army Gender Integration)* (Washington, DC: Headquarters Department of the Army, March 9, 2016), available at <https://dod.defense.gov/Portals/1/Documents/pubs/WISR_Implementation_Plan_Army.pdf>.



F/A-18F Super Hornet assigned to “Diamondbacks” of Strike Fighter Squadron (VFA) 102 conducts flight operations in vicinity of Japan’s Mt. Fuji, January 29, 2020 (U.S. Navy/Alex Grammar)

Gray Is the New Black

A Framework to Counter Gray Zone Conflicts

By Heather M. Bothwell

Today’s joint operational environment is characterized by states increasingly competing to enhance power and gain influence while seeking to avoid major conflict. Although concerted efforts to undercut U.S. interests without force are not unprecedented, more aggressive attempts to contest the status quo through nonkinetic means as a way to diminish U.S. power will likely increase. As a result, the joint force must hone its understanding of the full spectrum of conflict and increase its ability to respond to a complex array of challenges across the conflict con-

tinuum. Joint planners must address indirect, deliberately ambiguous—or *gray*—strategies that incorporate multiple instruments of power in order to gradually achieve a larger effect and enhance the U.S. position in the international system while also avoiding war. These approaches produce gray zone conflicts, a concept that is inadequately addressed by current doctrine.¹

Gray zone conflicts are security challenges initiated through purposeful aggression that exceeds the bounds of normal competition but remains below the threshold of conventional warfare.² Gray zone conflicts result from adversarial

attempts to change the status quo for benefit through gradual belligerence that might be difficult to publicly attribute to the aggressor. Adversaries that initiate gray zone conflicts avoid the costs associated with conventional warfare while mirroring their opponents in questions involving international law, policy, and trade, thereby effectively preventing decisive responses. Although gray zone conflicts are typically initiated by weaker powers, China and Russia are also proponents, which raises the stakes for U.S. national security strategy.

By their nature, gray zone conflicts are difficult to address through traditional combat power. In today’s complex and competitive international environment, some states may appear to pursue the

Captain Heather M. Bothwell, USN, is a Senior Intelligence Officer at the Defense Intelligence Agency.



Reconnaissance Marine with Maritime Raid Force, 31st Marine Expeditionary Unit, provides aerial security using M110 semi-automatic sniper system during visit, board, search, and seizure mission after taking off from USS *America*, Philippine Sea, January 24, 2021 (U.S. Marine Corps/Brandon Salas)

status quo, particularly in areas of benefit to them, while also seeking to amend other circumstances in their favor. To deter these aims, joint doctrine must address gray zone conflicts and incorporate strategies for countering these approaches into planning for steady-state activities and all phases of theater campaign planning. To do anything less is to relinquish the advantage.

Framing the Gray Zone Problem

Gray zone conflicts occur below the threshold of war, which limits military intervention options. Gray strategies are inherently part of an aggressive strategy to maximize interests at the expense of another, while obscuring intent to avoid the cost of direct military action.³ Proponents frequently employ unexpected or unconventional methods, including cyber attacks, proxies, and information operations, to achieve their aims, presenting novel complications for U.S.

policy and interests.⁴ Gray strategies effectively limit responses due to their characteristic avoidance of identified “tripwires” and deliberate ambiguity, thereby preventing decisive action. As a result of this inherent uncertainty, gray zone conflicts generally do not trigger United Nations Security Council resolutions, economic sanctions, or other international penalties, and by design limit options for resolution. Adversaries employ gray strategies by carefully avoiding identified red lines, adjusting activities to achieve the greatest effect at the lowest cost, often before the target perceives the challenge.⁵

Gray strategies are persistent, gradualist approaches in which opponents take indirect, measured actions that can be denied or attributed to nonbelligerent factors, while systematically working toward a larger long-term objective.⁶ Regardless of the specific line of effort, gray strategies can be best understood

using two gradualist approaches: incremental and fait accompli.⁷

The incremental approach divides the objective into incrementally small slices to allow the aggressor to slowly conquer the objective.⁸ The strategy intends to take steps so gradual toward a specific objective as to completely escape the attention of the target. Small-scale border incursions, navigation into claimed territorial waters, and airspace violations are all examples of incremental “salami-slicing tactics” wherein aggressors test the commitment of their opponent in a limited way.⁹ These tactics result in persistent and accumulated pressure that, over a prolonged period, ultimately achieves the aggressor’s desired effect while averting a crisis or direct military response.¹⁰

China’s position on the South China Sea is best understood as a gray zone conflict in which a series of gradualist efforts are aimed at changing the status quo from one in which international law

recognizes multiple entities with various claims and interests to one in which Chinese control in the region is firmly established. China’s “peacefully coercive” approach depicts a “nine-dash line,” which claims approximately 80 percent of the disputed area.¹¹ By ignoring competing claims from smaller nations, China is using an incremental approach “to erode the existing international order . . . by acts of latent coercion” to one in which current laws and norms of international behavior are reinterpreted in China’s favor.¹²

A *fait accompli* occurs when an aggressor quickly takes a small-scale gain before the opponent is able to respond.¹³ Examples include the seizure of disputed land, the claiming of resources outside established territorial waters, the sudden presence of minor or unclaimed military forces, and infrastructure development that could project military power or facilitate military operations.¹⁴ A *fait accompli* places the intended target in a position in which it is forced to accede or risk escalation over small losses—losses that do not appear to warrant such a response.¹⁵ Small or limited gains taken as a *fait accompli* support a greater strategy to produce a larger effect that benefits the aggressor over time.¹⁶ By forcing acquiescence, *fait accompli* approaches are likely to be repeated as the aggressor becomes emboldened by the target’s lack of direct response.

China, for example, is gradually claiming reefs and islands in the disputed waters of the South China Sea. By enhancing existing land features and constructing facilities on small land masses, China is using the *fait accompli* approach to indirectly gain influence and control over a vast area. China has effectively used both the incremental and *fait accompli* approaches. These gradual changes, while unlikely to provoke a military response, are slowly altering the territorial landscape and status quo in China’s favor, while the measured U.S. stance is likely perceived by the Chinese as acquiescence.¹⁷ In another example, Russia used the *fait accompli* approach more aggressively in its 2014 annexation of Crimea through the activities of “little

Table. Explanation of Intentions

Motives	Intentions		
		Status Quo	Revisionist
Security	Secure or deterred	Insecure and not deterred	
Greed	Deterred	Not deterred	

Source: Charles L. Glaser, *Rational Theory of International Politics: The Logic of Competition and Cooperation* (Princeton: Princeton University Press, 2010), 39.

green men,” a reference to masked soldiers of the Russian Federation in unmarked green army uniforms.

Countering Gray Zone Conflicts

Because gray zone conflicts can be effective in changing the status quo at the expense of another actor, they are exploited by revisionist states.¹⁸ In general, and for the purposes of this discussion, revisionist states are nations that seek additional power or influence in the international order. Conversely, status quo states seek to maintain the current balance of power, either to preserve their own security or because they are deterred from seeking more power and influence.¹⁹

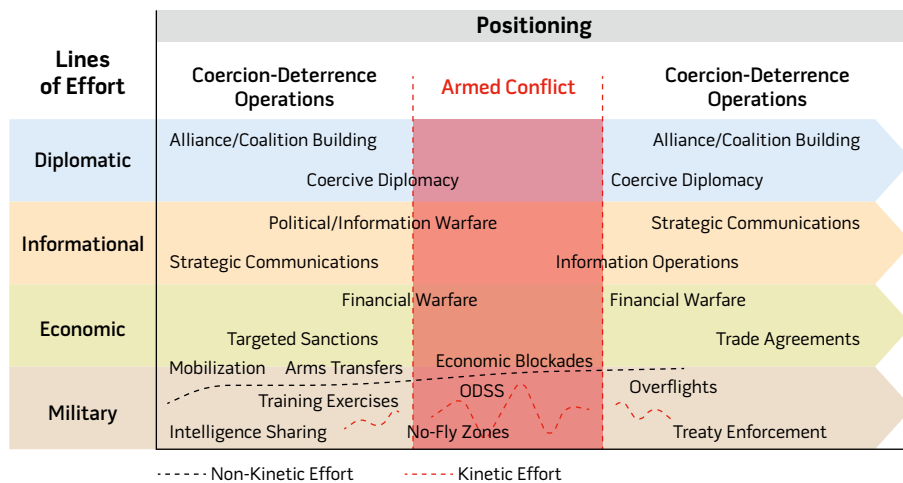
Although no nation can truly be considered a status quo power in all contexts, knowledge of a state’s tendency toward revisionist behaviors, including use of gray zone conflicts, can inform analysis of interactions with other nation-states in the international environment. Figure 1 depicts Charles Glaser’s model to explain state intentions, in which status quo seekers are either secure or deterred, while revisionists are either insecure and not deterred or are greedy and not deterred.²⁰ The model also demonstrates how a greedy state could be deterred, and therefore become a status quo power, while revisionist states seek either security or reward but are undeterred.²¹

The significance of this model lies in what it reveals about revisionist states: Regardless of whether they are seeking security or are simply greedy, these states do not accept the status quo. In fact, some states that employ gray zone conflicts may appear to be status quo seekers but are actually revisionist. Using this dynamic to help explain the current

operational environment, some states appear to be nonbelligerent, and even cooperative in some contexts, while still seeking to revise the status quo in their favor. These states have resorted to gray zone conflicts as a less costly, more ambiguous approach to gradually achieving their aims. The model also demonstrates that while those states hold such revisionist intentions, they are not deterred from this behavior.²² Both Russia and China have employed gray zone conflicts to achieve their aims, particularly in areas where they seek to extend their sovereignty, deny access, or limit the ability of the United States to project power. Though Russia and China may be partners in other areas, particularly ones in which they stand to benefit, in this context they are revisionist states.²³

The gradual and insidious nature of gray strategies makes them difficult to counter. First, incremental changes do not present a clearly defined threat until the larger effect has been revealed or achieved.²⁴ Second, the larger objective beyond gray zone conflict is often obscure because it is comprised of measured gains. Often the perpetrator relies on the indirect nature of gray strategies to avoid responsibility or dismiss the behavior, and the gain, as an unintended consequence.²⁵ For example, in *Arms and Influence*, Thomas Schelling indicates that low-level incidents are often utilized to test commitments in a probing or noncommittal way, which allows the transgressor to communicate the behavior as inadvertent and avoid the perception of backing down.²⁶ However, if there is no response, then precedent is set for greater incursions to occur that, left unchecked, could eventually escalate into overt conflicts.²⁷

Figure 2. Framework for Positioning



Source: Antulio J. Echevarria II, *Operating in the Gray Zone: An Alternative Paradigm for U.S. Military Strategy* (Carlisle Barracks, PA: U.S. Army War College, 2016), 22.

At a minimum, in order to counter gray zone conflicts, the joint force must recognize gray strategies as adversarial attempts to gradually alter the balance of power—attempts that might be committed by states simultaneously seeking to maintain the status quo in other areas where interests are shared. To reiterate, states that employ gray strategies are revisionist states.²⁸ Given their revisionist intentions, advocates are undeterred in the current operational environment and represent a threat to U.S. national interests. This fact alone necessitates the joint force to address gray zone conflicts.

Joint planning is required to reduce uncertainty, define the military problem set, and plan for the effective employment of capabilities in countering gray strategies.²⁹ Strategies tailored to meet challenges specific to gray zone conflicts should be included in the joint planning process.³⁰ In 2017, the Joint Staff revised Joint Publication (JP) 3-0, *Joint Operations*, and JP 5-0, *Joint Operations Planning*, titled *Joint Planning* in the 2017 and 2020 versions.³¹ JP 3-0, which further incorporated a change in 2018, illustrates multiple versions of the six-phase model of campaign planning, but JP 5-0 removes the model while maintaining the use of phasing as a planning tool.³² However, a modification of the six-phase

model has significant utility for campaign planning in the face of gray zone conflicts, facilitating a campaign below the threshold of armed conflict, in which the most successful competitor secures the objective without invasion, occupation, or destruction of other regimes, thereby subordinating them.³³

Because gray zone conflicts are designed to avoid the consequences associated with direct military action, they occur in the steady state. These conflicts underscore the importance of Phase 0 operations to maintain the status quo on issues of vital national interest, including strategic and military advantage. Phase 0 operations are planned and coordinated actions designed to affect the strategic environment and shape perceptions of both adversaries and allies.³⁴ However, current doctrine has a clear emphasis on security cooperation and the development of friendly military capabilities, which neglects shaping the perceptions of adversaries. Specifically, JP 5-0 recognizes the importance of shaping activities but identifies the framework for those actions as “day-to-day security cooperation” activities that are directed at partner nations.³⁵ As a result, what is an effective strategy for the operational environment in theaters already experiencing conflict fails to adequately address *emerging*

threats. These threats can be identified and prevented only in steady-state operations in which shaping activities dissuade adversaries from actions that gradually and negatively affect the status quo.

In addition to shaping adversaries’ perceptions, the key to countering gray zone conflicts lies in the ability to signal commitment in the face of status quo challenges. Schelling argues that military force can shape an adversary’s behavior outside of the context of war by applying “controlled” and “measured” ways to compel, intimidate, or deter opponents, thereby effectively opening bargaining space without engaging in open conflict.³⁶ Some examples of actions that could effectively signal U.S. resolve include border exercises, overflights, and intelligence-sharing activities.³⁷ Other integrated activities could include situations of armed or “gunboat diplomacy,” in which military force supports nonmilitary actions as a means to deter or coerce the opponent to cease aggressive behaviors.³⁸

Planning for the Counterattack

Campaign planning incorporates shaping activities that begin in Phase 0 and continue throughout the course of the operation. However, current models have limitations about gray zone conflicts, as the greatest need for shaping activities comes during the initial stages of the model, when kinetic military effort is at its lowest.³⁹ However, if the model is built around a coercion-deterrence dynamic, such as Antulio Echevarria’s framework for positioning, planning can include operations that deter aggressors or coerce changes in an opponent’s behavior.⁴⁰

A coercion-deterrence dynamic is instructive in identifying targeted lines of effort for communicating U.S. intent to adversaries, particularly through the use of military force as a means to effectively bolster other instruments of power (see figure 2). For example, a blockade becomes economic coercion by military means, indicating that reliance on diplomacy or sanctions often depends on the capability found in the military domain.⁴¹

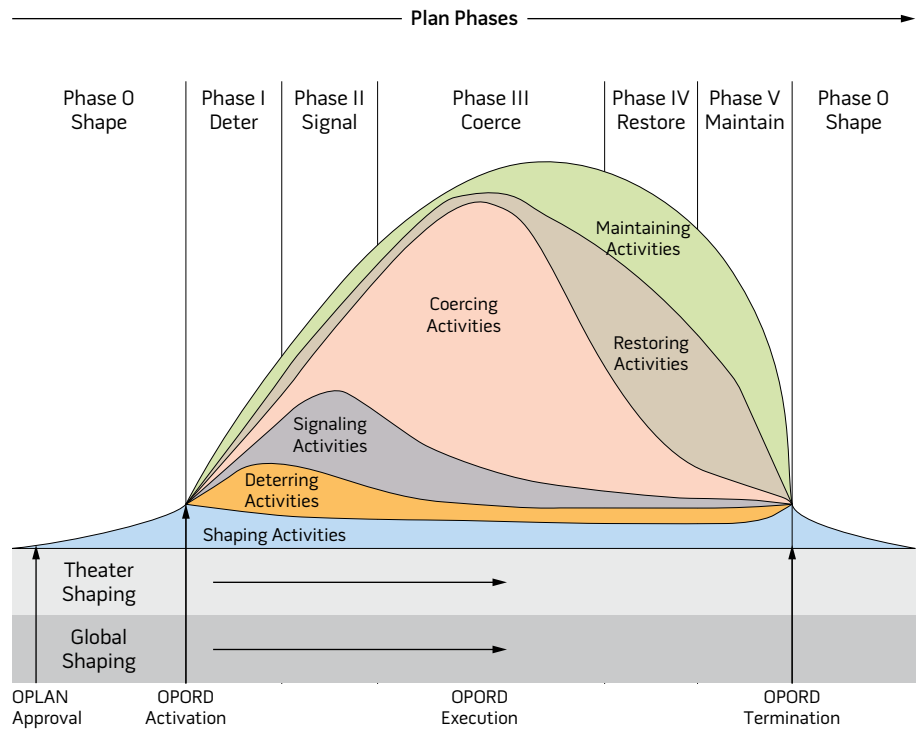
Although a coercion-deterrence approach offers much to counter gray

zone conflicts, Echevarria’s model needs to address campaign planning and a phased approach to incorporate these concepts into joint operations planning. For example, by using the 2011 planning models for phased operations, the coercion-deterrence dynamic could introduce activities that take place after the steady state.⁴² If these concepts are integrated into the range of military operations, the modified model can address gray zone conflicts by actively preventing aggression through shaping activities. If shaping fails to prevent these behaviors, deterring activities commence, and resolve is signaled. If signaling activities are ignored, coercion begins until control of the operational environment is attained (see figure 3 for a possible modification).

In this conception, gray zone conflicts are prevented in Phase 0 by actively shaping the operational environment and the perceptions of our *adversaries*, not only our allies. If shaping activities fail to check aggressive behaviors, deterring activities would commence (as they do in the existing phased model) by demonstrating military capability and setting conditions for employment should a show of force or other military deployment be required. For purposes of this discussion, signaling activities have been included in figure 3 as a separate phase to allow for deliberate planning to signal resolve and commitment; in terms of countering gray zone conflicts, an emphasis on signaling U.S. resolve to adversaries is critical. Signaling activities are particularly important to reduce the ambiguity associated with gray zone conflicts, and activities such as strategic communications and intelligence-sharing can help lift the veil of deniability.⁴³ More important, signaling is necessary to communicate specific red lines over vital interests through credible commitments, such as sunk costs or domestic “audience costs” associated with not fulfilling promises or threats.⁴⁴

If signaling fails to alter the opponent’s revisionist intentions, coercive activities then commence. Coercive activities, which have already been signaled as consequences, allow multiple lines of effort and can be coordinated to avoid direct military conflict. Coercive

Figure 2. Notional Operation Plan Phases for Deterrence-Coercion Operations



Key: OPLAN = operation plan; OPORD = operations order.

diplomacy, targeted sanctions, and information warfare are coercive options along with the other instruments of power.⁴⁵ In terms of military operations, training exercises, shows of force, and support to other power instruments (such as the use of naval blockades to compel trade sanctions) are viable coercive options. In the South China Sea example, China is simultaneously conducting a gray zone conflict over disputed claims to maritime areas while expanding its import of raw materials from Africa. Instead of confronting China in the South China Sea directly, the United States could use surrogates to hold China’s African interests at risk in order to coerce a more favorable outcome in the dispute.⁴⁶ The model presents additional possibilities for coercive activities wherein “the point of action might be far removed from the point of effect, but the effect is to alter the decisionmaking calculus regardless of geography.”⁴⁷ Like dominating activities, coercive activities should be “decisive

operations” driving an adversary to cease aggression and regain advantages at risk from the gray zone conflict.⁴⁸

The next phase remains the same as in the original model but with activities corresponding to restoring control of the operational environment and regaining the status quo—one in which U.S. interests are preserved—following the cessation of gray hostilities.⁴⁹ Subsequent maintaining activities are designed to build on the newly reestablished status quo and could include forging new cooperation in areas that maintain U.S. interests and positions, while still addressing the concerns that motivated the revisionist aims of the aggressor. Finally, new shaping activities commence to thwart future gray zone conflicts.

Conclusion: The Strategic Imperative

The gradual, ambiguous nature of gray zone conflicts requires increased understanding of aggression short of



Marines with Battalion Landing Team, 3rd Battalion, 4th Marines, 31st Marine Expeditionary Unit, navigate on combat rubber raiding craft during boat launch near Peleliu, Philippine Sea, March 1, 2021 (U.S. Marine Corps/Danny Gonzalez)

war and of new strategies to quell these challenges. Although current doctrine does not adequately address gray zone conflicts, existing planning models can be modified to emphasize shaping and incorporate activities that deter, signal, and, if necessary, coerce opponents into ceasing aggression. These activities will reduce uncertainty and communicate resolve to our adversaries, while setting the operational conditions to coercively stop them, if required. Early U.S. failure to recognize and respond to China's gray zone actions in the South China Sea has facilitated additional incursions and emboldened Chinese forays into other arenas. New strategy options to mitigate China's influence are required, and military planning efforts to address this and other gray zone conflicts should follow.

Gray zone conflicts are aspects of the new normal, part of the competitive operational environment that has developed in the post-Cold War era. Joint planning has not yet adequately addressed gray zone conflicts or the gradualist approaches by which they are characterized, allowing opponents—revisionist states—to incrementally achieve their objectives while avoiding military consequences. Unchecked, gray zone conflicts will slowly erode the status quo and undermine U.S. interests. However, the joint force can be more agile. By modifying

existing planning models to incorporate countering activities—such as shaping, deterring, signaling, and, if necessary, coercing—the United States can check revisionist intentions. Only by reframing the problem of gray zone conflicts can the United States hope to retain positional advantage where national interests are at stake. JFQ

Notes

¹ Gray zone conflicts as defined and discussed in this article could be included in Joint Publication (JP) 3-0, *Joint Operations* (Washington, DC: The Joint Staff, January 17, 2017, Incorporating Change 1, October 22, 2018), as part of chapter V discussions on campaign planning. Specific concepts discussed for Phase 0 operations could also be outlined as part of JP 5-0, *Joint Operation Planning* (Washington, DC: The Joint Staff, August 11, 2011).

² Philip Kapusta, "The Gray Zone," *Special Warfare* 28, no. 4 (October–December 2015).

³ Ibid.

⁴ Ibid.

⁵ Lindsey R. Sheppard and Matthew Conklin, *Warning for the Gray Zone* (Washington, DC: Center for Strategic and International Studies, August 2019), 2.

⁶ Michael J. Mazarr, *Mastering the Gray Zone: Understanding a Changing Era of Conflict* (Carlisle Barracks, PA: U.S. Army War College Press, 2016), 34–36; Thomas C. Schelling, *Arms and Influence* (New Haven: Yale University Press, 2008), 66–68.

⁷ Mazarr, *Mastering the Gray Zone*, 35.

⁸ Ibid., 36.

⁹ Ibid., 35; Schelling, *Arms and Influence*, 66.

¹⁰ Schelling, *Arms and Influence*, 67–68.

¹¹ Michael McDevitt, *The South China Sea: Assessing U.S. Policy and Options for the Future* (Arlington, VA: CNA, November 2014), iv, 3.

¹² Ibid., 48; Frank G. Hoffman, "Examining Complex Forms of Conflict: Gray Zone and Hybrid Challenges," *PRISM* 7, no. 4 (2018), 3.

¹³ Mazarr, *Mastering the Gray Zone*, 36.

¹⁴ Schelling, *Arms and Influence*, 67–68.

¹⁵ Mazarr, *Mastering the Gray Zone*, 37.

¹⁶ Ibid.

¹⁷ McDevitt, *The South China Sea*, 33.

¹⁸ Charles L. Glaser, *Rational Theory of International Politics: The Logic of Competition and Cooperation* (Princeton: Princeton University Press, 2010), 39.

¹⁹ Ibid.

²⁰ Ibid.

²¹ Ibid.

²² Ibid.

²³ Mazarr, *Mastering the Gray Zone*, 20, 39.

²⁴ Ibid.

²⁵ Schelling, *Arms and Influence*, 67.

²⁶ Ibid.; Mazarr, *Mastering the Gray Zone*, 35.

²⁷ Ibid.; Mazarr, *Mastering the Gray Zone*, 35.

²⁸ For more on this, see Glaser, *Rational Theory of International Politics*, 39.

²⁹ JP 5-0, I-5.

³⁰ Ibid., III-39.

³¹ JP 3-0, I-2.

³² JP 5-0, iii.

³³ Nadia Schadlow, "Research & Debate—It's a Gray, Gray World," *Naval War College Review* 73, no. 3 (2020), 2.

³⁴ Scott D. McDonald, Brock Jones, and Jason M. Frazee, "Phase Zero: How China Exploits It, Why the United States Does Not," *Naval War College Review* 65, no. 3 (2012), 131.

³⁵ JP 5-0, III-4.

³⁶ Schelling, *Arms and Influence*, 67–68.

³⁷ Antulio J. Echevarria II, *Operating in the Gray Zone: An Alternative Paradigm for U.S. Military Strategy* (Carlisle Barracks, PA: U.S. Army War College Press, 2016), 14.

³⁸ Ibid., 13.

³⁹ See JP 5-0, III-39, III-41; Echevarria, *Operating in the Gray Zone*, 10.

⁴⁰ Echevarria, *Operating in the Gray Zone*, 14.

⁴¹ Ibid., 14–15.

⁴² JP 5-0, III-39.

⁴³ Echevarria, *Operating in the Gray Zone*, 26.

⁴⁴ Mazarr, *Mastering the Gray Zone*, 137; James D. Fearon, "Domestic Political Audiences and the Escalation of International Disputes," *American Political Science Review* 88, no. 3 (1994).

⁴⁵ Echevarria, *Operating in the Gray Zone*, 14–15.

⁴⁶ Kapusta, "The Gray Zone," 24.

⁴⁷ Ibid.

⁴⁸ JP 5-0, III-43.

⁴⁹ Ibid., III-39.



Firefighters with Mississippi Task Force Urban Search and Rescue ride hoist to UH-72 Lakota while participating in Patriot South 20, at Guardian Centers in Perry, Georgia, February 28, 2020 (U.S. Army National Guard/Christopher Shannon)

Educating Our Leaders in the Art and Science of Stakeholder Management

By Alexander L. Carter

When the U.S. Army released its long-awaited critique of its successes and failures in the Iraq War, many questioned how honest the Army would be with itself.¹

Lieutenant Colonel Alexander L. Carter, USA, is an Army Strategist and currently pursuing a Master of Arts in National Security and Strategic Studies at the Naval War College.

A review of the documents, however, revealed an unflinching account of some of the Service's key failures in planning and executing military operations at all levels of engagement—strategic, operational, and tactical. One explanation for this failure is that Army leaders did not fully understand the operating environment in Iraq—its totalitarian government structure,

tribal allegiances, underlying ethnic tensions, and aged infrastructure.² Planning assumptions were made without the benefit of insight, advice, and counsel from key individuals, particularly outside of military chains of command, who had sufficient influence and expertise to help the Service more effectively achieve its desired endstates in that theater.



Soldiers prepare for next operational day in support of state efforts to provide mass COVID-19 vaccinations administered by New York State Department of Health, at Javits Convention Center in Manhattan, February 14, 2021 (U.S. Army National Guard/Sebastian Rothwyn)

How could such a well-trained Army, led by senior officers with decades of experience and education, miss opportunities to engage with these stakeholders? The answer is that our senior officers, for the most part, are not educated in stakeholder management—that is, how one engages others with sufficient power and influence or interest to solicit diverse inputs and opinions to address complicated or complex problems. Thus, this article seeks to bridge a perceived knowledge gap with leaders and their executive communication skills by introducing them to a more disciplined, formal approach of identifying, prioritizing, and engaging stakeholders. This article suggests new and creative ways to conduct stakeholder management (identification, prioritization, and engagement)—techniques borrowed from practices employed in the private and commercial sectors.³

Stakeholder Management

Stakeholder management is largely considered an invaluable skill set in

the corporate world because engaging with investors is crucial to enabling the development of successful plans and strategies. Such executive abilities should also be considered part of a military leader's skill set in the joint force. Like the government, private-sector businesses grapple with changing threats, market dynamics, competitors, and even unforeseen events that have major impacts on their strategies. The outbreak of the novel coronavirus is an excellent example of an incident that business strategists and military planners alike could not have foreseen. In such unpredictable times, companies likely recognize the value of broadening the membership of their version of crisis action teams through recruitment of other types of stakeholders that can advise them of the viability of different approaches to tackling complex problems. The military, like these companies, must also engage with the right individuals from the right organizations to navigate real and emerging challenges.

One would think that these stakeholder management skills are a regular part of a formal military curriculum on leadership at any one of our officer primary military education institutions, such as our senior Service colleges, but they are not.⁴ Consequently, our leaders must learn new skills related to stakeholders, such as identifying, prioritizing, and engaging with them, to improve results as they develop strategies, plans, policies, and so on. To learn these skills, leaders must leverage what seems to work in the private sector.

Identifying Stakeholders

According to R. Edward Freeman, a *stakeholder* is “any group or individual who can affect or is affected by the achievement of the organization's objectives.”⁵ A stakeholder's influence can affect military strategies and plans at all levels. For example, when leaders devise strategies, they are better served by incorporating input from a broad set of stakeholders, from both traditional

and nontraditional sources, whose interests and insights may challenge, enrich, or support underlying planning assumptions. (The process of identifying, mapping, prioritizing, assigning, engaging, and reporting on interactions with a stakeholder can be collectively defined as *stakeholder management*.)

The process of identifying stakeholders may be similar across different leadership roles or functions, but the selection of these stakeholders will vary based on the nature of the command seeking advice and counsel from such individuals. For example, one who leads units and formations to engage with the enemy would have requirements to develop theater or regional engagement (lethal and nonlethal) plans and strategies above and below the threshold of conflict. Such leaders would likely need to involve a diverse group of experts drawn from military, government, and industry circles. By contrast, an installation commander must grapple with a different set of challenges and problem sets involving an entirely new cast of stakeholders and constituents. For this leader, such stakeholders might include tenant units and commands, local civilian businesses, civic associations, and even appointed or elected officials from Federal, state, and local branches of government. Or a senior leader with policy or programmatic responsibilities at the Pentagon might have stakeholders from military, industry, academia, and policy think tanks with very different but necessary views on how to advise the leader and his or her team on the feasibility, acceptability, and suitability of a proposed action. Given that different leadership roles require different stakeholders to potentially advise them, how does one determine an initial list of stakeholders with whom to consult?

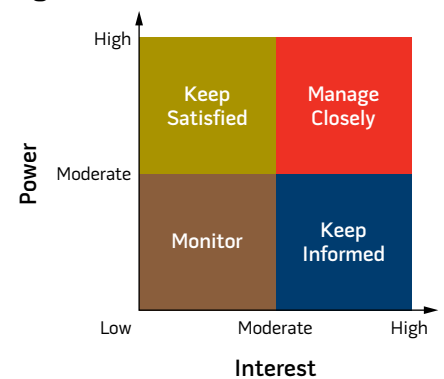
Current approaches for identifying stakeholders across the joint force are not really methods at all. In many cases, the default approach to identifying stakeholders is simply to defer to a senior leader's opinion on who should be invited "to the table," to simply have staff ask around, or to rely on one's "gut instinct" to generate an initial list of candidate stakeholders. While understandable and well

intentioned, such approaches run the risk of missing many potential stakeholders because of a failure to employ a more disciplined, organized, and systematic approach to stakeholder identification. Leaders can employ at least two methods to generate a more comprehensive and focused list of stakeholders at the onset of their strategic or operational undertaking: center of gravity (COG) analysis and strengths-weaknesses-opportunities-threats (SWOT) analysis.

Both the COG and the SWOT methods will help a leader think more systematically and broadly about which stakeholders may best help craft a solution to a problem facing his or her command. COG analysis, a familiar military activity typically employed for strategic and operational planning processes, can be repurposed for other ends—namely stakeholder identification—while SWOT analysis is employed by many public- and private-sector organizations to help them develop long-term strategies, address systemic internal problems or challenges, or even attempt to develop solutions to external problems or challenges.

Joint doctrine defines the *center of gravity* as "a source of power that provides moral or physical strength, freedom of action, or will to act."⁶ COG analysis begins with the desired endstate and systematically walks through the ways or critical capabilities needed to achieve or maintain the endstate. From such capabilities, one can then determine the critical requirements needed to enable means.⁷ COG analysis includes creating a shortlist of those capabilities that are most vulnerable to "enemy" actions—critical vulnerabilities.⁸ In each step of this analysis—critical capabilities, critical requirements, and critical vulnerabilities—leaders with their staffs can generate a list of stakeholders that represents organizations or interests that would likely influence either the positive or negative outcome of these critical capabilities that affect the existence of the center of gravity. Such a novel use of COG analysis would likely yield a number of potential stakeholders that might otherwise have been overlooked.

Figure 1. Power/Interest Grid



In a similar manner to COG analysis, a senior leader might look to another familiar tool—SWOT analysis—to generate a fresh list of stakeholders before embarking on a major campaign, operation, initiative, or policy proposal. SWOT analysis involves identifying a set of strengths, weaknesses, opportunities, and threats bearing on an organization. Typically, strengths and weaknesses are internally focused, while opportunities and threats are external to the organization.⁹ A repurposing of traditional SWOT analysis would focus on the opportunities and threats identified by this exercise to develop a candidate list of stakeholders that could help the organization capitalize on opportunities and mitigate threats.

The benefits of conducting this disciplined approach to identifying an initial set of stakeholders are numerous. A joint warfighting leader and supporting staff might select stakeholders in a SWOT analysis who could help them further elaborate on greater opportunities for strengthening in-region partnerships or improving interoperability during joint exercises. An installation commander might select stakeholders who could help improve the installation's relationship with the supporting civilian communities, capitalizing on opportunities that might otherwise not have surfaced. Similarly, a policy or program manager might uncover a list of stakeholders while reviewing threats or perceived obstacles to the passage or implementation of a policy.

In both COG and SWOT analyses, leaders could take advantage of existing tools to produce a more expanded and

Figure 2. Engage “Manage Closely” Stakeholders

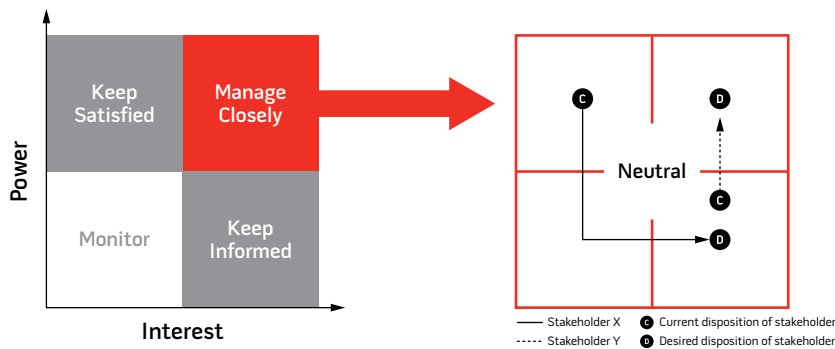
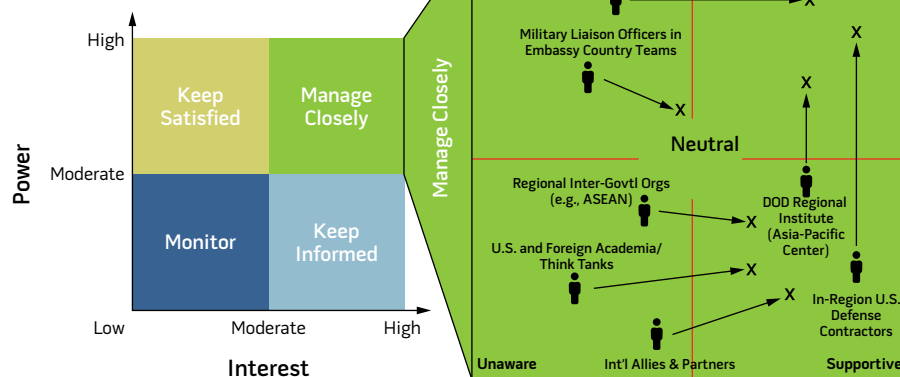


Figure 3. Stakeholder Planning for Theater Security Cooperation Plan Development

Stakeholder Identification, Prioritization, and Engagement

Senior Leader Challenge: Develop a Theater Security Cooperation Plan
Theater: U.S. Indo-Pacific Command

Step 1: Identify and Prioritize Stakeholders



Step 2: Conduct Stakeholder Engagements to solicit information, educate, influence, gain support and/or secure funding.

influential list of stakeholders. But how does one then convert a list of candidate stakeholders into a stakeholder engagement plan that will solicit information, advice, and counsel from those who are the most relevant and valuable to the senior leader?

Prioritizing Stakeholders

Stakeholders are not all created equal. As such, there are different ways to organize and prioritize them. One technique widely taught in the business world is to prioritize stakeholders along a power/interest grid.¹⁰ The

grid has two axes—power and interest. Stakeholders are plotted on any one of four quadrants based on a collective assessment of their relative power and interest. The degree of power for each stakeholder is assessed subjectively considering various types of power sources, such as legitimate, informal, referent, expert, coercive, connective, and so on, that may be associated with an individual stakeholder.¹¹ On the other axis, the degree of interest is assessed based on the stakeholder’s perceived level of interest in the outcome of the strategy or plan (see figure 1).

Stakeholders who fall in the high power/high interest quadrant would be candidates for deliberate outreach and engagement. All stakeholders are distinctive, though, and need to be managed as such based on their relative authority (power) and level of concern (interest). Those stakeholders initially assessed as having a high degree of power and interest should be classified as “manage closely,” meaning these stakeholders will be actively managed by a member of the leader’s team based on the perceived degree of assistance they could offer to the planning effort.

Engaging Stakeholders

Once stakeholders have been identified and prioritized, leaders must allocate resources (team members) to engage with those deemed critical for solicitation. Stakeholders classified as having high interest and high power (manage closely) should be further assessed to determine their current and desired dispositions toward such plans.¹² Stakeholder engagements should be scheduled and reported through existing leader-led meetings. Engagements should be planned with supporting goals and objectives for each long-term stakeholder relationship and short-term stakeholder engagement. As seen in figure 2, for example, two stakeholders have been assessed differently in terms of their current and desired dispositions. A leader should then assign team members to reach out to these two stakeholders to move the stakeholders’ current disposition toward a desired outlook relative to the command’s efforts.

In this process of engagement, leaders could gauge stakeholders’ sentiments, thoughts, and feelings toward a command’s developing or proposed actions and plans. Stakeholders would be consulted for advice, opinions, reactions, or even participation in planning efforts. Such efforts could be accomplished through face-to-face meetings, emails, video conference calls, or other means. From such deliberate relationship planning, leaders would guide efforts to build stronger and more fruitful stakeholder relationships. Stakeholders can, and often

do, influence an organization's planning processes, especially with initiatives involving enterprise-wide resources and strategic aims.¹³ Results from such engagement efforts would yield more comprehensively developed strategies with supporting assumptions that had been more thoroughly tested from different sources.

A Combatant Command Perspective

Leaders charged with developing a successful theater engagement strategy at the combatant command level should leverage these stakeholder engagement techniques to improve the quality of their products and services. For example, a joint planning team at U.S. Indo-Pacific Command charged with developing a theater security cooperation plan could identify stakeholders from a wide variety of areas, not just military or interagency partners. Consulting with diverse stakeholders from government, industry, academia, and other sectors would yield rich, diverse advice on how the combatant command might proceed to develop a more robust, defensible, and effective theater strategy that supports U.S. interests abroad as well as its allies and partners.

As shown in figure 3, a planning team led by a senior leader could generate an initial list of stakeholders through a process such as COG or SWOT analysis. Stakeholders would be plotted on the power/interest grid; those assessed as high power and high interest would be recommended for deliberate stakeholder outreach or engagement. The team would then initially gauge whether the stakeholder is resistant, supportive, unaware, leading, or neutral on the developing initiative or strategy (in this case, a U.S. theater security cooperation plan). Following this assessment, the team goals would be set for each of these stakeholders by the team either to move their attitude or disposition to a more favorable one or simply to maintain their level of support. From such deliberate relationship planning, leaders would be structured and incentivized to build stronger and more fruitful stakeholder relationships. Results from such efforts would likely lead to

more comprehensively developed strategies with supporting assumptions that have been more thoroughly tested from different sources.

Addressing the Critics

Some may question whether our senior military leaders could or should learn from other professions and industries. These critics argue that military culture and environment are unique and that the business world, with its focus on profits and customers, can contribute little to the problems that military leaders confront. Many recent examples, particularly with U.S. military experiences in Iraq and Afghanistan, however, show that a failure to adequately understand key stakeholders can and does affect strategies and plans. Additionally, some of the more successful transnational corporations have faced similar, albeit not identical, challenges in terms of how they adapted their strategies based on feedback from their stakeholders. Also, while there are many situations in which business practices would not mesh well or translate easily into military culture and practices, engaging with stakeholders to solicit information that informs planning processes is a competency that does translate well into the military. Our leaders should make room in their toolkits for this capability. JFQ

Notes

¹ U.S. Army, *The U.S. Army in the Iraq War—Volume 2: Surge and Withdrawal 2007–2011* (Carlisle Barracks, PA: U.S. Army War College Press, 2019), 625.

² Ibid., chapter 17.

³ The author was educated in these stakeholder engagement techniques while employed in the private sector (IBM) to advise government and commercial clients over a 9-year employment period.

⁴ The author conducted independent research in 2018 with each of the senior Service colleges by reviewing their curricula, selected syllabi, and electives.

⁵ R. Edward Freeman, *Strategic Management: A Stakeholder Approach* (Boston: Pitman, 1984), 31.

⁶ Joint Publication 5-0, *Joint Planning* (Washington, DC: The Joint Staff, June 16, 2017), xxii.

⁷ Steven D. Kornatz, "The Primacy of COG Planning: Getting Back to Basics," *Joint Force Quarterly* 82 (3rd Quarter 2016), 93.

⁸ Ibid.

⁹ Marilyn M. Helms and Judy Nixon, "Exploring SWOT Analysis—Where Are We Now? A Review of Academic Research from the Last Decade," *Journal of Strategy and Management* 3, no. 3 (August 2010), 216.

¹⁰ While employed by IBM, the author was introduced to the power/interest grid while supporting private- and public-sector clients in various consulting projects that required strategic and corporate planning skills. See Paul Alan Smith, "Stakeholder Engagement Framework," *Information & Security: An International Journal* 38 (2017), available at <<https://doi.org/10.11610/isij.3802>>.

¹¹ William E. Turcotte, William M. Calhoun, and Cary Knox, "Power and Influence," research paper, Naval War College, 2018, 2–3.

¹² *A Guide to the Project Management Body of Knowledge*, 5th ed. (Newtown Square, PA: Project Management Institute, 2013), 13.2.2.

¹³ Thomas M. Jones and Andrew C. Wicks, "Convergent Stakeholder Theory," *Academy of Management Review* 24, no. 2 (April 1999), 1, available at <<https://doi.org/10.5465/amr.1999.1893929>>.



Marine Candidate participates in fire team assault course at Officer Candidates School, Marine Corps Base Quantico, Virginia, June 17, 2017 (U.S. Marine Corps/Cristian L. Ricardo)

Conquering the Ethical Temptations of Command

Lessons from the Field Grades

By Clinton Longenecker and James W. Shufelt

There is no getting around the fact that every promotion and new position brings with it a new host of challenges, demands, relationships, problems, opportunities, and even new, and maybe even previously unseen, ethical challenges. . . . It is only a smart thing to be ready and prepared to address all of these issues.

—U.S. ARMY WAR COLLEGE STUDENT OBSERVATION

Dr. Clinton Longenecker is a Distinguished University Professor and the Director of the Center for Leadership and Organizational Excellence in the College of Business and Innovation at the University of Toledo. James W. Shufelt is Professor Emeritus in the Army Strategic Education Program at the U.S. Army War College.

Ethical lapses committed by senior business leaders are reported almost daily. Unfortunately,

similar reports about military leaders also frequently appear; browse almost any contemporary military publication, and there is usually an article discussing an ethical failure by a high-ranking Servicemember. Although Department of Defense figures attest that the actual number of these failings is statistically small, they garner disproportionate attention.¹ The critical nature of the U.S. military mission makes it incumbent on leaders to possess not only great technical competency in their jobs but also great character and integrity. Because of this demand, the U.S. military has high formal standards for ethical leadership behavior.

The requirements for ethical behavior by all members of the military—and especially those in leadership positions—are clearly stated in U.S. law, Department of Defense policies, Service regulations, and doctrine and joint Service publications.² The U.S. military's commitment to these high ethical leadership standards is manifested in three important areas that cut across all the Services:

- clearly articulated and demanding standards and codes of conduct for ethical leader behavior and decisionmaking
- ongoing leadership ethics training and development initiatives
- daily accountability for “exemplary leader conduct” and ethical decisionmaking.³

The criticality of adhering to high ethical standards was emphatically reiterated in Secretary of Defense James Mattis's August 4, 2017, memorandum, “Ethical Standards for All Hands,” which stated that all members of the defense community should focus on the essence of ethical conduct, “doing what is right at all times, regardless of the circumstances or whether anyone is watching.”⁴

Moral Choices and Temptations

Despite this overarching organizational commitment to ethical military leadership, history shows that, without due diligence and moral courage, leaders with great integrity, high ethical standards, and effective training, operating

in “morally sound cultures,” can still make less than fully ethical and moral choices—with devastating consequences, especially at the senior leadership level.⁵ Research shows that any number of factors can erode or degrade the most principled leader's character, causing questionable moral choices and unethical decisions when operating within the realities, dynamics, and pressures of the modern workplace.⁶

In his book *The Lucifer Effect*, Philip Zimbardo identifies several workplace factors that can damage the moral fiber of individuals, including negative situational and environmental forces, lack of accountability, bad bosses, toxic organizational cultures, bad group dynamics, persistent personal isolation, a significant failure, and even success.⁷ These factors confront even the most upstanding leaders, potentially allowing them to be influenced or “tempted” to engage in unethical decisions and even activities that are knowingly wrong.⁸

It is our position that if leaders—regardless of their rank—are going to continually make effective ethical and moral choices and demonstrate exemplary management in every situation, they must be able to conquer the temptations that come with the territory of command.⁹ In this context, temptation can be defined as something that entices individuals or groups to desire something that is unacceptable or considered wrong and not in their best interest.¹⁰

Although the word *temptation* rarely appears—and is even more seldomly discussed—in leadership development circles and ethics literature, we maintain that every leader faces ethical and moral temptations associated with the position. Therefore, every leader must be prepared to answer this question: What are the specific moral and ethical temptations associated with the position I hold, and am I prepared to conquer them? The purpose of this article is to identify potential temptations associated with senior military positions and offer specific practices that can prevent leaders from engaging in wrongful, immoral, and unethical behaviors.

Exploring the Temptation of Command

To understand the temptations associated with military command, we conducted structured focus groups with 271 senior military leaders at 4 different senior Service colleges. We asked participants to anonymously answer the following open-ended question: “Based on your experience, what are the specific temptations or opportunities for wrongdoing associated with your most recent position?” We encouraged these leaders to focus on the temptations associated with the *position* that they held rather than discussing *personal* temptations that they might be dealing with on an individual level. We collected, shuffled, and randomly distributed the group's responses to everyone and asked participants to read at least 10 response sets from their peers and make observations on what stood out. Subsequently, we randomly assigned participants to 5-person groups in which they compared and discussed their observations and recorded a top 10 list of command temptations on a flipchart to share with everyone.

After each focus group discussed its findings with the entire group, individuals returned to their small groups and addressed the following statement as a team: “Please identify the specific practices and action steps that you believe leaders need to take to avoid making wrongful decisions in responding to the specific temptations we have just identified.” We instructed groups to think about these practices as “guardrails,” protective barriers used in dangerous environments to prevent serious injury by *preventing* hazardous activity. Each team then developed a list of 8 to 10 specific leadership guardrails, which were subsequently presented to the larger group. Having reviewed, tabulated, and conducted a content analysis on the presentations from each of the 57 focus groups, we learned a great deal from this exercise about both the temptations of command and the leadership guardrails that can potentially help prevent moral and ethical failures.

Observations on the Temptation of Command and Guardrails

From our focus groups, we have several observations on the interactive process of temptation-mapping and guardrailing. First, when participants were asked to engage in this exercise, they were reminded that the focus was not on them as leaders but rather on the temptations attached to the positions they hold. Second, during the process of reading the temptation lists from fellow participants, there was typically a great deal of notetaking and some nervous laughter from participants as the leaders saw, in writing, many of the ethical challenges they all face. Third, the focus group discussion on the temptations of command was quite beneficial, as there was typically great empathy about and consensus on common temptations. Fourth, when the focus group charts identifying temptations of command were compared, there was normally exceptional consensus, which was further reinforced by each group's explanations to the larger group. Finally, when asked to identify the specific guardrails that can prevent leaders' ethical failure, participants typically had meaningful team discussions in coming to consensus, as these talks naturally evolved into effective team-building and coaching experiences for all involved.

The Temptations of Command

During these exercises, focus group participants identified many potential temptations of command. The top 10 temptations, ranked by frequency, follow.

1. *Falsifying, Massaging, or Manipulating Information or Data.*

Participants identified that many senior leaders face a real temptation to be less than candid and honest, or even manipulative, when presenting information and data attached to their positions. This potential misuse of information/data has any number of causes, including paperwork exhaustion, time constraints, a desire to protect individuals/operations/organizations, and/or a self-serving willingness to personally benefit or make

oneself look more successful. Participants noted this issue is a very pervasive temptation given the military's competitive, information-rich, and data-driven environment.

2. *Misuse of Government Funds/Resources/Personnel.* To enable them to complete the mission, leaders at all levels are entrusted with significant monetary and other tangible government resources that, without due diligence and attention, can be misused. Such mishandling might result in unauthorized pay reimbursements or improper personal use of government vehicles or other equipment. At the same time, the misuse of military personnel for personal benefit also surfaced as a real temptation. Employing these resources for personal advantage is a potential temptation that senior leaders must always address and avoid.

3. *Inappropriate Sexual Relationships.* The issue of inappropriate sexual relations quickly emerged in these discussions as a potential Achilles' heel for many senior leaders, despite the military's exceptionally strong prohibition against sexual harassment, assault, fraternization, and adultery. Participants highlighted many explanations for allowing this powerful temptation to grow into actual wrongful behavior, such as extended separations from loved ones, isolation and loneliness, stress-related sex, and hubris.

4. *Alcohol/Substance Abuse.* Any discussion of temptation in military circles will always include a discussion of alcohol, and our participants were no exception. They made the case that, although the military formally frowns on alcohol abuse, the military culture as a whole is still accepting and tolerant of alcohol consumption, which can create significant problems for both individual leaders and their subordinates. Participants noted that other substance abuse opportunities also surface as temptations in any military environment.

5. *Favoritism or Preferential Treatment.* Fairness is the cornerstone of effective command; however, our leaders made the case that the temptation to treat personnel by different or personally convenient standards was an issue that required attention and serious

consideration. Though there may be rare reasons to justify this practice, "playing favorites" and related preferential treatment of personnel, for whatever reason, can create a variety of negative, unforeseen, and unpredictable problems in any command structure.

6. *"Blind Eye" and Failure to Report Wrongdoing.* The U.S. Army officer corps has a tradition of ethical behavior starting with the West Point cadet honor code, which states that "a cadet will not lie, cheat, steal, or tolerate those who do."¹¹ This same ethos is pervasive in every Service's formal ethical standards; however, in a highly competitive—and at times political—environment, participants noted that there may be incentives that could cause a leader to look away from or ignore wrongdoing. Whistleblowing has established processes and is encouraged across all the military branches, but participants made it clear that there exists a potential personal cost for engaging in this practice—one that might have a chilling effect on leaders, encouraging them to ignore a problematic situation.

7. *Exerting Inappropriate Influence on Personnel Decisions.* The U.S. military has well-defined standards and requirements for human resource decisions at all levels. Despite these established processes, participants stated that senior leaders can have a powerful influence on personnel processes for selection, promotion, and hiring decisions and, in some cases, can clearly overstep these stated guidelines. While leaders might, in their minds, have the best interest of the organization at heart, they can nonetheless override or unduly influence these established decision processes with potentially damaging and unforeseen negative side effects, as these activities do not take place in a vacuum.

8. *Offering/Accepting Gifts or Bribes or Quid Pro Quo.* Senior leaders have specific guidelines concerning offering or accepting gifts, yet virtually every focus group shared accounts of leaders being offered tickets to a sporting event or entertainment venue or a personal gift that was contrary to these strict guidelines. Participants agreed that this temptation is very real; they shared the belief that, the



Training officer, on left, assigned to Maritime Expeditionary Security Squadron 11, briefs squadron's chief staff officer and executive officer aboard 34-foot Sea Ark patrol boat during navigation check ride exercise off coast of Long Beach, California, November 12, 2020 (U.S. Navy/Nelson Doromal, Jr.)

higher one rises in the organization, the greater the likelihood and frequency of this temptation. In addition, participants frequently tied quid pro quo to this discussion and it was frequently associated with a dialogue of how “transitioning to retirement” can open a potential hornet’s nest of ethical questions, predicaments, and dilemmas.

9. *Hubris*. In a large and mission-driven enterprise, it is important that rules and the chain of command be followed. Yet participants stated that, in select circumstances, some officers might be tempted to knowingly violate policy or disobey an order if they believe doing so can provide them with a desired benefit or outcome. The keywords in these discussions were *knowingly* and *personal gain*. Participants discussed the temptation that exists when leaders erroneously believe that they are bigger than rules, policies, and regulations, which is frequently driven by unbridled ego, egocentrism, and hubris. And as

an additional warning, they made it clear that the higher a leader rises in the organization, the greater this potential temptation.

10. *Seeking/Demanding Deference or Preferential Treatment*. Groups identified the issue of showing favoritism as a temptation of command. They also pointed out that if leaders are not careful, they can find themselves seeking or even demanding favoritism or special treatment as they navigate the military’s large and complex operating systems. This temptation can come in many forms, including seeking perks, travel arrangements, and line jumping, among others. These actions are frequently driven by leaders’ belief that the rules do not apply to them, as previously discussed, or the need for expediency.

In summary, focus groups openly discussed and honestly identified potential temptations—the moral and ethical challenges that leaders can face in senior military positions. While it may be easy

to look at these temptations and judge these leaders as somehow lacking, flawed, broken, or defective, these participants—from a wide cross-section of Services and functions—were given an assignment to collect intelligence on the threats they faced because of the positions they hold; these were *their* conclusions. All leaders face temptation, but the real question is whether they have the strength of character and moral courage to withstand those temptations and continue to do the right thing regardless of circumstance.¹²

The Ethical Guardrails of Effective Command

After participants identified temptations, we asked them to cite any specific ethical guardrails to help conquer these enticements. We next discuss the top 10 guardrails that emerged from the focus groups, ranked according to frequency of mention; each is followed by a key leadership question for senior leader consideration and action.



Army instructor with 403rd Civil Affairs Battalion, assigned to Combined Joint Task Force—Horn of Africa, writes team evaluation during Counter Illicit Trafficking Junior Leadership Course examination at Queen Elizabeth Park, Uganda, October 10, 2019 (U.S. Air Force/J.D. Strong II)

1. Develop and Maintain Real Accountability Relationships. Our participants emphatically believe that personal and professional accountability is a critical vehicle to deal with the temptations of command. It has been stated that it is lonely at the top. Loneliness suggests the absence of relationships, and thus a lack of social support and accountability, both of which our senior leaders agreed can create real trouble. Group discussions and presentations revealed the importance of creating professional accountability by establishing peer-level accountability partners; fostering effective working relationships with key advisors, such as executive officers and senior enlisted leaders and advisors; and developing a personal “board of directors” to provide a professional and personal source of accountability, counsel, and encouragement. Participants believe that

meaningful relationships and a “battle buddy” or “wing man” are critical to effective leadership and fostering a willingness to always do the right thing. In a nutshell, the conclusion was that there is no substitute for relationships and accountability in staying on the straight and narrow.

Key Leadership Question: Who is truly holding you accountable for effective and ethical leader behavior and encouraging you to be your very best?

2. Create Situational Awareness Around Potential Ethical Temptations and Prepare for Your Moment of Truth. Once ethical temptations have been identified, individuals must increase situational awareness to avoid them, as it is easier to sidestep temptation than to resist it. In the same vein, senior leaders spoke of being properly prepared to effectively respond to the various temptations of

command. Participants viewed being mentally and physically equipped to confront a temptation as critically important to ensure leaders are prepared for their “moment of truth”—when they are confronted with a real-world temptation. Participants made it clear that preparation and rehearsal are critical to ensure leaders are prepared to make a good ethical choice, demonstrating their moral courage to conquer each and every temptation they face. Simply stated, there is no substitute for preparation when entering an ethical battlefield.

Key Leadership Question: Are you situationally aware of the temptations you face, and have you rehearsed how you will defeat them when confronted with your moment of truth?

3. Develop, Own, and Maintain a Personal Code of Conduct. The U.S. military has exceptionally well-developed



Marines stand at attention for "Anchors Aweigh" during graduation ceremony for Lance Corporal Leadership and Ethics Seminar, Class 1-21, at Marine Corps Air Station, Cherry Point, North Carolina, January 28, 2021 (U.S. Marine Corps/Michael Neuenhoff)

standards for ethical behavior; however, participants made it clear that individual leaders need to create a *personal* code of conduct for their current position and the ethical challenges they face. Participants suggested such personal codes of conduct should include statements clarifying one's leadership purpose and mission, articulating one's personal values and virtues, and identifying key leader behaviors and practices, among others. In addition to developing this personal code of conduct, participants believe that leaders need to take ownership of that code by making it part of their daily reflections, leadership ethos, practices, and personal behaviors/habits.

Key Leadership Question: Have you taken the time to develop a personal code of conduct that addresses the challenges of the current position you hold, and do you "own it"?

4. Make Proactive Use of Existing Military Checks/Balances and Protocols.

Leaders had thoughtful discussions about the military's wide spectrum of checks and balances that, when properly employed, serve as valuable guardrails and as potential deterrence to wrongdoing. Although participants believe that existing military safeguards against ethical wrongdoing can be effective, they noted that if someone wishes to bend the rules, "go off the reservation," or "do their own thing," these checks and balances are of reduced value. The key point is for leaders to clearly know and understand the preexisting organizational guardrails and to use them to advantage. These checks and balances can also come in the form of personnel, including executive officers, senior non-commissioned officers, and chaplains.

Key Leadership Question: Have you taken the time to fully recognize and own the various military guardrails that are available to you in order to help you defeat the temptations of command?

5. Increase Personal Faith, Self-Reflection, Awareness, and Assessment.

According to participants, the tempo, pace, and workload of senior military leaders have increased in recent years, which has had a debilitating effect on their time to think and reflect. To help maintain a moral compass, participants stated that it is imperative to take the time to build on personal faith or belief systems and to set aside moments for self-reflection, awareness, and assessment. These practices are critical cerebral guardrails to avoid ethical wrongdoing, as they help leaders stay morally and ethically strong. Contemplative activities can help keep leaders grounded, but taking



Recruit division commander assigned to Officer Training Command Newport, in Newport, Rhode Island, corrects Officer Candidate School student's form during remedial physical training, March 9, 2020 (U.S. Navy/Darwin Lam)

time to remember their higher calling as leaders can easily be lost in the frenzied heat of battle and the frantic pace of daily military life. According to participants, there is no substitute for taking the time to look in the mirror, reflect on one's personal code of conduct, and think through all the challenges one faces in every part of the job.

Key Leadership Question: How often do you take time to think about your higher calling as a military leader and build on your personal value system through self-reflection, awareness, and assessment?

6. Keep Ego in Check and Practice Servant Leadership to Maintain Humility. Successful military leadership requires self-confidence, self-assuredness, and a bit of swagger, to be sure. These can be noble and positive leadership qualities, but, when taken to an extreme, they can lead to overconfidence,

superciliousness, hubris, arrogance, and pomposity. Participants made it clear that these negative leadership qualities can set the stage for ethical wrongdoing, as people might begin to believe that the rules do not apply to them or that they are deserving of special treatment. Participants spoke of the importance of keeping one's ego in check and maintaining humility, and they mentioned practicing servant leadership. In these discussions, senior officers frequently spoke of the importance of serving their operations and the people who depended on them for mission success. They considered this servant mindset to be a buttress against arrogance and hubris. Participants stressed that arrogance is a precursor to poor ethical decisionmaking, while humility can help a leader stay on task.

Key Leadership Question: Do you practice daily servant leadership to help

those in your command succeed and to help keep your ego in check?

7. Proactively Create and Foster an Ethical Leadership Culture in Your Command. Our leaders stated that creating an ethical leadership culture is a critically important guardrail for those in their command structure, as well as themselves. When senior leaders lead by example, operate with transparency, and help establish an ethical/moral command climate, employing all the tools available to them, they create not only downward accountability for their people but also upward accountability for themselves. Participants shared in these discussions that a toxic leadership climate breeds poor performance and opens the door for a host of potential ethical disruptions. Conversely, creating an effective and principled command climate, where performance and ethical guidelines are clearly established, discussed, trained, and

reinforced on a daily basis, creates a powerful set of guardrails for all.

Key Leadership Question: What specific actions are you taking in your command to clearly establish a culture of high performance and ethical behavior that is known, understood, and felt by all?

8. Establish and Maintain Transparency, Openness, and Consistency in Decisionmaking and Communications. The senior leaders made it clear that a key indicator a leader might be succumbing to temptation is a lack of transparency, openness, and consistency in his or her daily actions. When a senior leader engages in ongoing decisionmaking and communications that demonstrate transparency, openness, and consistency, he or she is creating a positive and principled command culture. This practice creates a powerful guardrail not only for the senior leader but also for the rest of the organization. When these behaviors are found to be lacking in these critical practices, a moral or ethical vacuum that can lead to a less than optimal command culture might manifest.

Key Leadership Question: What specific actions do you take to make decisions and to communicate in a transparent, open, and consistent fashion with those in your command structure?

9. Seek Out Input/Counsel from Experts. According to participants, the military provides some exceptional guardrails, including the input and counsel of staff members who can advise senior leaders on ill-defined or ethically challenging decisions. Senior leaders should seek counsel from their legal advisor, resource manager, human resource specialists, equal opportunity/equal employment opportunity compliance officers, senior enlisted leaders, chaplains, and other trusted experts/advisors to help them make more effective and ethically responsible decisions while maintaining an environment of transparency, openness, and consistency. Again, making use of these resources can lead to better decisionmaking while concurrently sending a powerful message that the organization's leaders are serious about making effective and ethical decisions with input and accountability from key stakeholders.

Key Leadership Question: When making important decisions with ethical implications, do you seek wise counsel from people in your organization who can help you make the best possible decision for your operation?

10. Keep Good Records and Accurate Documentation. The final guardrail participants identified is the practice of using personal discipline and organizational skills to keep good documentation of decisions, activities, and ongoing reporting functions. Participants pointed out that if a leader sets the goal of accurate documentation, good recordkeeping, and transparency, there is less temptation to manipulate or falsify information or data and decisions. Leaders should use staff members for secondary oversight whenever possible in this regard. This fundamental practice requires organization and discipline and serves as a powerful guardrail, while potentially increasing a leader's efficiency and operational effectiveness.

Key Leadership Question: As a leader, do you keep good and accurate records, especially regarding reports and information that are deemed as being critically important?

A Call to Action

To conclude our discussion, a call to action is appropriate at both the individual and the organizational levels, stressing key practices that senior leaders and their staffs can employ to help conquer the ethical temptations of command.

Walk the Ethical Talk. Individual leaders must use their disciplined military training and strong thought processes to apply these lessons in a proactive and disciplined fashion. This requires leaders, on a personal level, to identify the temptations associated with their current position as well as the requisite guardrails needed to prevent ethical failure. When senior leaders pinpoint these issues, they are in a much better position to protect themselves from ethical temptation, and they will also set a first-rate example for those who are depending on them for their own success. It is imperative that senior leaders make use of all the available resources at their disposal to ensure

personal accountability.¹³ One of the most powerful lessons brought on by the anticipation of combat is that there is no substitute for preparation.

Conduct a Temptation-Mapping Session with Your Staff. Senior leaders must encourage their staffs to openly identify and discuss the potential temptations they may face as members of their leadership team. Leaders might consider using their executive officer, judge advocate general, or chaplain as a facilitator for this critically important discussion; it is important to have this discussion to create both openness and a sense that leaders are not alone in the challenges they face. Temptation-mapping can be an invaluable reconnaissance tool to reveal to leaders what they are up against both individually and collectively, which helps get everyone on the same page concerning these challenges.¹⁴

Conduct a Guardrailing Session. Senior leaders can help their staffs construct safeguards to make it easier for team members to stay on the moral high ground and reach their full leadership potential. Senior leaders should have a follow-up discussion after temptation-mapping with their teams. In this discussion, they should engage in a dialogue that identifies and operationalizes activities that prevent failure by identifying specific guardrails to protect their integrity and avoid wrongful behavior. Again, the use of facilitators can be quite beneficial in this conversation, but senior leaders should be actively engaged in listening to this discussion so that they are in a better position to lead, understand, and set an example. The important point is to get team members to *own* the behaviors and actions that they believe are most important for success. This exercise is a double-edged sword in that it gives individual leaders specific guidance in conquering *their* temptations while at the same time serving as an effective team-building exercise to enhance unit cohesion and culture.

Prepare and Equip Individuals for Ethical Success. Senior leaders can use the practices identified in the guardrailing session as a needs assessment to help create meaningful ongoing leadership training

and development initiatives. Leadership teams may need sessions on how to develop an accountability relationship, improve their situational awareness, create a personal code of conduct, or better appreciate the power and nuances of servant leadership. It is important to note that most of the key guardrailing practices are also the cornerstones of great leadership development, which can be a powerful motivator for the engagement of junior officers and staff.¹⁵

Coach and Reinforce the Right Behaviors and Decisions. Senior leaders must always reinforce both daily workplace actions and desired outcomes by using their personal influence and formal authority to coach/encourage effective leader behaviors, celebrate success, and deal with people who are unwilling to live up to the professional/ethical standards a senior leader might establish in their command. All leaders are exceptionally busy, but this is time well spent for developing their teams while sending a powerful message concerning the ethical command culture that they wish to nurture and develop. The best defense against ethical leadership failure, at all levels, is a good offense—which senior leaders can achieve by nurturing and molding principled individual leaders and teams. Without ongoing attention to effective measurement, assessment, and feedback around desired ethical leadership behaviors and outcomes, senior leaders are unknowingly or inadvertently sending the wrong message to their personnel that these issues are not a priority.¹⁶

The best security against ethical leadership failure, at all levels, is a good offensive strategy, as explained by an Army colonel who participated in one of our focus groups:

I believe our leaders live up to our high ethical standards and do the right thing day in and day out. Having said that, we are all human, and even the best of us can make bad choices for lots of different reasons. In the end, I believe dealing with temptation requires the same preparation that we take when going into combat because defeating our temptations is a battle

we must win if we are to maintain our integrity and ability to lead others.

No truer words have been spoken; all leaders must prepare themselves to conquer the temptations associated with their positions and must answer the call to help their people do the same. JFQ

Notes

¹ Inspector General, Department of Defense (DOD), *Hearing on "Senior Leader Misconduct: Prevention and Accountability,"* Subcommittee on Military Personnel, House Armed Services Committee, February 7, 2018, 10–13.

² U.S. Military, 10 U.S.C. § 3583, "Requirement of Exemplary Conduct," 2006, available at <<https://www.govinfo.gov/app/details/USCODE-2006-title10/USCODE-2006-title10-subtitleB-partII-chap345-sec3583>>.

³ DOD 5500.7-R, *Joint Ethics Regulation* (Washington, DC: DOD, August 1993), available at <<https://www.esd.whs.mil/Portals/54/Documents/DD/issuances/dodm/550007r.pdf>>; "The Ethics Compass," n.d., available at <<https://www.secnavy.mil/ethics/Pages/default.aspx>>; *Ethical Service: Handbook for Executive Branch Employees* (Washington, DC: Headquarters Department of the Air Force, n.d.), available at <[https://www2.oge.gov/web/oge.nsf/0/6F5D0BC2F8F4467F852585B6005A180C/\\$FILE/Ethical%20Service%20Guide%20Fillable.pdf](https://www2.oge.gov/web/oge.nsf/0/6F5D0BC2F8F4467F852585B6005A180C/$FILE/Ethical%20Service%20Guide%20Fillable.pdf)>; Army Publishing Directorate, *Army Doctrine Publication 6-22, Army Leadership and the Profession* (Washington, DC: Headquarters Department of the Army, July 2019), available at <https://armypubs.army.mil/epubs/DR_pubs/DR_a/pdf/web/ARN20039_ADP%206-22%20C1%20FINAL%20WEB.pdf>; *Employees' Guide to the Standards of Conduct* (Washington, DC: DOD, January 2019), available at <https://dodsoco.ogc.osd.mil/Portals/102/employee_guide_1.pdf>.

⁴ James N. Mattis, "Ethical Standards for All Hands," DOD, August 4, 2017, available at <<https://dod.defense.gov/Portals/1/Documents/pubs/Ethical-Standards-for-All-Hands-SecDef-04-Aug-17.pdf>>.

⁵ Mark F. Light, "The Navy's Moral Compass," *Naval War College Review* 65, no. 3 (Summer 2012), available at <<https://digital-commons.usnwc.edu/cgi/viewcontent.cgi?article=1472&context=nwc-review>>.

⁶ Dilek Z. Nayir, Michael T. Rehg, and Yurdanur Asa, "Influence of Ethical Position on Whistleblowing Behaviour: Do Preferred Channels in Private and Public Sectors Differ?" *Journal of Business Ethics* 149 (2018).

⁷ Philip Zimbardo, *The Lucifer Effect: Un-*

derstanding How Good People Turn Evil (New York: Random House, 2007).

⁸ Sydney Finkelstein, Jo Whitehead, and Andrew Campbell, "What Drives Leaders to Make Bad Decisions," *Leader to Leader*, no. 53 (June 2009).

⁹ Dean C. Ludwig and Clinton O. Longenecker, "The Bathsheba Syndrome: The Ethical Failure of Successful Leaders," *Journal of Business Ethics* 12 (April 1993).

¹⁰ Craig E. Johnson, *Meeting the Ethical Challenges of Leadership: Casting Light or Shadow*, 7th ed. (Thousand Oaks, CA: SAGE Publications, 2021).

¹¹ United States Military Academy at West Point, "Admissions Frequently Asked Questions (FAQs)," n.d., available at <<https://westpoint.edu/admissions/frequently-asked-questions>>.

¹² Joe Doty and Chuck Doty, "Command Responsibility and Accountability," *Military Review* 92, no. 1 (January–February 2012).

¹³ Charles D. Allen, "Ethics and Army Leadership: Climate Matters," *Parameters* 45, no. 1 (Spring 2015).

¹⁴ Clinton O. Longenecker, "The Best Practices of Great Leaders," *Industrial Management* 56, no. 4 (2014).

¹⁵ Dan Stallard and Kurt Sanger, "The Nathan Solution to the Bathsheba Syndrome," *Marine Corps Gazette* 98, no. 4 (2014).

¹⁶ Clinton O. Longenecker, "Characteristics of Really Bad Bosses," *Industrial Management* (2011).

CALL FOR ENTRIES

for the

2021 Secretary of Defense and
2021 Chairman of the Joint Chiefs of Staff

Essay Competitions

Are you a professional military education (PME) student? Imagine your winning essay published in a future issue of *Joint Force Quarterly*, catching the eye of the Secretary and Chairman as well as contributing to the debate on an important national security issue. These rewards, along with a monetary prize, await the winners.

Who's Eligible? Students, including international students, at U.S. PME colleges, schools, and other programs, and Service research fellows.

What's Required? Research and write an original, unclassified essay on some aspect of U.S. national, defense, or military strategy. The essay may be written in conjunction with a course writing requirement. Important: Please note that entries must be selected by and submitted through your college.

When? Anytime during the 2020–2021 academic year. Students are encouraged to begin early and avoid the spring rush. Final judging and selection of winners take place May 2021, at NDU Press, Fort McNair, Washington, DC.

For further information, see your college's essay coordinator or go to:
<http://ndupress.ndu.edu/About/Essay-Competitions/>



President Barack Obama talks with Iraq's Prime Minister Nouri al-Maliki during secure video teleconference in Situation Room, The White House, October 21, 2011 (White House/Pete Souza)

Flawed Jointness in the War Against the So-Called Islamic State

How a Different Planning Approach Might Have Worked Better

By Benjamin S. Lambeth

Dr. Benjamin S. Lambeth is a Nonresident Senior Fellow at the Center for Strategic and Budgetary Assessments. This article is an updated excerpt from his recently published book *Airpower in the War Against ISIS* (Naval Institute Press, January 2021).

Not long after the first round of anemic air strikes against the so-called Islamic State (IS) on August 8, 2014, it became clear to most that the initial effort ordered by President Barack Obama and undertaken by

U.S. Central Command (USCENTCOM) lacked an overarching strategy based on a well-founded understanding of the enemy and on a weighing of the full spectrum of available response options. Instead, USCENTCOM's

leaders fell back on their familiar past experiences and assessed IS as simply a resurrection of the recently defeated Iraqi insurgency rather than as the very different and ambitiously aggressive state-in-the-making that it actually was. As a result, they opted to engage the jihadist movement with an inappropriate counterinsurgency (COIN) approach that misprioritized rebuilding the Iraqi army as its predominant concern rather than pursuing a more promising strategy aimed at not only addressing Iraq's most immediate security needs but also attacking the enemy's most vulnerable center of gravity in Syria from the first day onward.

To be sure, throughout the 4-year-long effort belatedly codenamed Operation *Inherent Resolve* (OIR), the performance of the coalition aircrews who fought the war at the execution level was invariably able and impressive, reflecting the high standards of competence first showcased in Operation *Desert Storm* in 1991 and later sustained in all subsequent U.S.-led air operations worldwide. Yet by having wrongly adjudged IS as just a reborn insurgency and having misguidedly engaged it as such, USCENTCOM took as long to neutralize a fairly tractable low-technology enemy in the bounded spaces of Iraq and Syria in the second decade of the 21st century as it took the United States, in a total war for ultimate stakes, to defeat the far more powerful Imperial Japan and Nazi Germany in two theaters on opposite sides of the globe during World War II.

This review of the OIR experience considers how an alternative approach that made better use of USCENTCOM's fighting components in a more productive flow plan might have yielded the desired outcome more quickly and at a substantially lower cost in overall sorties flown, expensive munitions used against often meaningless targets, and innocent Iraqi and Syrian noncombatant lives lost along the way. Such a more purposeful response would have begun by USCENTCOM's having first sized up the adversary for what it actually was—a self-avowed embryonic state—and

conducted the necessary prior target system analyses in both Iraq and Syria that would be essential for underwriting the campaign's strikes against the enemy's greatest vulnerabilities, assigned a subordinate Combined Joint Task Force (CJTF) commander for OIR whose component was best suited for conducting the campaign's initial operations, and then amended that command structure's leadership as deemed most appropriate once the U.S. role in the campaign shifted from an air-only counteroffensive toward overseeing a more truly joint and combined air-land campaign. Such a more fruitful approach would have leveraged USCENTCOM's air component as the *supported* force element at the campaign's start. Later, the coalition air component would have been swung to a more fully *supporting* role under a CJTF ground commander once U.S. and allied special operations forces (SOF) teams and joint terminal attack controllers (JTACs) began working with indigenous Iraqi and Syrian ground troops in a final land-centric push to defeat the enemy once and for all.

Some Consequential Missteps at the Campaign's Start

Any effort to learn usefully from the early failings of OIR must first recognize that the main reasons for the campaign's initial slowness to show much progress did not emanate from within USCENTCOM, but rather were occasioned entirely by a top-down decree from the Obama White House. As was later recalled by USCENTCOM's deputy commander at the time, Vice Admiral Mark Fox, it was "the Obama administration's . . . palpable reluctance to get more deeply involved that was the underlying cause of the campaign's slow and halting activities during the early days of the crisis." Admiral Fox further underscored that "it was Obama's decision to completely withdraw all U.S. forces from Iraq in 2012 that created the vacuum that [IS] filled in 2014," and it was the Obama national security team's "insistence on extremely restrictive rules of engagement [ROEs] to ensure the avoidance

of noncombatant fatalities and reluctance to expand the fight into Syria until having been absolutely dragged there by events that accounted for [USCENTCOM's] initial muddled response to the [IS] threat."¹

That said, even with all due allowance for the constraints imposed by Obama and his White House subordinates that so badly hampered USCENTCOM's freedom of action at the campaign's start, that organization's long-ingrained land-warfare predispositions also figured prominently when it came to generating the command's ultimately chosen response to the rise of IS. As one Air Force colonel aptly recalled in this regard, "it would be an understatement to say that there was a very Army-centric dose of operational art [prevalent at USCENTCOM's headquarters] in the summer of 2014." That fact, he stated, worked mightily "to constrain any semblance of an interdiction campaign" emerging as a part of that command's initial combat response.² In a compelling testament to that predisposition when it came to their initial tasking to take on IS, USCENTCOM's leaders almost by natural force of habit misread the jihadist movement as simply a regenerated insurgency of the sort that they had previously fought throughout the preceding decade. That flawed assessment naturally drove them to pursue an inappropriate COIN strategy and to accede to equally inappropriate and inhibiting ROEs quite independent of the constraints insisted on by Obama's White House. That approach stressed the minimization of civilian casualties as the campaign's main imperative rather than going with all determination for the Islamist movement's throat.

Those initial planning missteps, however, were themselves natural outgrowths of an arguably even more suboptimal decision by USCENTCOM's commander, General Lloyd Austin III, USA; namely, his having assigned a three-star infantry general to oversee the first round of fighting against IS, even though he surely knew that any such effort would entail air-only operations for a year or more, at least on the part of any involved U.S. forces. To be sure, as Admiral Fox



U.S. Soldiers assigned to Battery C, 2nd Battalion, 319th Airborne Field Artillery Regiment, 82nd Airborne Division, fire M777 155mm howitzer during fire mission near Mosul, Iraq, February 3, 2017, in support of Combined Joint Task Force—Operation *Inherent Resolve* (U.S. Army/Craig Jensen)

later pointed out, USCENTCOM’s air component commander at the time had a full enough plate already, providing needed air support to the ongoing war in Afghanistan, whereas the Army general ultimately tapped to command OIR “had a joint task force headquarters already set up in Kuwait and had no combat responsibilities in Afghanistan.”³ Yet if there ever was a nascent challenge in USCENTCOM’s area of responsibility that begged for an air-centric solution, at least while IS was still gaining strength and when the now-moribund Iraqi security forces (ISF) were nowhere near ready to take on the jihadist movement, it was at the start of OIR in mid-August 2014 and throughout the campaign’s first year thereafter.

Nevertheless, General Austin and his chosen subordinate commander for

OIR, Lieutenant General James Terry, USA, both proceeded to cast their impending effort instead as a *land* war, with USCENTCOM’s air component relegated solely to providing on-call support to a still only anticipated land counteroffensive yet to come. In a revealing post hoc confirmation of that largely unheeded reality on the ground in Iraq, when General Austin finally presented his envisioned construct for such a land campaign to Secretary of Defense Ashton Carter 6 months later for the latter’s approval, Carter immediately saw that the plan “was entirely unrealistic at that time” because it “relied on Iraqi army formations that barely existed on paper. . . . Building the kind of Iraqi force that could retake Mosul would ultimately take the better part of a year.”⁴

Assigning a CJTF Commander

Perhaps at least partly due to awareness of that fact, as was later acknowledged by OIR’s first deputy air component commander, Major General Jeffrey Lofgren, USAF, the prospective command arrangements for the coming campaign were “hotly debated with the [USCENTCOM] commander over several weeks.” Although General Lofgren did not indicate when that back and forth first began, who its main protagonists were, or what spectrum of concerns it addressed, the simple fact that the debate was both heated and protracted would seem to suggest that it centered, among other possible issues, on the ultimate question of whether the strategy for the war’s opening round should be land-centric

or air-centric and, directly related to that question, whether the CJTF for the coming fight should be led at the start by an Army general or by an Airman. General Lofgren further acknowledged that “the Air Force was asked to provide manpower to the CJTF and did not do so initially, which [ultimately] shaped the early constructs [for the campaign].”⁵ In the end, he recalled, “the [USCENTCOM] commander’s going with the choice of ARCENT [U.S. Army Central Command] to plan and oversee it was driven more by comfort [on General Austin’s part] and the fact that the air component was not postured to be able to execute the CJTF mission.”⁶

Yet there was no reason in principle why USCENTCOM’s air component commander could not have been tasked with assuming initial oversight of at least the air portion of the impending campaign and then laying down the essentials for a more appropriate starting course of action both easily and seamlessly within the framework of the existing CJTF structure in Kuwait. Ultimately, what should have mattered most was not the “command and subordinate staff that had [previously] worked and trained together,” and that General Austin was most “comfortable” with, but rather what class of expertise and associated skill set would be best suited for the commander ultimately chosen to plan and lead a successful campaign against the unique challenge that IS presented, at least at the start of OIR.⁷ That challenge all but begged for a well-targeted air attack plan as the looming campaign’s centerpiece.

To be sure, once OIR had evolved from its hesitant air-only start in August 2014 into its more well-developed pace as a land-centric campaign 3 years later, it was entirely natural that the most senior Airmen in its chain of command would have felt that a ground-force general offered the most apropos competency for overseeing such an endeavor. As the third successive Airman assigned as CJTF-OIR’s deputy commander for operations and intelligence, Major General Dirk Smith, USAF, recalled in this regard

when serving in that capacity from May 2017 to May 2018:

I wonder how the ISF and our partners in Syria would have done at developing the necessary trust and deep partnership with an Airman in lieu of a U.S. Army three-star as the CJTF-OIR commander? The [Army-specific concept that lay at the heart of the campaign’s strategy] requires very close commander-to-commander relationships and a keen understanding of ground schemes of maneuver.

Adding that the successive Army CJTF-OIR commanders under whom he had served “knew [personally] many of the ISF general officers from their previous multiple combat deployments to Iraq,” he stressed that any Airman serving in the same capacity “would need to be deliberately experienced and developed” to a similar high degree in order to be successful.⁸

In a similar vein, Major General Andrew Croft, USAF, who had served under Major General Smith as the deputy commanding general for air in CJTF-OIR’s land component and as its Joint Air Component Coordination Element director during the campaign’s final phase, likewise recalled:

By the time I got there, the advise-and-assist mission that was being done by the Army brigade up in Mosul was absolutely critical to the fight. It therefore made sense to have the battalion-brigade-division-corps chain of command and processes in place that the Army brought to the battlefield. . . . We tied in the airpower from our positions, but had an Airman commanded the CJTF, we still would have needed the same ground-centric capabilities.⁹

Fortunately for the ultimate success of OIR, its Army-led headquarters by mid-2016 and thereafter—at long last having included an uninterrupted succession of experienced two-star Air Force fighter pilot generals in the key position of deputy commander for operations and intelligence—finally developed a smoothly running battle rhythm in which USCENTCOM’s air component figured

both centrally and effectively as the sole kinetic contribution to an overall ground-centric war plan. As the third of these senior Airmen, Major General Smith, later pointed out:

Given the great work done by [his Air Force predecessors, Major Generals] Peter Gersten and Scott Kindsvater, when I stepped into the position, I felt like I was very empowered by the CJTF commander . . . to ensure that “airmindedness” could be in every CJTF senior leader discussion. It also allowed me to provide detailed understanding of issues from the CJTF and subordinate land component commanders’ perspective to the [air component commander and his deputy].¹⁰

That eventually well-tuned integration of U.S. and coalition airpower as the lead player in OIR’s effort against IS, however, was anything but the norm during the campaign’s first year. As later explained by Major General Charles Moore, Jr., USAF, who had been the most senior U.S. Airman in Baghdad during the war’s initial months by virtue of his posting in the Office of Security Cooperation in Iraq, his organization engaged on a daily basis with USCENTCOM, including with all of its subordinate components and with the Iraqi government. Eventually, he recalled, by around the start of 2015, the Air Force sent Brigadier General John Cherrey, a combat-seasoned A-10 pilot, to OIR’s forward headquarters in Kuwait to help plan and direct air operations in its still slowly developing war against IS.

For at least the campaign’s first 5 months, however, CJTF-OIR had *no* formal air representation in its command section. Yet during those same first few months, the *only* American combat operations being conducted against IS were from the air, with OIR’s Army personnel focused solely on rebuilding what had been lost from the fragile ISF following President Obama’s withdrawal of all U.S. forces from Iraq in 2012. That meant that USCENTCOM’s only component actually engaged in combat operations against IS was not in command of those operations. In that plainly

dysfunctional situation from an ideal joint-Service perspective, CJTF-OIR's first commander, Lieutenant General Terry, would brief the daily air operations flow via videoteleconference from Kuwait to USCENTCOM's commander, General Austin, sitting in his headquarters back in Tampa, Florida. As Major General Moore later recalled, in that odd briefing arrangement, USCENTCOM's air component commander, Lieutenant General John Hesterman III, participating from his Combined Air Operations Center (CAOC) in Qatar, "was often left with little to say when it was his turn, which usually occurred last."¹¹ It was not until May 2015, nearly a year into the campaign, when Major General Gersten arrived in position as CJTF-OIR's assigned deputy commander for air. This provided direct senior air representation on Lieutenant General Terry's staff for the first time since the campaign began. In light of that long-delayed move to insert a senior air presence in the CJTF's command section, it should hardly be surprising that the air contribution to USCENTCOM's war against IS was so ineffectual throughout its first year when it came to weakening IS in its most vital strategic center.

Regarding the air component's eventual effort to heighten the airpower focus within CJTF-OIR, the campaign's second successive air component commander, Lieutenant General Charles Brown, Jr., USAF, almost as a first order of business after having reported aboard in that position, moved his Air Support Operations Center from collocation with CJTF-OIR's land component headquartered in Baghdad, which was almost exclusively Iraq-focused, to CJTF-OIR's headquarters in Kuwait so as to achieve a broader airpower focus across that command's entire area of operations, most notably including in Syria as well as Iraq. As to his rationale for that important move, General Brown later recalled, "I wanted to conduct more deliberate strikes in Syria to support the future close fight in Iraq. I often shared with my staff that although Iraq may be first in priority, it was second on my playlist when it came to where I wanted to apply airpower."¹²

That perspective and intention, one can fairly state in hindsight, should have been a key part of CJTF-OIR's campaign approach from the very start.

The Lost Opportunity of a More Promising Approach

As a notional alternative to the command structure for OIR that ultimately emerged, what if General Austin had instead picked his air component commander to take the lead, at least at the start of campaign planning, from the first moment USCENTCOM was tasked by the White House to engage IS? Given the realities of the strategic landscape that prevailed in Iraq and Syria in late July and early August 2014, a more promising initial move by USCENTCOM's commander would have been to accept that there would be no sufficiently combat-ready indigenous ground troops in the region for his air assets to "support" in a truly influential way for at least a year, and that until such a reality was finally at hand, he should instead pursue a more logical approach for the interim by designating his air commander as his first subordinate CJTF-OIR commander and duly empowering that Airman to apply his and his staff's collective skills toward determining how best to carry the fight to IS, at least until a true joint and combined air-land campaign was ready to be unleashed with determination.

In a strong seconding motion to such an alternative approach, General Brown later suggested that at least during the campaign's initial stages, as CJTF-OIR's land component was mainly focused on rebuilding the ISF, USCENTCOM's air commander "could and probably should have been designated as OIR's supported commander, with an eventual handover of CJTF-OIR to the most senior ground general once serious offensive land operations were set to begin. This alternative approach would have had the right leadership and expertise in charge more properly aligned with the initial scheme of the campaign."¹³ A similar sentiment was offered by an Air Force F-16 pilot who flew in two successive OIR rotations during its largely ineffectual opening

round. This Airman remarked that what Army and Air Force leadership within USCENTCOM had *both* failed to recognize in sufficient time was

*that [IS] was a proto-state requiring more than just support to the indigenous ground maneuver elements. It also required a distinct and separate aerial bombing campaign on strategic targets and air interdiction, and this needed to happen right away while the coalition was still gestating. That, in turn, meant duly supporting the embattled Iraqis . . . while concurrently doing our utmost to hurt [IS's] warfighting capability with a sustained air campaign. Yet we did the former but not the latter during OIR's pivotal first two years. . . . At a time when the campaign should have been mainly air-centric, it wasn't. Its construction from 2016 onward was probably correct. But its construct at the beginning was flawed.*¹⁴

On this important count, even retired Colonel Peter Mansoor, USA, who had served as a key advisor to General David Petraeus in Iraq during the latter's eventually successful surge of 2007, suggested that "if this [effort against IS] was going to be just an air campaign [which it most definitely was for U.S. forces during its first 2 years], it would have made much more sense to have an Air Force officer in Baghdad and have him lead the charge."¹⁵ With such more appropriate leadership in place, an Air Force commander for CJTF-OIR at the outset would have had every inclination and opportunity to mobilize the vast intelligence resources at his disposal to take the fullest measure of IS and to undertake the needed initial target system development *before* committing to any ensuing plan for the war's opening round.

Of course, in order to ensure the eventual reconstitution of the ISF to the degree necessary for it to engage IS effectively in sustained land combat, there would still have been a need for CJTF-OIR to interact closely from the effort's first day onward with the ISF's leadership. And that need would have demanded a depth of land-warfare expertise and familiarity with the Iraqi situation



Marines attached to 26th Marine Expeditionary Unit load GBU-54 bomb onto AV-8B Harrier on flight deck of USS *Kearsarge*, supporting Operation *Inherent Resolve*, Arabian Gulf, December 28, 2015 (U.S. Navy/Tyler Preston)

on the ground that *no* Airman could have been expected to offer. However, as David Deptula rightly noted, that role could easily enough have been fulfilled by a suitably experienced two-star Army deputy CJTF commander for land operations with intimate previous connections with his ISF counterparts. “But without an Airman in charge,” Deptula added, “there would have been *no* possibility of a strategy being developed from the very start that put the [IS] center of gravity in Syria in the crosshairs as a campaign first priority rather than second priority.”¹⁶

True enough, anyone viewing CJTF-OIR’s challenge as it eventually unfolded could rightly conclude that the organizational wherewithal and skills offered by USCENTCOM’s air commander would have been ill-suited to render him a compelling choice for effectively overseeing such an air-land campaign endgame. In that regard, the Air Force fighter pilot

who served for a year previously as CJTF-OIR’s deputy commander for operations and intelligence after the campaign had already been well under way, Major General Kindsvater, reasonably doubted whether an Airman could have effectively led what he called the “multidivision and then corps/two-nation fight” that was being conducted by CJTF-OIR when the needed skills for exercising proper command oversight in such a capacity have never, as he rightly put it, been traditionally part of the Air Force’s “functional expertise.”¹⁷

Yet the “multidivision and then corps/two-nation fight” that CJTF-OIR ultimately ended up conducting against IS was not the only alternative available to USCENTCOM for taking on the jihadist movement from the campaign’s first day onward. To the contrary, there is every reason to believe that an Airman as CJTF-OIR’s initial

overall commander might well have chosen a different template for engaging the jihadist threat by pursuing a more air-centric course of action that would not require, at least at the outset, the spectrum of land warfare skills that later would be essential for commanding a preponderant ground force of the sort that ultimately became the centerpiece of OIR. In this regard, Major General Charles Corcoran, USAF, who served as the chief of staff to USCENTCOM’s air component in 2013 and 2014, offered one retrospective insight into how an Airman as the overall CJTF commander might have approached the initial planning for the impending campaign in a way substantially different from the route ultimately chosen. Having had a catbird seat in the CAOC from which to observe developments from up close as the jihadist movement first arose, he later recalled that a major reason for OIR’s faltering

missteps at the campaign's start was "simply our lack of understanding of the enemy." He then added, "Target system analysis takes time," and USCENTCOM had not done its needed homework before embarking on its Iraq-dominant, COIN-oriented, and land-centric initial response to IS, when what was actually needed was a plan fundamentally different in both nature and level of intensity. "We need to learn this lesson," he insisted, and continued:

We can't wait for a conflict [as we did while IS was first gaining strength throughout Iraq and Syria] to understand our potential enemies and their critical infrastructure. We need to do this analysis now . . . in peacetime. . . . Once we have that in hand, we can [then] develop a campaign to dismantle and defeat [the enemy] using all forms of power at our disposal, including airpower.¹⁸

Unfortunately, militating against much of a chance of USCENTCOM's having arrived at any such more appropriately focused approach toward engaging IS from the very start, "CJTF-OIR from day one onward was more accurately a U.S. Army Corps headquarters," as the British Royal Air Force's air contingent commander for the campaign later recalled, "and the U.S. Army was more comfortable with Iraq than with Syria because of its previous years there—perhaps an explanation for its delays in executing an effective plan for Syria." To make matters worse, with no formal air representation in the subordinate command structure that USCENTCOM had cobbled together for OIR for at least the campaign's first 5 months, "air was rarely embedded early in CJTF planning and had to fight valiantly to be heard."¹⁹

An Initial Dearth of Needed Target Intelligence

Of course, to have been most productive from the start, any alternative approach toward countering IS with a principal focus on interdicting its most vital assets on the move would have required USCENTCOM and its air component, along with their organic

intelligence and planning organizations, to have stepped out with the greatest dispatch toward generating the needed wherewithal to conduct the requisite target system analysis and weaponeering for underwriting such a campaign. On this count, any number of OIR principals have hastened to stress how USCENTCOM lacked the needed inputs at the campaign's start to conduct such an undertaking. For example, in pushing back against any intimation that "we had a ton of options to move more rapidly in Syria," the Special Presidential Envoy for the Global Coalition to Counter the Islamic State of Iraq and the Levant, Brett McGurk, pointed out that "we had nothing to work with in Syria and very little fidelity as to what was happening on the ground" in that country during OIR's first halting months.²⁰ Similarly, Vice Admiral Fox noted "the absolute lack of targeting intelligence" needed during OIR's initial phase to underwrite an effective interdiction campaign.²¹

Yet there was ample testimony from line operators actually engaged in the fight that the needed information was there all along—had it only been marshaled, assessed, and disseminated in a timely way. As the above-quoted F-16 pilot later recalled:

During each sortie during the campaign's first month, we would watch all sorts of [IS]-related activity going on in Syria. . . . The targets were definitely out there for us to kill. I saw them day after day. . . . No one listened to us. True, we were unsure going into Syria at the time, because it was new and different. . . . But had we acknowledged [IS] for the proto-state entity that it was, we could've moved swiftly on these targets of opportunity despite all the other issues with ground fidelity.

Clinching his argument, he added,

The overall strategy did not need to be a new one. It simply should have been: Find their center of gravity and hit it quickly and accurately. Part of OIR was admittedly trying to get the Iraqis back on their feet. But at the same time, we should have

pulverized [IS] leadership and cash flow at the beginning. We eventually got there, but we lost some serious opportunities up front with blatantly identifiable targets . . . in which we could have done some serious damage and saved lots of lives. We flew over such targets in Syria day in and day out with bombs on our jets, reported them to everyone we could, and still we did nothing about it.²²

General Brown himself later remarked, "One area I was pushing for was target system analysis to get to the 'so what' and target more effectively. I didn't want to wait for a product that was six months or so in the making but instead wanted a 50 percent solution so we could start striking in a more deliberate manner."²³ Had such a more energetic response been undertaken by USCENTCOM in a sufficiently timely way at the campaign's start, General Brown's more promising approach, applying more permissive ROEs, could have caused far more serious harm to the movement's most valued assets, and at an earlier stage of the campaign had IS been correctly assessed and engaged from the outset as a proto-state rather than an insurgency.

Opportunity Costs

Viewed in hindsight, the disappointing early returns yielded by the halting air war that unfolded against IS for more than a year was mainly a result of the Obama administration's obsessive top-down micromanagement of the campaign and its insistence at the bombing's start on oppressive restrictions on attackable targets in the vain and totally unrealistic hope of achieving zero civilian fatalities. However, it also was a predictable result of USCENTCOM's suboptimal command arrangement and resort to an inappropriate COIN strategy from the campaign's first moments onward. After what Secretary Carter later well characterized as USCENTCOM's "ad hoc launch" of its initially flawed war plan in early August 2014, the vast oil reserves in Iraq and Syria that were being controlled and exploited by IS



KC-135 Stratotanker pilot with 340th Expeditionary Air Refueling Squadron preflights aircraft before taking off from base in U.S. Central Command area of responsibility in support of mission conducting airstrikes in Syria, September 23, 2014 (U.S. Air Force/Matthew Bruch)

for copious financial gain were not targeted and struck until a full 15 months later, offering yet another testament to the downside costs of the misguided gradualism and inappropriate focus of USCENTCOM's initial approach to its counter-IS effort.²⁴ That faulty mindset and the campaign plan that naturally flowed from it gave the jihadist movement some \$800 million a year in black market revenue that allowed it to continue recruiting Islamist zealots from around the world and to continue terrorizing the Iraqi and Syrian noncombatants who were caught in its grip.

In marked contrast, a more productive strategy would have concentrated instead on interdicting IS's flow of oil and other vital supplies from the campaign's first moments onward rather than wasting valuable sorties in a misprioritized air "support" endeavor flown over Iraq's cities mainly to serve the advise-and-assist

interests of Army generals in Baghdad who, in fact, commanded *no* forces actually engaged in the fight. Had such an alternative approach been pursued instead by CJTF-OIR from the campaign's start, the vast majority of USCENTCOM's early air surveillance operations would have been flown not over Iraq's urban areas but, as Major General Moore later put it, "across the border in Syria and in the Anbar desert[,] building situation awareness for our interdiction attacks. Imagine the Ho Chi Minh trail, but in a desert!"²⁵

By and by, more determined new leadership in the White House by the start of 2017, driven by a deeper commitment to ending the war decisively, issued new directives to USCENTCOM for the latter to lift its most burdensome impediments to more rapid progress toward that reformulated goal. That pivotal top-down change soon made the crucial difference

that finally allowed well-prepared indigenous friendly Iraqi and Syrian ground troops, supported by unerringly effective coalition airpower, to sweep IS off the battlefield in both Iraq and Syria.

Some Implications Worth Pondering

In the end, despite its slow and ineffectual start, OIR turned out to have been another successful exercise in joint and combined force employment in which U.S. and coalition airpower ultimately overwhelmed IS with an invincible monopoly of asymmetric aerial firepower, thereby ensuring that eventually well-endowed and highly motivated Iraqi and anti-regime Syrian ground troops, supported by U.S. SOF teams and JTACs, would ultimately crush the once-formidable jihadist movement. That performance offered a compelling testament to the intrinsic leverage

of today's American air posture in all Services once freed from the restraints imposed by flawed initial leadership directives that misunderstood the enemy as a reborn Iraqi insurgency and that wrongly insisted on ROEs meant for a different kind of war.

Nevertheless, when viewed from an overall strategic perspective, the Obama administration's and USCENTCOM's needlessly prolonged Operation *Inherent Resolve* was oxymoronic in both concept and execution throughout its first year or more. Although USCENTCOM had no hand whatever in occasioning the inhibiting gradualism that was forced on it at the campaign's start by the administration's unrealistic insistence on zero civilian casualties, that command should have immediately begun its response planning after having been tasked to engage IS by first understanding the movement for what it actually was and then by regarding it—and by engaging it with real rather than merely avowed “inherent resolve”—as a self-declared state in the making, featuring targetable state-like characteristics. A related misstep in USCENTCOM's initial goal-setting was arguably its decision to secure Iraq first by tasking its air component to devote most of its assets exclusively toward providing dedicated air “support” to a still-not-combat-ready ISF instead of reaching out concurrently to strike IS's core equities in Syria that bore more directly on the movement's capacity for sustained fighting.

Finally, even if it was not to be for General Austin to have chosen his air commander to head up CJTF-OIR at the campaign's start, it was essential that USCENTCOM's air component, once it became clear that the rise of IS would eventually demand a determined U.S. response, move with the greatest dispatch toward crafting an option that would most fully exploit the strategic leverage offered by U.S. and coalition airpower. Yet as Lieutenant General Deptula remarked tellingly after the campaign was over, the apparent absence of any such consideration in USCENTCOM's initial planning “occurred in part because its air component, by all outward signs, did not

effectively argue for such a more promising course of action.”²⁶ At a minimum, as Major General Croft later reflected in this regard, “we [in the air component] clearly should have put an Airman . . . into the CJTF upper-echelon staff earlier.”²⁷ Commenting for his part on this lost opportunity for USCENTCOM's air component while IS was still gestating in Iraq and Syria, retired General Charles Horner, USAF, the overseer of USCENTCOM's casebook air offensive that largely occasioned the successful outcome of Operation *Desert Storm*, stressed the criticality for Airmen in any joint warfighting headquarters to always “think ahead of their non-air-minded counterparts and superiors, lead them to understand that they are working the problem as those ground-oriented players view it,” and persuade the latter whenever appropriate that “there is a better way.”²⁸ Fortunately, such a response eventually gained effective traction within USCENTCOM's air component and helped to produce OIR's winning result in the end. JFQ

Notes

¹ Vice Admiral Mark Fox, USN (Ret.), email message to author, August 9, 2020.

² Comments provided by Colonel Steven Gregg, USAF, October 23, 2018.

³ Fox, email message to author.

⁴ Ash Carter, *A Lasting Defeat: The Campaign to Destroy ISIS* (Cambridge, MA: Belfer Center for Science and International Affairs, October 2017), 14.

⁵ Comments provided by Lieutenant General Jeffrey Lofgren, USAF, March 5, 2019.

⁶ Ibid.

⁷ Ibid.

⁸ Major General Dirk Smith, USAF, email message to author, April 1, 2019.

⁹ Major General Andrew Croft, USAF, email messages to author, January 3 and January 10, 2019.

¹⁰ Smith, email message to author.

¹¹ Major General Charles Moore, Jr., USAF, email message to author, April 24, 2019.

¹² General Charles Brown, Jr., USAF, email message to author, July 5, 2019.

¹³ Ibid.

¹⁴ Major Greg Balzhiser, USAF, email message to author, August 8, 2019.

¹⁵ Quoted in Matthew Jamison, “From Air War to Ground War: The Obama Administration's Evolving Campaign Against ISIS and the

Assad Regime,” *Strategic Culture*, June 24, 2016, available at <www.strategic-culture.org/news/2016/06/24/from-air-war-ground-war-obama-administration-evolving-campaign-against-isis-assad-regime/>.

¹⁶ Lieutenant General David Deptula, USAF (Ret.), email message to author, April 1, 2019.

¹⁷ Major General Scott Kindsvater, USAF, email message to author, August 5, 2018.

¹⁸ Major General Charles Corcoran, USAF, email message to author, April 22, 2018.

¹⁹ Air Vice-Marshal Johnny Stringer, Royal Air Force, email message to author, April 16, 2018.

²⁰ Brett McGurk, email message to author, April 18, 2019.

²¹ Fox, email message to author.

²² Balzhiser, email message to author.

²³ Brown, email message to author.

²⁴ Carter, *A Lasting Defeat*, 18.

²⁵ Major General Charles Moore, Jr., USAF, email message to author, April 23, 2018.

²⁶ David A. Deptula, foreword to *Airpower in the War Against ISIS*, by Benjamin S. Lambeth (Annapolis, MD: Naval Institute Press, January 2021).

²⁷ Major General Andrew Croft, USAF, email message to author, August 12, 2020.

²⁸ General Charles Horner, USAF (Ret.), email message to author, August 31, 2020.

Air Force pararescuemen assigned to 83rd Expeditionary Rescue Squadron load simulated casualties on board CH-47F Chinook, flown by members of Army Task Force Brawler, during personnel recovery exercise, Afghanistan, March 6, 2018 (U.S. Air Force/Gregory Brook)



The Future Joint Medical Force Through the Lens of Operational Art

A Case for Clinical Interchangeability

By Joseph Carvalho, Jr., and Enrique Ortiz, Jr.

Dr. Joseph Carvalho, Jr., Major General, USA (Ret.), is President and Chief Executive Officer of the Henry M. Jackson Foundation for the Advancement of Military Medicine, Inc. Colonel Enrique Ortiz, Jr., MS, USA, is Chief of the Medical Modernization Division at U.S. Army Futures Command.

Today there is little dispute over the constant nature of war. Over time and throughout history, however, the character of war has been fluid. In a recent strategic assessment, General Joseph F. Dunford, Jr., former Chairman of the Joint Chiefs of Staff, described the future security environment as both complex and uncertain, with adversarial competition and overt conflict being transregional, multidomain, and multifunctional in nature.¹ The joint force has adapted to keep pace with this new character of war, although doing so has been no easy feat. The U.S. military has been challenged recently by burgeoning and worsening regional instability driven by both state and nonstate actors. The United States can justifiably expect contested domain dominance in any future military operation. Additionally, the current operational tempo—with no clear end in sight—is affecting the



Marine aids Royal Thai sailor with simulated casualty while participating in mass casualty evacuation drill during exercise Cobra Gold 2020, at Hat Yao Beach, Sattahip, Kingdom of Thailand, February 27, 2020 (U.S. Marine Corps/Hannah Hall)

military's equipping, training, and modernizing posture. Indeed, the Department of Defense (DOD) has prioritized pressing readiness issues—namely lethality and modernization, among others.

These collective problem sets drove the Joint Staff to implement the doctrinal approach of globally integrated operations.² The key concept is central to the name: integration. Under this construct, an employed joint force must quickly integrate capabilities across all domains and organizations, implement global agility while operating in small footprints, exercise flexibility, leverage partners, enable speedy decisionmaking, and operate with disciplined discrimination to decrease unintended consequences.

Politically, the American population has tolerated the fiscal cost of conflicts for the past two decades, in large part because U.S. interests were safeguarded

while human casualties remained low. This latter point proved paramount to maintaining the American will to endure, as the collective population agonized over every warfighter lost in combat.

The joint health enterprise (JHE)—commonly referred to as the military health system (MHS)—has been key in driving recent combat casualty rates to the lowest in the Nation's history. However, with the advent of a new, uncertain future security environment, the JHE faces potentially overwhelming obstacles that threaten a reversal. It therefore must contemplate national strategic redirection through novel and innovative means.

In the 2017 National Defense Authorization Act (NDAA-17), Congress not only acknowledged military medicine's unmatched wartime successes,³ but also conveyed deep frustration with the MHS overemphasis on the peacetime

health care delivery benefit at the expense of a strengthened operational joint medical force readiness.⁴ This comprehensive reform was informed by the 2015 Military Compensation and Retirement Modernization Commission Report, which recommended DOD ensure Servicemembers receive the best possible combat casualty care while also increasing access to and value of home station health care.⁵ This report also affirmed that joint military readiness must be proficient in delivering both routine health care and combat casualty care in operational environments.⁶ A former Deputy Secretary of Defense recently directed the Under Secretary of Defense for Personnel and Readiness, with Joint Staff support, to work with the Services to develop an implementation plan to meet NDAA-17 MHS reform requirements. His intent was to reform the MHS from a collaborative Service-centric health system to a

high-performing integrated health system focused on joint readiness.⁷ This process has continued through several NDAA iterations intended to shape the future direction of DOD medicine.

The Operational Environment

In anticipated conflicts of the future, geographic distance will pose an operational challenge. To expand its reach against widely dispersed unconventional military threats, the joint force has leveraged small, disaggregated unit employments. Ground commanders have had to optimize their warfighting capacity through modular, tailored employments and effective use of partner capabilities.

The future security environment will impact the joint medical force in this same way. The force therefore must support warfighters through globally integrated health services (GIHS)—the strategic management and global synchronization of joint medical assets.⁸ Key to this approach is the Services' collective ability to deploy tailorable, interoperable, and networked medical forces. In turn, these joint medical forces must efficiently and effectively combine and synchronize their capabilities to best support joint operations. Medical support, like logistic support, must factor in geographical considerations as much as—if not more than—the size of the joint force's population at risk.

The Problem

Limited resources, unmet requirements, and the accompanying geographic combatant command (GCC)—Service tensions are not uncommon operational challenges. When viewed separately, medical operations are no different. The Joint Concept for Health Services highlighted this dilemma in its problem statement: "How can the joint force provide comprehensive health services to deployed forces in an operating environment characterized by highly distributed operations and minimal, if any, pre-established health service infrastructure?"⁹

At the root of the GCC—Service tension are the ground commanders'

requests for minimum-sized medical units capable of surgical resuscitation. Anything more than this small size would often be larger than the unit being supported. Even with the ad hoc creation of smaller surgical teams, the Services have strained to meet increasing operational demand. This gap has created contentious sourcing efforts and, at times, unfilled, validated requirements. This shortfall has also proved unacceptable to the collective endstate. The GCCs have exercised innovative approaches to mitigate this lack of contingency surgical support, including increasing the time standards for evacuation, partnering with coalition medical assets, and canceling specific military operations.

Another source of Service tension is the concomitant requirements of delivering health care at home stations and providing operational medical support in deployed settings. In fact, Congress has acknowledged this dichotomy, noting that peacetime health care comes at the expense of medical force readiness.¹⁰ In NDAA-17, Congress conveyed its concern that the Services were risking their medical relevancy to operational readiness. As mentioned, the Services' lack of agility to tailor small-unit capabilities has threatened their ability to use limited resources to meet an ever-increasing demand.

Directed NDAA-17 reforms, albeit culturally challenging, have presented the Services the opportunity to rightsize their force structure for the specialties and capabilities forecast to meet current and future joint force requirements. This ongoing opportunity lends itself to improving global force management processes, with more agile business rules friendlier to tailoring of forces into small-unit employments.

The Art: Innovative Means of Integration

The JHE's strategic endstate is a high-performing integrated military health system. In turn, the joint force implements GIHS as the desired military endstate. Service surgeons general take this concept into account when executing their respective roles to recruit,

organize, train, and equip medical forces for deployment. Ultimately, the joint medical force provides a fully capable, integrated, and synchronized medical capability to meet the commander's operational needs.

Integration is the most critical component to optimize operations and capacity. Three distinct, invaluable ways to deliver effective integration are *interoperability*, *interdependence*, and *interchangeability*.

Joint Publication 3-0, *Joint Operations*, defines *interoperability* as the ability to act together coherently, effectively, and efficiently to achieve tactical, operational, and strategic objectives.¹¹ For the joint medical force, interoperability occurs at all three spheres of influence—tactical, operational, and strategic—and is guided by joint planning and standardization.

Interdependence is the purposeful reliance by one Service on another Service's capabilities to maximize the complementary and reinforcing effects of both—that is, synergy.¹² Joint interdependence is essential for joint effectiveness. A good example of interdependence is the continuum of care, in which ground-based hospitalization is interdependent with Air Force strategic patient movement capabilities. Essentially, interdependence obviates the need for each Service to be self-sufficient, thus eliminating costly redundancy.

Although *interchangeability* is not a doctrinal term, in the military setting, the word can be described as an innovative and agile way to readily exchange forces that possess equivalent capabilities—that is, capable of changing places. Indeed, the authors' contention is that health professionals in uniform are among the closest thing to a military commodity. (Another example is the military Catholic priest: the uniform does not matter; mass will always be the same.) Within military medicine, clinicians train to the same national standards in their respective internships, residencies, and fellowships. Clinical knowledge, skills, and abilities are the same for any specialist or subspecialist, regardless of underlying Service affiliation.

Service medical assets can and should operate interchangeably whenever and wherever appropriate to support the mission at hand. Although the environment and operational conditions differ among the Services' primary warfighting domains, this situation could be easily overcome through predeployment training. Any Army, Navy, or Air Force clinician could execute his or her clinical skills in any warfighting domain under appropriate operational command and control. Rather than the requirement to permanently assign clinicians to a particular Service or medical unit, clinicians would simply augment to a Service-aligned medical unit most appropriate for the warfighting domain. The guiding precept should be to avoid unnecessarily aligning clinical assets by Service to that of the supported operational force, since doing so adds complexity without any accompanying advantage.¹³ This recommendation is not a new operational concept for medical assets; its overwhelming success has been best demonstrated in North Atlantic Treaty Organization (NATO) Role III settings—that is, military treatment facilities—both at home station and while deployed.¹⁴

To achieve GIHS, a joint medical force must operate with a baseline of common knowledge, skills, and abilities (KSAs) that enable all three methods of integration described above. These common clinical KSAs do not limit Services from having additional Service-unique KSAs. Other means to achieve global integration include joint developed medical leaders; interoperable Service capabilities guided by common standards and procedures; extensive interagency, multinational, and private partnerships; cross-domain synergy through joint medical force development; and global coordination.

The Risk

Strategically, interchangeability effectively provides depth by increasing supply-side capacity—that is, the number of clinical capabilities available for deployment. Even within the theater of operations, integrated formations give operational commanders agility and

timely maneuverability. Alternatively, relying solely on doctrinal unit employment through a formal request for forces may well prove untimely for the joint force.

This type of Service-agnostic clinical employment flexibility may introduce operational risks. At the tactical level, Service-unique characteristics make wholesale integration impractical. The joint force could mitigate risk by aligning medical units to the Service typically affiliated with the intended warfighting domain, namely, Army with land, Navy with sea, and Air Force with air. Tactically, sound command and control of these units would be delivered by Service-aligned leadership; it is only the clinical expertise that is interchangeable in this model. Practically speaking, over time, NATO Role II settings—surgical resuscitation sites—may represent common use of clinically interchangeable capabilities among the Services.¹⁵

Cultural resistance to change is another risk to the future joint medical force. Without transformation, however, the force faces a future of irrelevance to the warfighter of tomorrow. If this force is not ready or able to tailor itself to meet inherent requirements, it risks not integrating effectively, which threatens mission failure: higher casualties and jeopardized strategic security objectives. At a time of a supply-demand mismatch among deployable surgical resuscitative capabilities, it is imperative for the military medical community to explore and adapt innovative ways to support the employed joint force and its populations at risk.

Future military operations require modular surgical resuscitative capabilities to support small, widely dispersed, and disaggregated unit deployments. Current integration efforts and associated mitigations are not enough to meet the joint force need. Even when considering all available clinical assets within the three Services, there remains an overwhelming supply-demand mismatch among military medical assets. Because clinical skills and competency standards are the same across the board, Service force providers should

combine specialized medical and surgical assets in an interchangeable fashion to meet deployment requirement demands. This interchangeability could positively address risk concerns and provide commanders in the field with the comprehensive medical services they need to fight and win. JFQ

Notes

¹ Joseph F. Dunford, Jr., "Strategic Challenges and Implications," *Joint Force Quarterly* 83 (4th Quarter 2016), 2–3.

² *Capstone Concept for Joint Operations* (Washington, DC: The Joint Staff, 2012), iii.

³ *National Defense Authorization Act for Fiscal Year 2017 Report (to accompany S. 2943)*, Senate Committee on Armed Services, S. Rep. 114-255, 114th Cong., 2nd sess., 2016, 173, available at <www.congress.gov/congressional-report/114th-congress/senate-report/255/1?overview=closed>.

⁴ *Ibid.*

⁵ *Report of the Military Compensation and Retirement Modernization Commission: Final Report* (Washington, DC: Department of Defense, January 2015), 4.

⁶ *Ibid.*, 58.

⁷ *Ibid.*, 7.

⁸ *Joint Concept for Health Services* (Washington, DC: The Joint Staff, 2015), ii.

⁹ *Ibid.*

¹⁰ *National Defense Authorization Act for Fiscal Year 2017 Report*, 173.

¹¹ Joint Publication (JP) 3-0, *Joint Operations* (Washington, DC: The Joint Staff, 2013), GL-10.

¹² JP 1, *Doctrine for the Armed Forces of the United States* (Washington, DC: The Joint Staff, 2017), I-2.

¹³ *Ibid.*, III-6.

¹⁴ See "Chapter 16: Medical Support," in *North Atlantic Treaty Organization [NATO] Logistics Handbook* (Brussels: NATO, October 1997), available at <www.nato.int/docu/logi-en/1997/lo-1610.htm>.

¹⁵ *Ibid.*

F-35B Lightning II fighter aircraft with Marine Medium Tiltrotor Squadron (VMM) 265 (Reinforced), 31st Marine Expeditionary Unit, takes off from flight deck of USS *America* during air defense exercise, Philippine Sea, March 23, 2020 (U.S. Marine Corps/Isaac Cantrell)



Sustaining Relevance

Repositioning Strategic Logistics Innovation in the Military

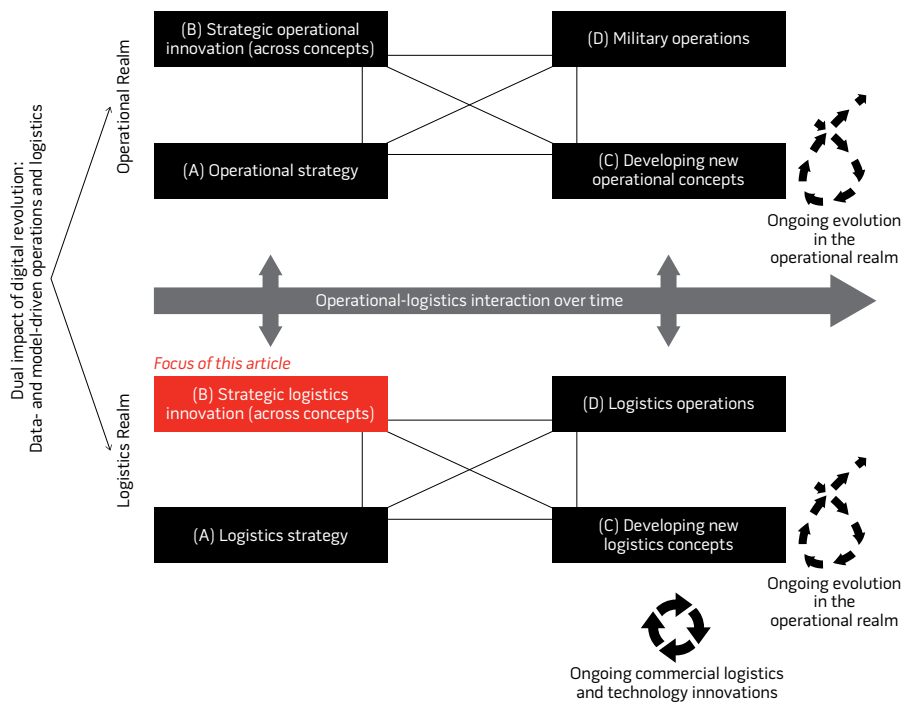
By Paul Christian van Fenema, Ton van Kampen, Gerold de Gooijer, Nynke Faber, Harm Hendriks, Andre Hoogstrate, and Loe Schlicher

Paul Christian van Fenema is a Professor of Military Logistics at the Netherlands Defence Academy (NDA). Ton van Kampen and Gerold de Gooijer are Faculty Members in Military Business Studies at NDA. Nynke Faber, Harm Hendriks, and Andre Hoogstrate are Professors of Military Logistics on the Faculty of Military Sciences at NDA. Loe Schlicher is a Faculty Member of Military Sciences in Military Business Studies at NDA.

Military organizations tend to think about their overarching strategy in two ways: how their organization will remain relevant and which future operations they must be able to conduct.¹ In the information era, military organizations struggle with the “design capabilities that will offer . . . credible strategic options and then the ability to win, through

fighting smarter.”² Building on the revolution in military affairs programs, a new era of digital innovations in the commercial realm underpins the U.S. National Defense Strategy and Third Offset Strategy to explore the use of new technologies for the military.³ While new operational concepts such as hyper war and kill webs are emerging, attention to the strategic element

Figure 1. Positioning Strategic Logistics Innovations



of innovation seems difficult to realize regarding military logistics.⁴ Strategic innovation concerns processes of proactive and systematic thinking about gaps that an organization can fulfill by developing new game plans.⁵

In the U.S. military, the Third Offset Strategy has major and unexplored implications for logistics. New technologies have crossover effects for operations and logistics. For instance, drones are becoming part of new operations, and they can support logistics, such as picking up wounded soldiers or secretly resupplying special operations forces. New technologies, however, need new versatile support networks. They also incur cyber risks, particularly in an antiaccess/area-denial environment.⁶ Innovations powered by crossovers between operations and logistics cannot be addressed with present routines.

In the military logistics domain, innovations are mostly organized in a reactive and stovepiped manner.⁷ Moreover, within the Department of Defense (DOD) or a ministry of defense (MOD), responsibility for military logistics is allocated to myriad organizations.

On the one hand, there are intra-Service logistics, such as the U.S. Army Logistics branch, and on the other hand, cross-Service shared entities, such as the U.S. Transportation Command, the Office of the Under Secretary of Defense for Acquisition and Sustainment, and the F-35 Lightning II Joint Program Office. Other nations have a similar collection of logistics organizations. We focus on this entire collection of organizations, as we are interested in military logistics as a function of the military and strategic innovation as a process vital to sustaining an edge over relevant opponents.

Military logistics innovation lacks a cross-service strategic picture. It hardly enjoys the backing of a strong military academic research community, with the exception of historical logistics studies.⁸ The operational domain by comparison performs better in this respect, with multiple think tanks, DOD units, and universities constituting a vibrant intellectual community. To sustain relevance in the digital era, we need insight into effective strategic logistics innovation processes, including instruments

for stimulating and synergizing micro-innovations.

This article contributes to the ongoing challenge of strategically rethinking logistics for the military, but not by proposing a new concept for the digital era—that is, the *what*. Since these concepts rapidly change, this article instead emphasizes the process side—the *how*. Instead of talking about specific concepts, such as forward floating depot or distribution-based logistics, this article is concerned with strategic logistics innovation as a *process of coordinating the development of new logistics concepts*.⁹

The digital era requires attention to strategic innovation in both the operations and logistics realms (see figure 1). We embed strategic innovation in both realms in a model that includes strategy, development of new concepts, and operations.¹⁰ Focusing on strategic logistics innovation, we argue that these realms should interact more intensely in the digital era; the logistics realm must leverage commercial logistics and technology innovations.¹¹ Specifically, strategic innovation is required to coordinate multiple micro-cases of concept development.

We propose collaborative services and innovation to connect multiple problem-solving areas and process multiple trends. *Collaborative* denotes interaction among stakeholders involved in different problem-solving areas. *Services* in this context are not organizational entities such as the Navy, but interactions aimed at value contributions—for example, technology as a service.¹² *Innovation* concerns the development of new products or procedures. Taken together, collaborative services and innovation stress the importance of a vibrant military logistics community that is externally connected. We propose interventions that accelerate concurrent development of new operational and logistics concepts. These interventions enable logistics capability development for new generations of warfare.

Military Logistics: Beyond “You Ask, We Deliver”

Logistics are planning processes for implementing and controlling the efficiency and effectiveness of transport-



Sailors move away from MH-60S Sea Hawk helicopter assigned to “Eightballers” of Helicopter Sea Combat Squadron 8 as it lifts cargo from flight deck of USS *Theodore Roosevelt* during replenishment-at-sea with USNS *Henry J. Kaiser*, Pacific Ocean, July 1, 2020 (U.S. Navy/Erik Melgar)

tation and storage of goods from the point of origin to the point of consumption. Future autonomous systems are increasingly part of the logistics equation. This reality leads to an extended definition of military logistics as activities required for the following:

- procuring military organizations’ physical goods (for example, supply chains and military mobility, among others); acquiring people and future autonomous systems and administering and moving these entities toward, within, and out of a theater¹³
- accommodating the military all over the world (for example, facilities and services for people and future autonomous systems)
- ensuring soldiers, and future autonomous systems, receive and use relevant commercial and military technology for their jobs (for

example, technology management and maintenance).

Even in the era of cyber information warfare, logistics remain relevant to human warfighters and physical resources. Generally speaking, logistics connect both intent and delivery. While standard logistics enable commercial businesses to outperform competitors on services and costs, the objective of military logistics is to serve user demands with acceptable costs and capital use in mind. The military logistics perspective is broader, comprising both peacetime logistics and support for on- and offshore operations, planned and unplanned.¹⁴ This perspective must also establish, organize, and run lines of supplies so armies can move and fight. The primary objective of military logistics is to enable and sustain a specific state of preparedness for war at the lowest possible overall cost. Thus, the metric for military logistics

success is readiness—*not* profit.¹⁵ More specifically, military logistics is required to operate in a cost-efficient mode during peacetime, and then transition to a posture wherein effectiveness is paramount to the secondary consideration of cost. After all, a military conflict does not come with the luxury of second chances afforded to business competition.

Opportunities and Challenges

Increasingly, organizations focus on new opportunities stemming from advanced technologies as a mode for changing logistics.¹⁶ In launching new establishments such as the DOD Joint Artificial Intelligence Center, organizations leverage artificial intelligence (AI) for coordinating—in a responsive manner—learning, predicting, and innovating.¹⁷ For example, during the COVID-19 pandemic, the Joint Artificial Intelligence Center “has built



Marine refuels AH-1Z Viper at forward arming and refueling point during Integrated Training Exercise 1-21 at Marine Air Ground Combat Center Twentynine Palms, California, October 16, 2020 (U.S. Marine Corps/Zachary Zephyr)

a prototype AI tool that uses a wide variety of data streams to predict [infection] hotspots and related logistics and supply-chain problems.”¹⁸ Military organizations want to optimize support for real demand or underlying needs for pivotal functions, such as transportation, ammunition, maintenance, health, and cleaning.

Traditionally, military logistics has been affected by operational innovations aimed at information advantage and coordination and execution of nonkinetic effects. In an inverse manner, logistics could shift to an innovative-challenging role (for instance, logistics could be motivated not to support fuel-consuming energy production systems primarily, but instead favor alternative energy sources to make bases cheaper, more independent, and more environmentally friendly).¹⁹ Or logistics could sustain special operations forces with intelligent drones in ways

that inspire new operational concepts. Therefore, interaction between operations and logistics could become more reciprocal, as depicted in figure 1.

Future operations are likely to involve multiple domains and focus on critical infrastructures (some without clear geographical sites), symbolic-meaning networks, and urban areas. Success will depend on data integrity, as well as decision and information superiority, chiefly the distinction between real and fake information. As stated during a U.S. Senate hearing on the future of warfare, “Great Powers can and will fight across all the domains. This will present new threats in areas where we’ve had unfettered access.”²⁰ The present task is to prepare the military for operations that fluidly shift across domains or engage parallel domains, activating different kinetic and nonkinetic technologies and associated logistics processes. This task represents

a next-level challenge for joint operations in terms of integration. Relatedly, the military needs strategic logistics innovation to develop coherent platforms capable of such seamless activation.

Logistics, therefore, needs to be brought into the joint strategic environment and integrated into joint strategic planning.

A seamless blend of human intelligence and AI will require highly versatile command and control to direct “a fluid transition from one operation to another.”²¹ Semi-autonomous swarms of technologies will be able to operate with unprecedented levels of precision and flexibility. Military organizations collaborating with partners such as Microsoft and Amazon will leverage innovations in the commercial sector.

These operational projects, however, lack strong intellectual counterparts on the logistics side, which results in disconnected logistics-information technology

infrastructures and suboptimal logistics support for novel operations. Logistics often does not have the attention of senior commanders, who underestimate the complexity of military logistics innovation and overestimate the usefulness of commercial services. New technologies such as AI become relevant when they support strategy and operations—which senior commanders are very interested in. Logistics performance increasingly depends on technological innovations,²² while at the same time physical-cyber vulnerabilities of logistics systems and processes themselves are drawing more attention.²³ Opportunities are emerging to better predict technology availability and logistics demand, as well as to confirm information reliability. This ability translates into enhanced precision, speed, and operational continuity. In addition to these technology-induced opportunities, logistics changes in an organizational sense. In a departure from the traditional in-house approach, logistics transforms into cross-organizational supply networks.²⁴ This change introduces, in addition to new technologies, new challenges when military organizations are required to work with their military counterparts or businesses.

Current Practice

Current logistics within military organizations faces internal and external problems. Internally, military logistics organizations tend to rely on concept development that sequentially follows operational concept development. Logistics is typically understood in terms of fixed concepts and tends to be fragmented across multiple decentralized organizations. This fragmentation stems from the combination of specific Services (for example, Army, Marines), logistics autonomy, and economies of scale (for example, central purchasing and provisioning of similar categories of products and services). As a result, logistics often focuses on reactive, plan-based execution rather than innovation-oriented strategic exchange with operational and external partners. Some even argue that “civilian logistics has surpassed military logistics.”²⁵ Military

organizations struggle with the prolonged time—often multiple decades—required to develop, acquire, absorb, and use and maintain new technologies, including soft technologies such as new logistics concepts developed elsewhere (for example, last-mile logistics concepts). This situation widens the gap between logistics and the fast-moving operational organization that it serves.

Externally, logistics innovation involving outside partners faces multiple hurdles along the way. For example:

- Military organizations collaborating with national or international partners face difficulty when trying to collectively improve networked logistics. Problems include collaboration challenges, turf wars, as well as learning and mutual adaptation.²⁶
- New concepts do not guarantee success. For instance, efforts to change relationships with suppliers toward performance-based logistics suffer from deteriorating performance and control problems.²⁷ Laudable initiatives such as the North Atlantic Treaty Organization’s Operations Logistics Chain Management project struggle with nations’ willingness to share logistics information and to participate in collective responsibility.
- Innovative concepts for logistics collaboration are typically frozen or not executed in line with their original intention. An example of such drifting is a European pooling arrangement that introduced using spare military aviation capacity, replicating similar initiatives in, for example, the airline industry and electricity market.²⁸ At the network level, an optimal utilization rate of assets can be realized. However, the planners’ strategy shifts over time toward a more nationally oriented perspective.

These internal and external challenges for military logistics organizations call for changes to innovation processes in order to render them more strategic. How can military logistics organizations break through crippling inertia to create a dynamic logistics function that relates to

both operational efficiencies and strategic flexibility? Presently, the unstructured and fluid nature of modern warfare cannot be catered to.²⁹ Especially in the digital era, “you ask, we deliver”—as a unilateral customer-supplier relationship—will not do the job in terms of logistics innovation and future logistics services. Both collaborative services and innovation imply a tighter link to related problem-solving areas in order to ensure relevant capability development.

Trends and Effects

Several trends influence the networked problem-solving required for capability development, including military logistics capabilities. We organize these trends based on their effects.

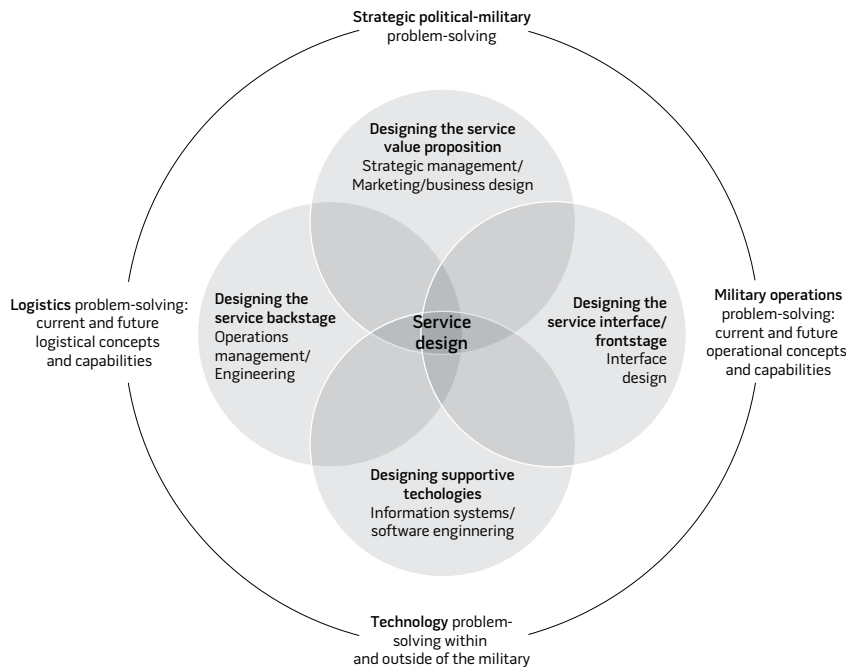
Actors. The first effect stems from automation and changes to weapons systems. Other military tasks are increasingly executed by networked semi-autonomous or remotely controlled technologies.³⁰ Moreover, the qualities of weapons systems continually change in terms of enhanced complexity, digitization, network capabilities, and frequency of (modular) updates. These two trends lead to a theater with fewer people on the battlefield but with networked, advanced technologies tied to military sustainment organizations and industries remotely monitoring and updating their technologies in the background.

Spatial Dimension. The second effect concerns the unprecedented scale and speed of future warfare. New technologies truly lead to the “death of distance.” Examples include hypersonic missiles, as well as command and control at great distances, including outer space. These trends lead to future operations and enabling logistics that are extremely mobile and can link globally distributed conflicts in short timespans.

Virtualization. The third effect concerns the digitization of operations and their influence. With virtualization, warfare and targeting partially shift to nonphysical domains or multidomains. Logistics as physical services by real people no longer seems relevant. However, the technologies required for digital operations will have traditional logistics

Figure 2. Service-Centric Foundational Approach to Interdependence of Problem-Solving Modes

(Original model in gray from Patrício and Fisk).



Source: Lia Patrício and Raymond P. Fisk, "Creating New Services," in *Serving Customers: Global Marketing Perspectives*, ed. Raymond P. Fisk, Rebekah Russell-Bennett, and Lloyd C. Harris

needs such as energy and maintenance/update services.

Radical Renewal of Production and Logistics. The fourth effect concerns the military intelligently sensing needs, and developing and producing technologies and parts, in a highly customized and flexible manner. Hence, smart production and logistics alter production chains. Products are composed of interchangeable modules, and their digital components are frequently updated, such as the technology in Tesla cars. Additive manufacturing decentralizes production capabilities and eliminates several spare parts in supply chains.

Cross-Domain Fluidity. The fifth effect concerns the increasing number of domains in warfare, which calls for cross-domain operations and logistics command and control. Operations become not only networked but also unanimously effective across domains.³¹ For instance, the Defense Advanced Research Projects Agency's Adapting Cross-Domain Kill-Webs program "will

assist users with selecting sensors, effectors, and support elements across military domains . . . to form and adapt kill webs to deliver desired effects on targets."³² Each domain's logistics challenges must be considered in conjunction with the others. Multimodal transportation, for example, can leverage capabilities associated with land, sea, air, and space.

Interdependence, Services, and Networked Problem-Solving for Innovation

Interdependence of strategic political-military, military operations, logistics, and technology problem-solving is well acknowledged in command and control.³³ This interdependence takes three forms: political control processes, information interdependence for coordination (for example, an operation generates required logistics information, logistics performance determines operational capabilities, and operations trigger demand for new technologies), and services. Digitization has increased

the role of the third form—services—leading to increasingly connected and advanced platforms spanning multiple levels. In the commercial world, service systems are conceived as integrated approaches for connecting strategies and operations, with the latter including technology, resources, and logistics. As a mental exercise, a customer could be replaced with the adversary, service-value propositions with desired effects by political-military stakeholders, and services with operational (targeting) processes. This allows for the adoption of a foundational military network model combining the four modes of problem-solving and the three forms of interdependence, with an emphasis on services (see figure 2). This service-centric foundation details interdependencies of collaborative services and innovation.

Next, when we look at innovation, the interdependence of problem-solving modes is vital for capability development. We understand this interdependence as networked problem-solving (for instance, "Technology matters but so do concepts of operation," and "New ways of using technology can stun an adversary"³⁴). Unfortunately, stakeholders associated with each mode of problem-solving tend to pursue their own issues and develop their own mindsets.³⁵

Presently, military logistics tends to remain somewhat passive and reactive. For strategic logistics innovation, we argue that networked problem-solving—across the four modes—must be improved as a means of processing trend effects.³⁶ Networked problem-solving can be analyzed using two dimensions: coupling and temporal relatedness (see figure 3). We propose a dual shift: Logisticians should no longer wait for the other problem areas to conclude their processing of trends; they must tighten their interactions with counterparts.³⁷ Moreover, a proactive role for military logistics innovation calls for concurrent development.³⁸

The present institutionalized environment does not seem ready for collaborative services and innovation. Interventions are required to break down the stovepipes of stakeholders in strategic

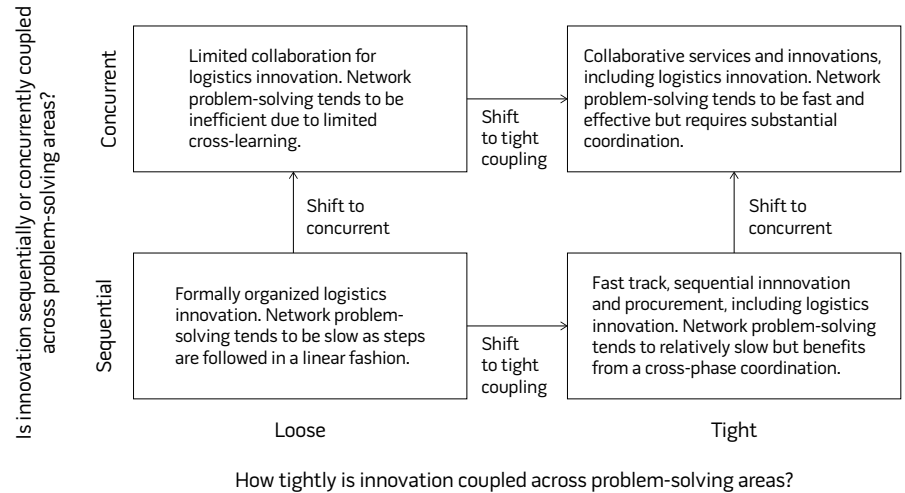
political-military, military operations, logistics, and technology areas.

Interventions to Foster Collaborative Services and Innovation

Intervention 1: Develop Sensitizing Concepts. This first intervention introduces and elaborates core ideas and concepts that can be shared across the scattered community of stakeholders associated with each problem area. We propose sensitizing concepts that encourage theoretical development. Decades ago, Herbert Blumer argued that “a sensitizing concept . . . gives the user a general sense of reference and guidance in approaching empirical instances. . . . Sensitizing concepts merely suggest directions along which to look.”³⁹ This is already taking place via various formal and informal communications such as conferences, Web sites, listserves, publications, and interpersonal communications. Examples of sensitizing concepts permeating the network of problem-solving areas include “togetherness” concepts such as multidomain, interoperability, network, connected, and (spider)web, and concepts stressing self-reliance, self-repair, and resilience. These sensitizing concepts will be shaped within and across problem-solving areas in different ways; their meanings are likely diverse across stakeholder groups, yet a “translation” vocabulary might be developed as a means to coordinate these interpretations and generate new understandings. This process’s deliberate management might undergird networked problem-solving, including activating military logistics innovation in a concurrent mode. Moreover, logistics concepts developed within a service unit such as special operations forces might become a learning platform for others in the military ecosystem.

Intervention 2: Blend Concepts. In 2003, the importance of concept blending was acknowledged in military literature describing *transformation* as “a process that shapes the changing nature of military competition and cooperation through new combinations of concepts, capabilities, people and organizations.”⁴⁰

Figure 3. Positioning Networked Problem-Solving

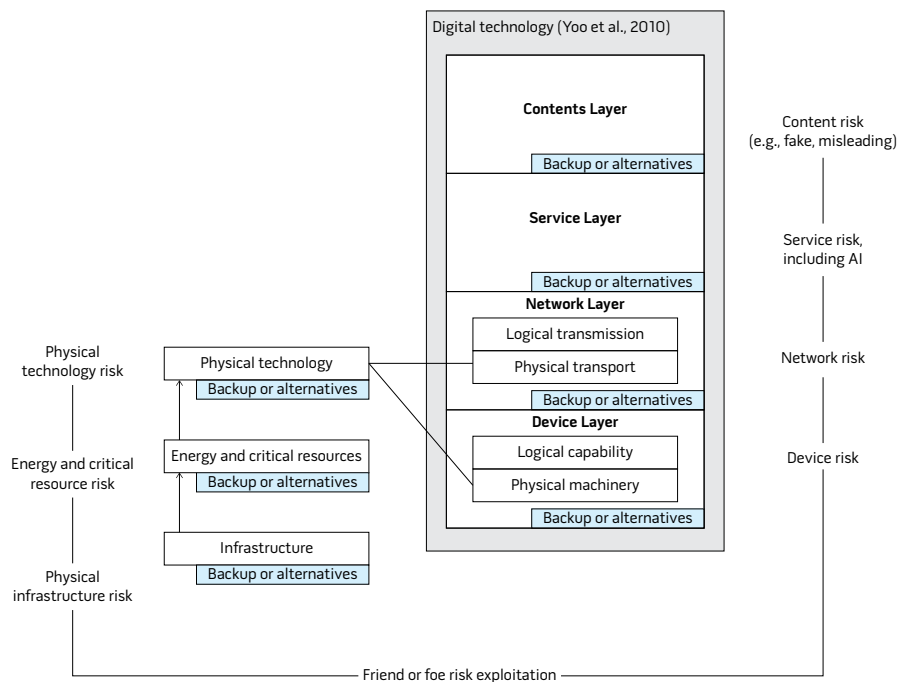


Concept blending merges content elements from different input spaces.⁴¹ It not only respects input spaces but also moves forward to new blended or hybrid concepts. Thus, content elements are transferred while the core structure of the concept within a particular problem-solving area is maintained. In order to exist in the operational domain, hybrid warfare necessitates a blend of elements from various domains. Conceptual blending primarily mixes requirements and insights from operations with logistics concepts from the military or its commercial partners. For instance, the operational domain calls for extremely flexible high-tech human-machine nodes in a network. This situation could be blended with elements from both existing combat logistics concepts and electronic commerce concepts, such as drone delivery and smart management of stocks.

Intervention 3: Compress Experiential Cycles and Run These in a Concurrent and Interdependent Manner. While traditional methods propose sequential steps, researchers have found that innovative companies compress their development of new products and services. Leading and accelerating this process are more important than the resulting designs or concepts. This faster pace does not simply consist of taking less time for sensing-seizing-reconfiguring.⁴² Research shows that organizations also must rely on improvisation, real-time

experience, and flexibility. This type of dynamic process must be carefully filtered and calibrated to disrupt institutionalized ways of doing things and to prepare for the future. Interaction across operations and logistics encourages mutual understanding and idea generation. Hence, collective (digital) spaces for operations-logistics experimentation are of paramount importance. These spaces can be conceived of as add-ons to already existing, specialized operations and logistics simulation and experimentation. Facing challenges presented by multi-domain battle, U.S. military Services are experimenting with integrated operations (for example, a recent exercise combining Army air and missile defense with Air Force F-35s).⁴³ While, at present, joint operations tend to be sustained in a separate manner, we suggest a concurrent exploration of logistics opportunities and risks at the network level that move beyond shared services. In other words, concept development could be executed in parallel instead of sequentially.⁴⁴ This type of development implies intensifying task interdependence and coordination requirements (from a sequential “I wait for you” to a concurrent interdependence “What you do matters to and inspires my work, and vice versa”).⁴⁵ The fruits of these enhanced coordination efforts are acceleration, quality improvement, and exploration of the unknown. Researchers propose different information-processing

Figure 4. Risks Involving Multiple Problem Areas



strategies between concurrently linked processes depending on, for instance, the level of ambiguity. Military logistics concept development could vary across these strategies depending on the rhythm of operational concept development. Finally, suppliers are increasingly entering the equation, taking responsibility for key services to sustain weapons systems and provide logistics services right to the tip of the spear. If its weapons systems operate in a networked mode, the military must fine-tune suppliers' active involvement in operations and logistics, considering criteria such as effectiveness and security.

Intervention 4: Explore Cross-Area Opportunities and Risks. We already referred to opportunities and risks across problem-solving domains. In the digital era, technology has become more complicated in the sense of different layers. The dark gray rectangle in figure 4 shows these complex digital technology layers, from content (for example, fake news and misinformation problems) down to services, networks, and devices (for example, control software problems).⁴⁶ Examples of layered military technology include command and control systems, weapons

systems, and business-logistics services. We highlight the physical dimension of this layered digital technology because of its importance to logistics. The physical dimension relies on energy, critical resources, and, ultimately, infrastructure (for example, glass fiber networks, satellites, and technologies for solar energy). Each technology component could be exploited by adversaries, and each requires backup or alternatives to ensure survivability. The interplay of risks and opportunities across the technology components is complex and unknown. Networked problem-solving is required in dealing with this exciting playground of friendly and enemy forces in offensive and defensive manners. For instance, fake news in the content layer could lead to incorrect situational awareness, with disastrous strategic-military and operational implications. On the physical side, new targets (for example, networks, devices, energy, critical resources, and infrastructure) have emerged that could be attacked in a kinetic or digital-cyber sense. Additionally, a digital attack on infrastructure control software may ultimately have a ripple effect on the content layer.⁴⁷ An unexpected attack on energy

installations may completely disrupt economic and military activities.⁴⁸

The problem-solving areas mentioned earlier need to develop capabilities to address the individual pieces of this complex puzzle and, thus, the issue as a whole. Involvement of suppliers is indispensable, since they have most of the technology components expertise. The industrial capabilities report offers strategic-sectoral risk assessment.⁴⁹ In addition, at a micro level, analysis of risks pertaining to technology components, as depicted in figure 4, is necessary. Comprehensive “digital twins” of weapons systems and software for understanding their associated supply chains will help in understanding which physical and digital technologies are in use and which supply chains are required for maintenance and updates. Conversely, the military must analyze the fabric of opponent technology for new opportunities in order to achieve operational and strategic objectives.

Conclusion

This article contributes to the ongoing challenge of strategically rethinking logistics for the military. We propose a collaborative services and innovation approach, along with a shift in thinking from known concepts toward concept development and strategic innovation. A strategic, proactive, and networked view of logistics innovation will ensure military logistics remains future-proof, is able to “adapt and integrate sustainment operations into the maneuver commander’s plan,” and continues functioning as a “combat multiplier.”⁵⁰ We propose four interventions to foster strategic logistics innovation in close interaction with the operational realm.

Implementing this view on collaborative services and innovation requires awareness of different ways of relating to DOD and MOD external partners such as allies and weapons manufacturers. Partners feature their own strategic focus and values depending on their positioning in the public or commercial sector.⁵¹ With its close ties to suppliers, the military could be considered a hybrid and culturally unique organization. It relies on a variety of interorganizational

relationships. Increasingly, the military organization could be viewed as an extended enterprise, comprising its core as a lead organization and partnering organizations on whom it depends.⁵²

How might a shift toward collaborative services and innovation be embraced? Strategic logistics, or innovation, must become accepted in the joint strategic environment and planning process. This strategic legitimacy must then be translated into integrating—not homogenizing—a patchwork of operational and logistics AI innovations and infrastructures. As a precondition, such efforts involve the strategic management of military logistics organizational relationships along with their operational counterparts and other partner stakeholders.

First, internally within DOD or an MOD and its branches, the military logistics organization must develop new institutional frameworks, invest in continuous improvement, upgrade its workforce, and accelerate its own digital transformation.⁵³ The organization must also develop its abilities to securely share business processes and data while dealing effectively with multiple relationships and contracts using AI. Second, externally to DOD or an MOD, strategic and operational ties should convert into an adaptive learning network. With a core network of first-tier partners, the military logistics organization might proceed through ongoing strategic capability development cycles in leveraging digital innovation. To an extent, this core network is dynamic; depending on the problem areas' stakeholders, logisticians combine common tendering and arm's-length contracting, on the one hand, with grants or reciprocal collaboration with, for instance, research labs and universities, on the other. Second- and third-tier partners should engage with a long-term vision and link up with internal parties of the military logistics organization. As strategic logistics (innovation) legitimacy is ensured and collective AI innovations and infrastructures emerge, military logistics organizations should keep abreast of (digital) innovation of the core network to remain truly relevant. JFQ

Notes

¹ Joseph C. Wylie, Jr., *Military Strategy: A General Theory of Power Control* (Annapolis, MD: Naval Institute Press, 1989).

² UK Army. 2015. Agile Warrior Report. AUTHOR QUERY

³ Peter Dombrowski and Andrew L. Ross, "The Revolution in Military Affairs, Transformation, and the Defence Industry," *Security Challenges* 4, no. 4 (Summer 2008); *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), available at <www.defense.gov/Portals/1/Documents/pubs/2018-National-Defense-Strategy-Summary.pdf>; Timothy A. Walton, "Securing the Third Offset Strategy: Priorities for the Next Secretary of Defense," *Joint Force Quarterly* 82 (3rd Quarter 2016), available at <https://ndupress.ndu.edu/Portals/68/Documents/jfq/jfq-82/jfq-82_6-15_Walton.pdf>.

⁴ Michael Miklaucic, "Interview with General John R. Allen, USMC (Ret.)," *PRISM* 7, no. 4 (2018), available at <<https://cco.ndu.edu/News/Article/1683801/interview-with-general-john-r-allen-usmc-ret/>>; Ray Alderman, "Transitioning from the Kill Chain to the Kill Web," *Military Embedded Systems*, May 30, 2018, available at <<http://mil-embedded.com/guest-blogs/transitioning-from-the-kill-chain-to-the-kill-web/>>.

⁵ Constantinos Markides, "Strategic Innovation," *MIT Sloan Management Review* 38, no. 3 (Spring 1997), 9–24, available at <<https://sloanreview.mit.edu/article/strategic-innovation/>>.

⁶ Brian Molloy, "Frustrated Cargo: The U.S. Army's Limitations in Projecting Force from Ship to Shore in an A2/AD Environment," *Joint Force Quarterly* 96 (1st Quarter 2020), available at <https://ndupress.ndu.edu/Portals/68/Documents/jfq/jfq-96/JFQ-96_90-95_Molloy.pdf?ver=2020-02-07-150502-397>.

⁷ A related problem is stovepiped data. See Kelley M. Saylor, *Artificial Intelligence and National Security*, R45178, 3rd ver. (Washington, DC: Congressional Research Service, April 26, 2018), available at <<https://crsreports.congress.gov/product/pdf/R/R45178/3>>.

⁸ An example of an interesting study is Thomas M. Kane, *Military Logistics and Strategic Performance* (London: Routledge, 2001).

⁹ William G.T. Tuttle, Jr., *Defense Logistics for the 21st Century* (Annapolis, MD: Naval Institute Press, 2013); Eric Peltz et al., *Sustainment of Army Forces in Operation Iraqi Freedom: Battlefield Logistics and Effects on Operations* (Santa Monica, CA: RAND, 2005), available at <www.rand.org/pubs/monographs/MG344.html>.

¹⁰ We distinguish *strategy* from *strategic innovation*. The former concerns the direction an

organization is taking to position itself, while the latter refers to the process of developing this direction. The phrase *development of new concepts* is defined as "a process of exploration and experimentation and tends to unfold as a hypothesis-antithesis-synthesis dialogue." See John F. Schmitt, "A Practical Guide for Developing and Writing Military Concepts," Working Paper 02-4, Defense Adaptive Red Team, McLean, VA, December 2002, 22, available at <www.navedu.navy.mil/stg/databasestory/data/youttasart/youttasarttalae/bigcity/Unit-ed%20States/1.dart_paper.pdf>.

¹¹ Christian H. Heller, "The Future Navy—Near-Term Applications of Artificial Intelligence," *Naval War College Review* 72, no. 4 (2019).

¹² Christian Grönroos, "Conceptualising Value Co-Creation: A Journey to the 1970s and Back to the Future," *Journal of Marketing Management* 28, no. 13–14 (2012).

¹³ Goods, people, and systems could refer to contractors' services delivering desired functions.

¹⁴ Guy Edward Gallasch et al., "Modelling Defence Logistics Networks," *International Journal on Software Tools for Technology Transfer* 10 (2008).

¹⁵ Laird Burns, Fan Tseng, and David Berkowitz, "Global Network Analysis in a Military Supply Chain: Using a Systems Based Approach to Develop a Next-Generation End-to-End Supply Chain Performance Measurement and Prediction System," in *Proceedings of the 2010 Cambridge International Manufacturing Symposium* (Cambridge, UK: Institute for Manufacturing, 2010), 23–24.

¹⁶ Robert W. Button, "Artificial Intelligence and the Military," *RAND* (blog), September 7, 2017, available at <www.rand.org/blog/2017/09/artificial-intelligence-and-the-military>.

¹⁷ *Summary of the 2018 Department of Defense Artificial Intelligence Strategy: Harnessing AI to Advance Our Security and Prosperity* (Washington, DC: Department of Defense, 2018), available at <<https://media.defense.gov/2019/feb/12/2002088963/-1/-1/1/summary-of-dod-ai-strategy.pdf>>.

¹⁸ Patrick Tucker, "The Pentagon Will Use AI to Predict Panic Buying, COVID-19 Hotspots," *Defense One*, April 22, 2020, available at <www.defenseone.com/technology/2020/04/pentagon-will-use-ai-predict-panic-buying-covid-19-hotspots/164820/>.

¹⁹ Paul C. Hurley, Jr., Tracie M. Henry-Neill, and Rebecca S. Brashears, "Sustainment Innovation for Multi-Domain Battle," *Army*, December 27, 2017, available at <www.army.mil/article/198432/sustainment_innovation_for_multi_domain_battle>; ESEP Environmental Technologies, "ESEP Participating in the Fieldlab Smartbase Water with Dutch Ministry of Defense," *ESEP*, February 8, 2017, available at <www.esep.eu/news-en/new-line-portable-and-light-weight-vehicle-wash-and-refueling-systems/>.

- ²⁰ U.S. Senate, *The Future of Warfare*, Hearing Before the Committee on Armed Services, 114th Cong., 1st sess., November 3, 2015, available at <www.govinfo.gov/content/pkg/CHRG-114shrg99570/html/CHRG-114shrg99570.htm>.
- ²¹ Ann E. Story and Aryea Gottlieb, "Beyond the Range of Military Operations," *Joint Force Quarterly* 9 (Autumn 1995), 99–104, available at <<https://apps.dtic.mil/dtic/tr/fulltext/u2/a528539.pdf>>.
- ²² Michael Hülsmann and Katja Windt, eds., *Understanding Autonomous Cooperation and Control in Logistics: The Impact of Autonomy on Management, Information, Communication, and Material Flow* (New York: Springer, 2007).
- ²³ Ton van Kampen, Paul C. van Fenema, and Nynke Faber, "Strategic Defence Supply Chain Security Management," in *Netherlands Annual Review of Military Studies 2016*, ed. Robert Beerers et al. (The Hague: Asser Press, 2016).
- ²⁴ Keenan D. Yoho, Sebastiaan Rietjens, and Peter Tatham, "Defence Logistics: An Important Research Field in Need of Researchers," *International Journal of Physical Distribution & Logistics Management* 43, no. 2 (2013).
- ²⁵ Stephen M. Rutner, Maria Aviles, and Scott Cox, "Logistics Evolution: A Comparison of Military and Commercial Logistics Thought," *International Journal of Logistics Management* 23, no. 1 (2012).
- ²⁶ W.A. Brown and Brent Coryell, "Logistics Support 'Seams' During Operations *Odyssey Dawn* and *Unified Protector*," *Joint Force Quarterly* 68 (1st Quarter 2013), 73–77, available at <http://ndupress.ndu.edu/Portals/68/Documents/jfq/jfq-68/JFQ-68_73-77_Brown-Coryell.pdf>.
- ²⁷ Deirdre Mahon, "Performance-Based Logistics: Transforming Sustainment," *Journal of Contract Management* 5, no. 1 (January 2007).
- ²⁸ Jani Kilpi and Ari P.J. Vepsäläinen, "Pooling of Spare Components Between Airlines," *Journal of Air Transport Management* 10, no. 2 (2004); Loe Schlicher, Marco Slikker, and Geert-Jan van Houtum, "A Note on Maximal Covering Location Games," *Operations Research Letters* 45, no. 1 (January 2017).
- ²⁹ Chris Papparone, "Structuring Logistics for Unstructured War," *Logistics in War* Web site, April 6, 2017, available at <<https://logisticsinwar.com/2017/04/06/structuring-logistics-for-unstructured-war/>>.
- ³⁰ Austin Wyatt, "Charting Great Power Progress Toward a Lethal Autonomous Weapon System Demonstration Point," *Defence Studies* 20, no. 1 (2020).
- ³¹ Theresa Hitchens, "DARPA's Mosaic Warfare—Multi Domain Ops, but Faster," *Breaking Defense*, September 10, 2019, available at <<https://breakingdefense.com/2019/09/darpas-mosaic-warfare-multi-domain-ops-but-faster/>>.
- ³² Daniel Javorek, "Adapting Cross-Domain Kill-Webs (ACK)," Defense Advanced Research Projects Agency, available at <www.darpa.mil/program/adapting-cross-domain-kill-webs>.
- ³³ Charles L. Barry, *Transforming NATO Command and Control for Future Missions*, Defense Horizons 28 (Washington, DC: NDU Press, 2003).
- ³⁴ Lauren Fish, "What the Interwar Years Say About the U.S. Army's Newest Force Concept," *Defense One*, June 14, 2018, available at <www.defenseone.com/ideas/2018/06/what-interwar-years-tell-us-army-about-its-newest-force-concept/149022/?oref=d-river>.
- ³⁵ Frans Osinga, *Oorlog en het Schild van Athena, De Waarde van Krijgswetenschappen [War and the Shield of Athena: The Value of Martial Science]* (Leiden, NL: Leiden University, 2019), available at <www.universiteitleiden.nl/binaries/content/assets/algemeen/oraties/oratie-osinga-totaal.pdf>.
- ³⁶ Stefano Brusoni, "The Limits to Specialization: Problem Solving and Coordination in 'Modular Networks,'" *Organization Studies* 26, no. 12 (December 2005), 1885–1907.
- ³⁷ J. Douglas Orton and Karl E. Weick, "Loosely Coupled Systems: A Reconceptualization," *The Academy of Management Review* 15, no. 2 (1990).
- ³⁸ Wonsang Ryu, Brian T. McCann, and Jeffrey J. Reuer, "Geographic Co-Location of Partners and Rivals: Implications for the Design of R&D Alliances," *Academy of Management Journal* 61, no. 3 (2018).
- ³⁹ Herbert Blumer, "What Is Wrong with Social Theory?" *American Sociological Review* 19, no. 1 (February 1954).
- ⁴⁰ *Transformation Planning Guidance* (Washington, DC: Department of Defense, April 2003), available at <www.iwar.org.uk/rma/resources/dod-transformation/2003-transformation-planning-guidance.pdf>.
- ⁴¹ Gilles Fauconnier, *Mappings in Thought and Language* (Cambridge, UK: Cambridge University Press, 1997).
- ⁴² Arpi Dilanian and Matthew Howard, "Modernizing at the Speed of Relevance: An Interview with Under Secretary of the Army Ryan McCarthy," *Army*, August 30, 2018, available at <www.army.mil/article/210101/modernizing_at_the_speed_of_relevance_an_interview_with_under_secretary_of_the_army_ryan_mccarthy>.
- ⁴³ "USAF and U.S. Army Integrate Fighters and Missile Defense," *Intelligent Aerospace*, January 21, 2020, available at <www.intelligent-aerospace.com/military/article/14075091/f35-army-integrated-air-and-missile-defense-battle-command-system>.
- ⁴⁴ Christian Terwiesch, Christoph H. Loch, and Arnoud De Meyer, "Exchanging Preliminary Information in Concurrent Engineering: Alternative Coordination Strategies," *Organization Science* 13, no. 4 (2002).
- ⁴⁵ Andrew H. Van de Ven, André L. Delbecq, and Richard Koehnig, Jr., "Determinants of Coordination Modes Within Organizations," *American Sociological Review* 41, no. 2 (1976).
- ⁴⁶ Youngjin Yoo, Ola Henfridsson, and Kalle Lyytinen, "The New Organizing Logic of Digital Innovation: An Agenda for Information Systems Research," *Information Systems Research* 21, no. 4 (2010).
- ⁴⁷ Kim Zetter, "An Unprecedented Look at Stuxnet, the World's First Digital Weapon," *Wired*, November 3, 2014, available at <www.wired.com/2014/11/countdown-to-zero-day-stuxnet/>.
- ⁴⁸ Ben Hubbard, Palko Karasz, and Stanley Reed, "Two Major Saudi Oil Installations Hit by Drone Strike, and U.S. Blames Iran," *New York Times*, September 15, 2019, available at <www.nytimes.com/2019/09/14/world/middleeast/saudi-arabia-refineries-drone-attack.html>.
- ⁴⁹ *Industrial Capabilities: Annual Report to Congress Fiscal Year 2018* (Washington, DC: Office of the Under Secretary of Defense for Acquisition and Sustainment and Office of the Deputy Assistant Secretary of Defense for Industrial Policy, 2019), available at <www.businessdefense.gov/Portals/51/Documents/Resources/2018%20AIC%20RTC%2005-23-2019%20-%20Public%20Release.pdf?ver=2019-06-07-111121-457>.
- ⁵⁰ Alan M. Strange, "Decision Point Logistics in Multi-Domain Battle," *Army Sustainment* (January–February 2018), 10–12.
- ⁵¹ Bernd W. Wirtz and Wilhelm M. Müller, "An Integrated Artificial Intelligence Framework for Public Management," *Public Management Review* 21, no. 7 (2019).
- ⁵² John Louth and Trevor Taylor, "Beyond the Whole Force: The Concept of the Defence Extended Enterprise and Its Implications for the Ministry of Defence," RUSI Occasional Paper, Royal United Services Institute, London, 2015, available at <https://rusi.org/sites/default/files/201510_op_beyond_the_whole_force.pdf>.
- ⁵³ Robert Borries and Stephen Napier, "USAF Uses Continuous Process Improvement on the B-2 Bomber: Part 1," *ISIXSIGMA*, n.d., available at <www.isixsigma.com/implementation/case-studies/u-s-a-f-uses-continuous-process-improvement-on-the-b-2-bomber-part-1/>.



Show of force during Iranian Revolution, 1979

Embracing Asymmetry

Assessing Iranian National Security Strategy, 1983–1987

By Spencer Lawrence French

The Iran-Iraq War has affected Iranian leaders' decisionmaking calculus over more than three decades, shaping military strategy, force structure investments, and risk tolerance. The cumulative effects of the war are strikingly evident today in Iran's asymmetric strategy against

the United States and the Gulf States. Iran's decisions in 2019 and 2020 especially—such as attacking international oil tankers, launching missiles at oil and military targets, and leveraging Shi'a proxies across the region—reflect Iran's experience during the Iran-Iraq War when the country faced better equipped adversaries while simultaneously struggling with economic troubles and international isolation. Iran's war strategy was born from the country's inability

to achieve strategic ends through conventional means. Unable to escalate the conflict vertically in Iraq, Iran sought to escalate it horizontally against those supporting Iraq's war effort while deploying proxies, terror, and economic warfare capabilities in a piecemeal and reactive fashion. Thus, while these wartime efforts were often successful at the tactical level, they had limited operational effects and failed to achieve the desired strategic coercion.

Major Spencer Lawrence French, USA, is a student at the U.S. Army Command and General Staff College.

Current supreme leader Ali Khamenei, who was president of Iran during the war, and nearly all of Iran's current top military and national security leaders either helped implement or at the very least witnessed this strategy during the war.¹ From their limited perspective of the war, these leaders potentially concluded that the tactical effects of persistent low-intensity asymmetric warfare did have strategic impact and that better synchronization at the operational level or more resources could have led to victory. The success of Iran's asymmetric warfare in advancing its objectives in Iraq in the 2000s likely reinforced the wrong lessons about the coercive power of asymmetric warfare and colored the country's analysis of the Iran-Iraq War. Given the lasting impact the war has had on Iran's military actions, examining the country's experience during the conflict offers a unique window into Iranian decisionmaking today.

Background and the Origins of Iran's Asymmetric Approach to Conflict

In September 1980, the Sunni-dominated Arab nationalist state of Iraq invaded Iran under the pretext of liberating the ethnic-Arab population of Khuzestan Province and annexing the oil-rich province along the Persian Gulf. To Saddam Hussein, Ayatollah Khomeini "constituted an implacable ideological foe,"² and Iran, motivated by political Islam, represented an existential threat to Ba'athist Iraq. By 1980, Iran's post-revolution political isolation and officer purges had begun a spiral of declining armed forces combat effectiveness, which represented a window of opportunity that Saddam felt compelled to seize. The heavy losses sustained in the first months of the conflict exacerbated this decline, and Iran was simply unable to reconstitute, rearm, and retrain its first-rate Shah-era forces. Lacking military hardware and professional leadership, Iran was forced to blunt and reverse the Iraqi gains using massed irregular light infantry forces. While costly, this approach ultimately proved successful, and by the summer

of 1982, Iran had pushed Iraqi forces back to pre-war boundaries.

However, instead of seeking terms, Khomeini expanded his war aims from restoring the territorial integrity of Iran to including the abdication of Saddam, as well as obtaining war reparations from Iraq. Despite the clear military risks, the possibility of exporting its Islamic revolution to Iraq was impossible to refuse. For the next 5 years, Iran mounted largely ineffective offensives while Iraq conducted an adequate defense of the approaches to Baghdad. Iran's ground forces ultimately proved unequal to the task of seriously threatening Baghdad, seizing the centers of Shi'a religious life in Iraq, or convincing Iraq's Gulf financiers to end their support. Iran simply lacked the ground forces capable of seizing territory, air forces capable of breaking Iraqi morale and wartime infrastructure, or naval forces capable of blockading Iraq and the Gulf States.

Fighting with Insufficient Weapons

By 1984, Iran had practically exhausted, and had no way to replace, its pre-war heavy weapons. While able to contain Iraqi counterattacks and launch limited offensives of its own, Iran was incapable of defeating Iraq on the battlefield. The Iranian Revolution terminated the country's relationship with the United States, its primary arms supplier, and caused the United States to curtail Iran's access to other foreign weapons suppliers. Iran's military industrial base in the late 1970s and 1980s was unable to fill the gap, being primarily focused on infantry weapons systems and ammunition.³ The chaos of the Iranian Revolution further reduced the country's already limited arms production.⁴ Thus, in the months preceding the war, Iran had no domestic or international source for arms, technical assistance, or training.

Iran became unable to replace platforms and trained crews once they were lost. The Central Intelligence Agency (CIA) estimated that, by mid-1984, the Iranian air force, once the preeminent air power in the region, had fewer than

80 fully operational fighter aircraft, compared with more than 400 under the Shah.⁵ Estimates suggest that Iraq had an eight-to-one advantage over Iran in combat aircraft.⁶ Further combat losses and the lack of replacement parts meant that, by mid-1986, Iran likely had no more than 50 operational fighter aircraft.⁷ The situation was no better on the ground. By 1984, Iraq had a four-to-one advantage in armored vehicles,⁸ and by 1986, this gap had increased to a six-to-one Iraqi advantage.⁹

Fighting on an Anemic and Hobbled Economy

Crushing arms embargoes, financial shortfalls, and an inability to expand its domestic production of sophisticated weapons systems meant that, while Iran was able to secure some supplies from China, North Korea, Syria, and Libya, as well as spare parts from Europe, its procurement was dwarfed multiple times over by Iraq.¹⁰ Additionally, most of these purchases were for small arms ammunition, infantry antitank weapons, and spare parts, as opposed to combat vehicles, self-propelled artillery, or other sophisticated equipment necessary to truly challenge the Iraqi army on the approaches to Baghdad. Furthermore, Iran was unable to locate a reliable source of Western and, particularly, U.S. parts and end items, thus forcing it to replace U.S. equipment with Eastern Bloc equipment. This complication resulted in logistics, training, and doctrinal problems as Iran attempted to assimilate the new equipment while simultaneously at war.

Throughout the mid-1980s, oil prices were relatively low, but coordinated U.S. and Saudi actions further reduced prices to \$15 per barrel in mid-1986, reducing Iranian state revenue by two-thirds.¹¹ During the mid-1980s, Iran thereby lacked the currency reserves to meet its procurement requirements on the foreign market and was unable to meet its needs domestically, largely due to "shortages in raw materials caused by import restrictions, low productivity, and faulty management practices," exacerbated by a "scarcity of expert personnel, insufficient



USS Stark listing to port after being struck by two Iraqi-launched Exocet missiles, Persian Gulf, May 17, 1987 (U.S. Navy)

receptivity to innovations, and excessive bureaucratic formalities” and an overall “weak technological industrial base.”¹²

U.S.-sponsored financial and trade sanctions further reduced Iranian access to foreign capital. Over \$6 billion in Iranian assets remained frozen even after the 1981 Algiers Accords. The United States also reimposed sweeping sanctions in 1984 in response to Iranian support for Lebanese Hizballah while blocking Iranian attempts to obtain World Bank loans.¹³ Finally, facing domestic pressure over the Iran-Contra affair, and in response to Iranian attacks in the Gulf, the Ronald Reagan administration levied a ban on all Iranian imports to the United States in 1987.¹⁴

A Vicious Cycle and Stalemate

In short, Iran was caught in a vicious cycle of poor combat effectiveness. Losses in armor or aircraft could not be replaced because Iran possessed neither a reliable international supply nor a robust domestic production base. Even if Iran secured equipment, it was woefully lacking in trained operators and maintenance personnel. Iran was forced

to substitute by drawing on its superior manpower reserves to field primarily mass infantry formations. Yet these formations suffered high attrition and continuously required replacements. Such high throughput meant training was limited, and in 1984, Basiji troops, making up 20 percent of frontline units, received only approximately 2 weeks of initial training before deploying.¹⁵ This resulted in poor combat performance, higher attrition, a generally low level of experience in frontline units, and overall low combat effectiveness.

The Iranian offensive near Basra in February 1984 is illustrative of Iran’s inability to mount a strategic offensive that could legitimately threaten Iraq. Iran suffered at least 40,000 casualties assaulting the marshes north of the city and failed to secure the approaches to Baghdad or isolate Basra.¹⁶ This breakdown clearly demonstrates Iran’s problem. The terrain east of the Iran-Iraq border is more complex than the terrain to its west. The terrain south and east of Basra is waterlogged and unfavorable to armored or mechanized formations, yet the approaches to Baghdad, particularly

west of the city, are open, favorable for a mobile counterattack.¹⁷ Along the northern portions of the Iran-Iraq border, the situation was similar, because “while the mountainous terrain on the border favored infantry operations, the more open terrain lying beyond provided Iraqi armor with an enormous advantage, of which it made full use.”¹⁸ Thus, by 1984, the combination of terrain and Iran’s shortfalls in armor and artillery effectively ensured that the country would be able only to impose cost on Iraq through a bloody stalemate and local attacks on favorable terrain. Iran would not be capable of conducting the type of large-scale offensive necessary to achieve its expanded aims. As the gap between Iraqi and Iranian capabilities grew over the course of the conflict, it only further underscored this reality.

Yet it took Iranian leaders time to comprehend this situation, and Iran oscillated between executing a war of attrition and attempting to seize the initiative through costly and largely ineffectual offensives. The Karbala offensives of 1986 and early 1987 demonstrated that Iran could not sustain large-scale conventional

offensives in Iraq and that Iraqi defenses were more than a match for Iranian capabilities.¹⁹ Recognizing the limitations of its conventional capabilities, and yet intent on fulfilling its expansive war aims, Iran developed an asymmetric strategy aimed at attacking Iraq's perceived weaknesses as opposed to its conventional strengths. Iran increasingly focused on expanding the war horizontally to target Iraq's enablers and fielded a suite of asymmetric tools that it would employ, with some effectiveness at the tactical level, for the duration of the war.

Targeting Iraq's Gulf Lifeline: Economic Warfare and Terrorism

Key to Iraq's ability to continue the conflict was the financial support of the Gulf States. Throughout the war, Iran suffered a lack of currency reserves due to low oil prices. Thus, Gulf oil production directly contributed to the Iraqi war effort and hurt Iranian finances. Iran's leaders concluded that to offset Iran's conventional weakness and shift the strategic balance, the country needed to expand the horizon of the conflict, coercing Saddam's supporters to abandon him. The difficulty lay in how to achieve this without inviting the outright intervention of the Gulf States or their Western allies. Iranian leaders operated under the hypothesis that a low-level campaign of terrorism and disruption of oil commerce could have this coercive effect. The campaign culminated in 1987–1988 but, despite certain tactical success, never achieved the intended strategic result.

Shi'a Proxies

The presence of largely repressed Shi'a minorities in the Gulf provided Iran with raw materials for proxy groups. Iran's Shi'a revolutionaries themselves were part of a larger ecosystem of political Shi'ism that had begun to flourish in the 1960s, and thus had an ideological as well as a practical reason for supporting armed movements in the region during the war. As early as 1981, Iran sponsored a Shi'a insurrection in Bahrain,²⁰ and by 1984 American intelligence began seeing indications

of Iranian training of terror groups in the Gulf, predicting that "because of its military weakness, Iran may now turn to terror as a means to weaken Baghdad's support in the Gulf."²¹ In keeping with the strategy of reducing Gulf support for Iraq, while simultaneously driving up oil prices, Iranian-backed saboteurs bombed Kuwaiti oil facilities in June 1986. Four bombings followed in 1987, along with Kuwaiti-Shi'a protests.²²

The year 1987 also witnessed the birth of Hizballah al-Hijaz, formed by the Iranian Islamic Revolutionary Guard Corps (IRGC) primarily from disaffected Shi'a based in the oil-rich Saudi Eastern province. Between August 1987 and March 1988, the group attacked a gas plant and bombed petrochemical installations at Ras Tanura and Jubail.²³ Despite the investment in these groups, at least during the Iran-Iraq War, they posed little danger to global oil markets or regime security. Iranian leaders likely saw their attacks as a way to demonstrate to the Gulf States the vulnerability of their installations and the level of Iranian control over portions of their populations, but there is no indication that Gulf leaders were coerced to lower support.²⁴ Part of the reason behind this fact is that, despite the tactical successes of these groups in organizing and executing complex attacks, the sporadic nature of the attacks unsynchronized with other coercive tools presented the Gulf States with a real dilemma.

Mining the Gulf

Similarly, in 1984, Iran faced a concerted Iraqi campaign against the Iranian oil industry. Given that Iraq could count on Gulf finances as a backstop, damage to the Iraqi oil industry had less impact than similar damage to Iran. Mines promised the ability to impose cost on Gulf oil producers in a relatively deniable fashion, thus avoiding the direct intervention of the superpowers while simultaneously expanding the scope of the conflict to target Iraq's financial backers. So, as early as 1984, Iran began expanding its mine-laying program. While Iran never possessed the capability to fully close

the Strait of Hormuz, Iranian leadership hypothesized that the threat of mines would be enough to have a coercive effect, without forcing Iran to engage in a costly and difficult mine-laying campaign.²⁵ By January 1985, they assessed that Iran could "probably lay enough mines to raise insurance rates and deter shipping to Gulf ports."²⁶ Under this logic, producers would pass higher insurance rates on to consumers as higher oil prices, thus disrupting Gulf suppliers while making Iranian exports that escaped Iraqi targeting more profitable.

In 1987, at the height of the Tanker War, as the United States launched Operation *Earnest Will* and began re-flagging Kuwaiti tankers, mine warfare became Iran's economic weapon of choice. Iranian mines did have a limited tactical effect. They damaged some tankers and forced the United States to deploy additional minesweeping assets to the region; however, they failed to have the desired strategic effect of substantially reducing Iraq's ability to finance the war. After the reflagged oil tanker MV *Bridgeton* hit a mine in July 1987, global oil prices held steady for 3 weeks before continuing the downward trend. In the month following the attack, crude oil prices fell 1.1 percent as compared to 1.6 percent in the month before the attack.²⁷ This trend suggests that Iranian mining operations might have spooked oil markets and forced the industry to factor their small cost into pricing and insurance rates. However, the change was so inconsequential as to have no lasting effect on the underlying market dynamics. Once the actual costs of Iranian mining operations were shown to be minimal compared with other business costs, markets adjusted. Similarly, while mining allowed Iran to avoid losing a conventional battle with the United States, Iranian use of economic terrorism invited further U.S. military, economic, and political engagement in the region. Thus, while Iran succeeded at the tactical level in employing mines against individual tankers as a means to offset U.S. conventional strengths, the country failed both at the operational level to



Muslim cleric, possibly Mohammad Mousavi Khoeiiniha, speaking behind cloth-draped stand displaying photograph of Ayatollah Khomeini, outside U.S. Embassy, Tehran, Iran, 1979 (Library of Congress/Sharok Hatami)

significantly influence the volume of Gulf shipping and at the strategic level to influence global oil markets and reduce Iraq's ability to finance its war effort.

Missiles as Economic Terror Weapons

In seeking to threaten Gulf oil supply in addition to transportation, Iran was confronted again by its limited aviation assets. Iran's Gulf neighbors possessed advanced air defense capabilities. While attack aircraft might have been the most cost-effective option for degrading oil infrastructure, such a conventional strategy was not an option for Iran given its limited aircraft and pilots and its inability to procure substantial amounts of new equipment and training. At the same time, Iran's ballistic missile capa-

bility was not up to the task of credibly threatening the destruction of Gulf oil infrastructure. Despite attempts to stand up a domestic ballistic missile manufacturing program, Iran had no ability to domestically produce medium-range ballistic missiles during the conflict, and had limited success in producing short-range ballistic missiles (only starting in 1988).²⁸ From 1985 to 1987, Iran was almost entirely dependent on Libya for clandestine transfers of a small quantity (at least 50) of Soviet-manufactured Scud-Bs as well as Libyan ballistic missile expertise.²⁹ From mid to late 1987, Iran procured about 100 North Korean-manufactured Scud-B missiles.³⁰ Consequently, Iran's inventory remained limited from 1985 through the end of the conflict, almost certainly

never exceeding 100 missiles on hand at any point, and probably averaging substantially fewer than that estimate.

Iran's Scuds had an accuracy of only within 1 kilometer at two-thirds of its maximum range,³¹ and while oil facilities are large targets, precision is necessary to deliver truly lasting damage. Iran was thus forced to launch 10 to 20 missiles or more to have a chance of crippling the target.³² Consequently, Iran never possessed a large enough inventory of ballistic or cruise missiles to meet the task of credibly threatening the destruction of a meaningful percentage of Gulf oil infrastructure.

In keeping with the theory that economic terrorism creates market uncertainty, Iran's leadership hypothesized that firing one or a small number of missiles

at an oil facility might raise prices, even if doing so was likely to cause only minimal damage.³³ As Saudi Arabia began lowering global oil prices through increased production in 1986, Iran brandished its missiles, hoping to spook markets. In October 1987, Iran launched short-range Silkworm antiship missiles at Kuwait's Sea Island petroleum export terminal, seeking to deter Kuwait from cooperating with the United States and Iraq.³⁴ The markets were largely unaffected, and the threats went unheeded. In April 1988, Iran accused Kuwait and the United States of directly assisting Iraq in launching an offensive on al-Faw.³⁵ In response, Iran fired a single Scud into the U.S.-operated Wafra oil field in the neutral zone.³⁶ Iran clearly intended to send the message that continued support for Iraq would have economic consequences for the United States, Kuwait, and Saudi Arabia; however, this idea was not credible given Iran's ballistic missile force capabilities. Furthermore, global oil markets were not shocked by this approach, and at best the attack only held prices steady for 2 months before they resumed their downward trend.³⁷ Thus, the military effect of Iran's missile attacks on Gulf oil facilities during the war was negligible, and the psychological effect on global oil markets was transient at best. Iranian leaders may have seen the utility of ballistic missiles as an instrument of coercion, psychological warfare, and economic terrorism, but the capabilities and inventory of the Iranian ballistic missile program proved insufficient to credibly coerce.

All told, Iran's coercive acts in the Gulf failed to significantly alter the strategic landscape. As the price of oil fell, Iranian state revenues plummeted, Gulf powers continued to support Iraq, and ultimately the United States stepped in to guarantee freedom of navigation. Iran sought to "apply steady pressure on their rivals without using any one instrument with such force that it invites retaliation."³⁸ The Gulf States might have understood Iran's intended message that lower support for Iraq would result in lower costs to Gulf oil industries, but the relatively uncoordinated and ineffective campaign never forced them or the

United States to do more than rely on Iraq to hold Iran in check, while moderately increasing maritime security. Iran was more successful at the tactical level, leveraging a multiplicity of proxies and weapons systems to strike targets of their choosing. Iranian leaders might imagine that such tactical successes translated into a strategic coercive effect in the Gulf; however, there is little evidence to support this conclusion.

Targeting Iraq's Internal Fault Lines: Proxies and Terror Weapons

Iran attempted to leverage asymmetric capabilities to gain direct advantage over its Iraqi adversary, degrade Iraq's ability to marshal its resources against Iran, and deter Iraq from applying its superior conventional means against Iran. Iranian leadership identified Iraq's ethnic and religious fault lines as opportunities that could be exploited to force the Iraqi government to shift forces from the front to perform internal security roles. Iran also viewed the Iraqi public's growing dissatisfaction with the war as a vector for degrading regime security. Finally, Iraq's oil economy, like that of the Gulf, appeared ripe for disruption. By 1987, Iran was regularly striking Iraq with missile and proxy terror attacks, but the country's assumptions about the weakness of the Iraqi polity and the effect of small-scale strikes proved unfounded.

Kurdish Partners and Shi'a Proxies

While more partner than full proxy, the Kurds were Iran's most capable ally in Iraq. From the beginning of the war, Iran provided direct assistance to the Kurdistan Democratic Party (KDP) forces in their conflict with Baghdad but had strained relations with the Patriotic Union of Kurdistan (PUK).³⁹ By 1984, Iran began more serious attempts to utilize special operations forces and Kurdish irregulars to divide Iraqi combat power, occasionally creating windows of opportunity to seize the approaches to Baghdad. For instance, on May 15, 1986, while Iranian forces

were engaged in offensives near Basra, Iranian paratroopers infiltrated behind Iraqi lines and, with support from the Kurdish Peshmerga, seized positions near Mosul, threatening the Kirkuk-Dortyol pipeline.⁴⁰ Confronted with mounting battlefield losses, Iran went to great lengths to broker a comprehensive agreement between the PUK and KDP to form the Iraqi Kurdistan Front (IKF) in the spring of 1987. This unified Iranian-backed Kurdish bloc forced Iraq to deploy up to one-third of its combat power to defeat the Kurdish insurrection.⁴¹ Yet, once again, Iran was unable to capitalize on this temporary advantage to seize momentum, and the IKF soon collapsed under Iraqi pressure and internal infighting.

Iran built new proxies aligned ideologically with Tehran and over which it had direct control. Following the Iranian revolution, Saddam cracked down on Shi'a political groups, and many dissidents, especially those of the Islamic Dawa Party, fled to Iran. In anticipation of the possibility of the overthrow of Saddam, in 1982, Iran used some of these dissidents to form the Supreme Council for the Islamic Revolution in Iraq (SCIRI).⁴² As Iranian forces proved unable to break the stalemate of 1983, Iran established the Badr Corps under the IRGC as SCIRI's military wing⁴³ and began recruiting and impressing Iraqi Shi'a prisoners of war, dissidents, and refugees into service as guerrillas.⁴⁴ These Shi'a militants, while irrelevant when deployed alongside conventional forces, could conduct bombings and assassinations deep in Iraq. Yet Badr terrorism failed to paralyze Iraqi leadership or seriously strain Iraqi security services. Most important, SCIRI and Badr failed in their primary mission to ignite a Shi'a revolution in Iraq. Other Iraqi Shi'a leaders more amenable to working with Saddam, such as Muhammad Sadiq Sadr, had stepped in during the war to fill the Shi'a "leadership vacuum" left by the flight of Dawa's cadre.⁴⁵ So, while over 70 percent of Iraq's enlisted men but only 20 percent of its officers were Shi'a,⁴⁶ no amount of Iranian organizing engineered enough defection or sabotage in the



USS *John Young* shells two Iranian command and control platforms in response to recent Iranian missile attack on reflagged Kuwaiti super tanker, October 19, 1987 (U.S. Navy/National Archives and Records Administration)

ranks to substantially decrease Iraqi combat effectiveness. Thus, while Iran's more recent success deploying Shi'a militants makes the investment during the 1980s seem prescient, the actual impact during the Iran-Iraq War was negligible.

Missiles as Terror Weapons

In 1984, Saddam increased airstrikes on Iranian cities in an attempt to break morale and force Iran into negotiations. The high casualties of the previous year's offensives as well as the declining living standards in Iran made the Iraqi bombing campaigns a pressing threat.⁴⁷ Lacking attack aircraft and possessing inadequate air defenses, Iran had few options to respond. Given its limited stockpile of ballistic missiles and procurement challenges, Iran sought to use its missiles coercively to force the Ba'athists to confront their own morale issues, thereby restoring deterrence.

Between March and June 1985, Iran launched a dozen Scuds at Baghdad. To reduce the psychological impact of the strikes, the Iraqi government initially tried to claim the strikes were terrorism or sabotage.⁴⁸ Yet this public deception was actually counterproductive, and once the Iraqi government began acknowledging the strikes and civilians became accustomed to their limited lethality, the temporary dip in morale self-corrected.⁴⁹ Even when these strikes on population centers were synchronized with large-scale conventional offensives, they failed to produce the intended synergistic operational result.⁵⁰ Iran's strategy of low-intensity employment of these terror weapons spread over a long period made their psychological impact less dramatic than if they had been more concentrated in time and space.

Furthermore, there is little evidence to suggest that Iranian Scud strikes had

substantial military effect, as almost all the supposed targets, such as Ba'ath headquarters and military training academies, survived.⁵¹ The strikes' economic effect was, likewise, negligible. While Iranian attempts to degrade Iraqi oil production had begun at the outset of the war, between 1986 and 1988 Iran fired at least five Scud missiles at refineries in Kirkuk and other mid-range ballistic missiles at facilities near Banmil.⁵² Damage was minimal, and, as with strikes in the Gulf, the missile attacks had no more than a fleeting effect on global markets.

Iranian ballistic missile strikes did perhaps succeed in increasing Iranian morale. It is likely not lost on Iranian leaders today that missile launches, paired with Iranian state propaganda, enabled the government to communicate to the population that it was capable of retaliating.⁵³ If messaged correctly, strikes were a source of national pride, increasing

support for the conflict and shifting blame for hardships from the state to the enemy.

In total, Iranian ballistic missile strikes numbered only a few hundred, delivering relatively little total explosive tonnage and doing only marginal damage to the Iraqi economy, security apparatus, or armed forces. The strikes failed to do lasting damage to Iraqi will or regime security and were hardly more effective operationally, doing little to degrade the combat performance of Iraqi army units in their defense of the approaches to Baghdad. Iranian leaders did, however, witness the propaganda value of ballistic missile strikes and explored their potential to provide deterrence.

In short, Iranian leaders saw Kurdish and Shi'a irregulars, as well as ballistic missiles, as a means to offset Iraq's conventional advantages. Yet while Kurdish guerrillas and Badr terrorists fixed some Iraqi resources in internal security roles, they did not come close to forcing Iraq to undermine its defense of the approaches to Baghdad. Likewise, Iranian Scuds failed to degrade Iraqi morale or infrastructure. While Iran's employment of proxies and terror in Iraq may have demonstrated the potential for using Scuds coercively within a conventional armed conflict, the intended strategic effect never materialized, largely due to Iran's inability to synchronize these effects in any meaningful way. At no point did these efforts mass effects synergistically to produce enough pressure on the Iraqi regime to force difficult decisions.

Conclusion

In 1988, Iran conceded that its maximalist war aims were out of reach, and Khomeini drank the "cup of poison." While somewhat successful tactically, Iran's asymmetric strategy neither broke the deadlock on the battlefield nor bankrupted Iraq. Yet Iran's leaders today, the same individuals who executed the strategy in the 1980s and oversaw the successful use of proxies during the 2000s and 2010s, likely drew different conclusions from the conflict. They may have either conflated tactical success with real strategic impact or attributed the failure of Iran to what

they saw as overwhelming odds stacked against them. For these leaders, the real lesson of the Iran-Iraq War is that, given a fully realized resistance economy capable of withstanding international pressure and a well-developed regional network of proxies, Iran could generate strategic advantage through the skillful synchronization of asymmetric means.

Although this view may appear as a misreading of the conflict, Iran's leaders have both ideological and practical reasons to persist in their belief in the efficacy of an asymmetric offset strategy. The concept that religious faith brings about political change through revolutionary struggle is central to the identity of the Islamic Republic. While clearly pragmatic, Iran's leaders are products of, and in some cases creators of, a system that identifies this concept as an article of faith. In 1979, they witnessed firsthand the power that religious ideals hold to motivate small groups to overcome seemingly impossible odds. Consequently, despite the mixed record of its proxies, particularly during the Iran-Iraq War, Iranian leaders naturally continue to view religiously motivated proxies as a potentially decisive tool. Finally, while Iran has succeeded in developing its own domestic arms production industry and "resistance economy," it remains isolated and financially hobbled. Yet much like during the post-1982 years of the Iran-Iraq War, Iran's regional aims are misaligned with its actual limited conventional military capabilities. Thus, to a certain extent, Iran has no choice but to continue to turn to asymmetric means such as threatening Gulf economic and maritime targets to offset conventional disadvantage. Abandoning this strategy would force Iran to confront this mismatch and dramatically scale back its regional aims of regional leadership and of withdrawal of the United States from Iraq and the Gulf.

While asymmetric means failed to generate strategic advantage for Iran during the Iran-Iraq War, such an approach may be somewhat more suited to the environment today. The IRGC has spent the past four decades transforming the disaffected Shi'a minorities of the region into coercive levers. Iran,

while continuing to enjoy the advantage of being geographically positioned to threaten the world's most important petroleum production centers and shipping lanes, now possesses "the largest and most diverse missile arsenal in the Middle East,"⁵⁴ with systems many times more accurate than those deployed during the war. Economically, Iran also has learned how to mitigate the damage of sanctions over the past 40 years and has adapted its economy to build resiliency.⁵⁵ On the diplomatic front, while Iran remains largely isolated, Iraq is no longer a foe, and unlike the 1980s, the superpowers are not aligned against Iran. As long as Iran avoids conventional escalation with the United States, it need not be concerned with battlefield defeat and regime removal as it had to during the war. Thus, situated in a more favorable geopolitical landscape, Iran now has greater coercive capabilities and ability to resist foreign pressure. Yet in an echo of the 1980s, the question remains whether Iran's expansive aims exceed its total coercive capabilities. Success will hinge, as it did in the Iran-Iraq War, on Iran's ability to synchronize its asymmetric means to generate sufficient coercive power to dramatically alter its adversaries' strategic calculus. JFQ

Notes

¹ Today, virtually all general and flag officers within the armed forces of the Islamic Republic of Iran and numerous senior civilians within the Iranian defense and security community served in some capacity during the Iran-Iraq War. For example, the current secretary of the Supreme Council for National Security, Rear Admiral Ali Shamkhani (Ret.), served in the Islamic Revolutionary Guard Corps (IRGC) navy during the war. Current chief of staff of the Iranian armed forces general staff, Major General Mohammad Bagheri, served in various combat and intelligence positions within the IRGC during the conflict. The current IRGC commander, Major General Hossein Salami, and the current IRGC Quds Force commander, Brigadier General Esmail Ghani, were both ground forces commanders during the war. The now-deceased, long-serving former IRGC Quds Force commander, Major General Qassem Soleimani, famously was gravely wounded numerous times during the conflict.

- ² Nigel Ashton and Bryan Gibson, *The Iran-Iraq War: New International Perspectives* (New York: Routledge, 2013), 2.
- ³ Nikola B. Shahgaldian and Gina Barkhordarian, *The Iranian Military Under the Islamic Republic* (Santa Monica, CA: RAND, 1987), 58.
- ⁴ *Ibid.*, 59.
- ⁵ *Iran's Air Force: Frustrations of a Former Power* (Langley, VA: Central Intelligence Agency [CIA], September 1984), iii, available at <<https://www.cia.gov/readingroom/document/cia-rdp85t00314r000300020001-7>>.
- ⁶ *Iran-Iraq War* (Langley, VA: CIA, August 28, 1984), 1, available at <<https://www.cia.gov/readingroom/document/cia-rdp85t00287r001302000001-7>>.
- ⁷ *Iran: The Search for Arms* (Langley, VA: CIA, August 12, 1986), 4, available at <<https://www.cia.gov/readingroom/document/cia-rdp86t01017r000302830001-4>>.
- ⁸ *Iran-Iraq War*, 1.
- ⁹ *Iran: The Search for Arms*, 4.
- ¹⁰ *Iran-Iraq: Buying Weapons for War* (Langley, VA: CIA, May 1984), 4, available at <<https://www.cia.gov/readingroom/document/cia-rdp85t00283r000500120005-5>>.
- ¹¹ Pierre Razoux, *Iran-Iraq War* (Cambridge: Harvard University Press, 2015), 335.
- ¹² Shahgaldian and Barkhordarian, *The Iranian Military Under the Islamic Republic*, 62.
- ¹³ Patrick Clawson, "The Iran Primer: U.S. Sanctions," U.S. Institute of Peace, October 11, 2010, available at <<https://iranprimer.usip.org/resource/us-sanctions>>.
- ¹⁴ Ray Takeyh and Suzanne Maloney, "The Self-Limiting Success of Iran Sanctions," *International Affairs* 87, no. 6 (2011), 1301.
- ¹⁵ Razoux, *Iran-Iraq War*, 346.
- ¹⁶ *Ibid.*, 1.
- ¹⁷ Kevin M. Woods, Williamson Murray, and Thomas Holaday, *Saddam's War: An Iraqi Military Perspective of the Iran-Iraq War*, McNair Paper 70 (Washington, DC: NDU Press, 2009), 10, available at <<https://ndupress.ndu.edu/Portals/68/Documents/Books/saddams-war.pdf>>.
- ¹⁸ *Ibid.*
- ¹⁹ Razoux, *Iran-Iraq War*, 400.
- ²⁰ *Iranian Threats to Persian Gulf States* (Langley, VA: CIA, June 29, 1987), 3, available at <<https://www.cia.gov/readingroom/document/cia-rdp90t00114r000700390001-9>>.
- ²¹ Razoux, *Iran-Iraq War*, 5.
- ²² *Iranian Threats to Persian Gulf States*, 3.
- ²³ Ahmad Khalid Majidiyar, *Saudi Arabia's Forgotten Shi'ite Spring*, Middle Eastern Outlook No. 5 (Washington, DC: American Enterprise Institute for Public Policy Research, August 2013), 4, available at <https://www.aei.org/wp-content/uploads/2013/08/saudi-arabias-forgotten-shiite-spring_15503177253.pdf>.
- ²⁴ *Iranian National Security Policy: Growing Pragmatism and Effectiveness* (Langley, VA: CIA, March 25, 1987), 5, available at <<https://www.cia.gov/readingroom/document/cia-rdp90t00114r000600900001-3>>.
- ²⁵ *The Iranian Mine Warfare Threat* (Langley, VA: CIA, November 1984), 1, available at <<https://www.cia.gov/readingroom/document/cia-rdp85t00314r000300100002-7>>.
- ²⁶ *Iraq-Iran: Stepping Up Pressure in the Gulf* (Langley, VA: CIA, January 11, 1985), 5, available at <<https://www.cia.gov/readingroom/document/cia-rdp-85t01058r000405710001-9>>.
- ²⁷ Michael Ratner, *Iran's Threats, the Strait of Hormuz, and Oil Markets: In Brief*, R45281 (Washington, DC: Congressional Research Service, August 6, 2018), available at <<https://fas.org/sgp/crs/mideast/R45281.pdf>>.
- ²⁸ Wisconsin Project on Nuclear Arms Control, "Iran Missile Milestones 1985–2017," September 27, 2017, available at <<https://www.wisconsinproject.org/iran-missile-milestones/>>.
- ²⁹ "SCUD-B Shahab-1," Federation of American Scientists, updated October 20, 2016, available at <<https://fas.org/nuke/guide/iran/missile/shahab-1.htm>>; *Iran-Iraq: Ballistic Missile Warfare and Its Regional Implications* (Langley, VA: CIA, March 1986), 7, available at <<https://www.cia.gov/readingroom/document/cia-rdp-88t00096r000100120003-6>>.
- ³⁰ Joseph Bermudez, "New Developments in North Korean Missile Programme," *Jane's Soviet Intelligence Review* (August 1990), 343–345.
- ³¹ *The Iranian Missile Threat* (Langley, VA: CIA, March 27, 1985), 4, available at <<https://www.cia.gov/readingroom/document/cia-rdp85t01058r000406030001-3>>.
- ³² *Iran-Iraq: Ballistic Missile Warfare and Its Regional Implications*, 8.
- ³³ *Iranian Reactions to Saudi Oil Project* (Langley, VA: CIA, April 25, 1986), 3, available at <<https://www.cia.gov/readingroom/document/cia-rdp86t01017r00020270001-7>>.
- ³⁴ John Kifner, "Missile Reportedly Fired by Iran Damages a Kuwaiti Oil Terminal," *New York Times*, October 23, 1987, available at <www.nytimes.com/1987/10/23/world/missile-reportedly-fired-by-iran-damages-a-kuwaiti-oil-terminal.html>.
- ³⁵ Patrick E. Tyler, "Iranian Missile Hits Kuwaiti Desert Near U.S.-Run Oil Field," *Washington Post*, April 21, 1988, available at <<https://www.washingtonpost.com/archive/politics/1988/04/21/iranian-missile-hits-kuwaiti-desert-near-us-run-oil-field/8324060d-f4fd-480c-ad63-ba6fa99b8e04/>>.
- ³⁶ *PRG Meeting on the Persian Gulf* (Langley, VA: CIA, April 20, 1988), available at <<https://www.cia.gov/readingroom/document/cia-rdp89g01321r000600540002-6>>.
- ³⁷ U.S. Energy Information Administration, "Petroleum and Other Liquids: Cushing, OK WTI Spot Price FOB," available at <<https://www.eia.gov/dnav/pet/hist/rwtcd.htm>>.
- ³⁸ *The Iranian Missile Threat*.
- ³⁹ Michael M. Gunter, "The KDP-PUK Conflict in Northern Iraq," *Middle East Journal* 50, no. 2 (1996), 231.
- ⁴⁰ Razoux, *Iran-Iraq War*, 361.
- ⁴¹ *Ibid.*, 414.
- ⁴² Afshon Ostovar, *Vanguard of the Imam: Religion, Politics, and Iran's Revolutionary Guards* (New York: Oxford University Press, 2018), 111.
- ⁴³ *Ibid.*
- ⁴⁴ J. Matthew McInnis, with Ashton Gilmore, *Iran at War: Understanding Why and How Tehran Uses Military Force* (Washington, DC: American Enterprise Institute, 2016), 18.
- ⁴⁵ Joel Rayburn, *Iraq After America: Strongmen, Sectarians, Resistance* (Stanford, CA: Hoover Institution Press, 2014), 172.
- ⁴⁶ Michael Rubin, "Has Iran Overplayed Its Hand in Iraq?" American Enterprise Institute, May 13, 2014, available at <<https://www.aei.org/research-products/report/has-iran-overplayed-its-hand-in-iraq/>>.
- ⁴⁷ *The Iranian Missile Threat*, 2.
- ⁴⁸ *Iran Missile Chronology* (Monterey, CA: Nuclear Threat Initiative, August 2011), 471, available at <https://media.nti.org/pdfs/iran_missile.pdf>.
- ⁴⁹ *Iran-Iraq: Ballistic Missile Warfare and Its Regional Implications*, 7.
- ⁵⁰ *Iran-Iraq Military Activity* (Langley, VA: CIA, September 13, 1986), available at <<https://www.cia.gov/readingroom/document/cia-rdp91b00874r000100260003-1>>.
- ⁵¹ *Iran Missile Chronology*, 471.
- ⁵² *Ibid.*, 409.
- ⁵³ Anthony H. Cordesman, *Iran's Rocket and Missile Forces and Strategic Options* (Washington, DC: Center for Strategic and International Studies, 2014), 167.
- ⁵⁴ Missile Defense Project, "Missiles of Iran," *Missile Threat*, Center for Strategic and International Studies, June 14, 2018, last modified July 16, 2020, available at <<https://missilethreat.csis.org/country/iran/>>.
- ⁵⁵ Jackie Northam, "Why Iran's Economy Has Not Collapsed Amid U.S. Sanctions and 'Maximum Pressure,'" National Public Radio, January 16, 2020, available at <<https://www.npr.org/2020/01/16/796781021/why-irans-economy-has-not-collapsed-amid-u-s-sanctions-and-maximum-pressure>>.

Men of Nottinghamshire and Derbyshire Regiment (The Sherwood Foresters) marching along Amiens-St. Quentin Road, from Foucancourt, near Brie, Somme, March 1917, after German withdrawal to Hindenburg Line (Courtesy Imperial War Museum/Ernest Brooks)



Accelerating Adaptation on the Western Front and Today

By Justin Lynch

In wars, militaries rarely start out perfectly suited for the challenges they will encounter. Their organization, tactics, and weapons are not optimally matched to their environment or their

enemies. The ability to adapt more quickly than an adversary gives a force a significant advantage.¹ The growing role software plays in military technology could augment the speed of adapta-

tion, but to capture such advantages, the joint force must invest in its digital workforce and infrastructure.

Adaptation in Warfare

Williamson Murray's *Military Adaptation in War* opens by stating that "adaptation in war represents one of the most persistent, yet rarely examined problems that military institutions confront" and

Justin Lynch served as an Active-duty Army officer before transferring to the Army National Guard. As a civilian, he has served in multiple roles in the national security enterprise, including ones focused on emerging technology policy.

that “one of the foremost attributes of military effectiveness must lie in the ability of armies, navies, or air forces to recognize and adapt to the actual conditions of combat.”² A short study of warfare on the Western Front during World War I showcases adaptation’s importance. After the emergence of trench warfare, both sides quickly began adjusting their technology, tactics, and organizations in an attempt to achieve an operational breakthrough. The result was a race between combatants to adapt faster than their adversaries.

World War I

In summer 1914, young men across Europe marched to war. They left for what most of them believed would be a short conflict, one decided by the power of the offensive. After 4 months, they had settled into trench warfare that bore little resemblance to the war they had prepared for. Four long years later, the war on the Western Front bore even less resemblance to the vision held before August 1914.

Before combat began, military leaders understood that war was changing. A great deal of new military technology—such as scientific artillery, the machine gun, motor vehicles, and barbed wire—had developed in the years before 1914. Military leaders had already seen some of these tools in action, but few realized the nature or the magnitude of the impact that increased firepower would have on warfare between peer adversaries.³ Moreover, because the combatants did not understand the effects new weapons would have, military tactics had barely changed since the 19th century.⁴

War of Maneuver. After hostilities began, the Germans and the French sought to destroy each other’s armies via maneuver at the operational level.⁵ Neither side had prepared for the newly increased firepower, and so they had disorganized maneuver and indecisive results rather than the power of the offense. As a result, the war quickly began to transition away from operational maneuver. At the end of August 1914, casualties were high, but the war was still one of maneuver. By September, the

Germans were establishing trenches with interlocking fields of machine-gun fire on the Aisne. By October, disorganized maneuver had begun changing into a form of mutual siege warfare. By November, trench warfare prevented either side from achieving a decisive victory using any previous tactics, and thus forced a strategic stalemate.⁶

Trench Warfare and the Race to Adapt. Historians and artists often depict trench warfare as a static struggle characterized by incompetent leaders who ordered hopeless attack after hopeless attack in pursuit of the white whale of operational breakthrough.⁷ Although not entirely untrue, that narrative captures only a sliver of reality. The challenges of trench warfare prevented both sides from breaking through and defeating the enemy. Both sides looked to a combination of technological and operational adaptation to solve this problem. Rather than just a static war, the Western Front was a competition to see which side could adapt its organizations and tactics, create new weapons for trench warfare, and react to adversary adaptations quickly enough to seize an advantage.⁸

The advent of commercial dual-use technology played a particularly prominent role. Much like today, technology development in the early 20th century took place largely in the private sector. Private-sector companies created aircraft, motorized vehicles, and other dual-use technology that became significant during World War I. Military leaders were aware that emerging civilian technology with potential military applications in communications, aircraft, and mechanized vehicles was mature enough to quickly prototype; when the war began, they began adapting technology to try to overcome the new challenges found on the Western Front.

For the infantry, trenches and other fortifications drove a shift from maneuver to mass. Continuous layered trench lines eliminated exposed flanks and forced units to rely more on frontal assaults driven by mass. To build mass, both sides began expanding their logistics infrastructure. Stable fronts allowed participants to build roads up to their trench systems and

to increasingly use motorized transports to move troops, supplies, and equipment. The French used 600 Renault taxis to move 3,000 soldiers to the First Battle of the Marne in the world’s first motorized military convoy in 1914.⁹ By 1916, the French had transported 180,000 metric tons and 300,000 men by vehicle.¹⁰ The improvement in logistics infrastructure, however, largely stopped behind the front. Units assaulting across no-man’s-land still did not have the logistic tail needed to sustain their attack and break the stalemate.¹¹

Mechanization offered a potential solution. Mechanized forces grew out of the belief that armies could use tractor technology to cross muddy terrain and survive enemy fires. Great Britain’s War Office largely ignored tractor technology’s potential in 1914. But that eventually changed, and the British used tanks in combat for the first time on September 15, 1916, at Flers.¹² The attack failed to create the hoped-for breakthrough, but it did teach the British important lessons about tank construction and employment. (The French faced a similar course.) By 1917, however, tanks were a major component of British offenses. Tanks, properly armed and armored, could escort infantry formations into trench systems and reduce sustainment issues by carrying water and ammunition.

The role of aircraft also changed. Before the war, military theorists believed aircraft would serve primarily as reconnaissance and artillery spotters. But once the war started, new roles emerged. Air warfare quickly grew into a fight for air superiority. Initially, air combat was fought between individuals. By late 1917, mass formations had reduced the role of individual aerial duels, and the ability of each state’s industrial base to produce aircraft was as important as the courage of individual pilots.¹³ Air warfare also expanded to include close air support and eventually into the bombing of cities such as Liège, Paris, and London.¹⁴

Militaries improved their growing air forces in two ways. They competed to develop a combination of doctrine and training that would allow them to achieve



Gun crew from Regimental Headquarters Company, 23rd Infantry, firing 37-millimeter gun during advance against German entrenched positions during Meuse-Argonne offensive, September 26–November 11, 1918 (U.S. Army/National Archives and Records Administration)

air superiority and deliver effects. Aircraft technology also changed quickly: The final report of the Chief of the Air Service at the end of the war claimed that “the improvement in pursuit airplanes was so rapid that few types retained their superiority for more than six months.”¹⁵

The New Armies. By late 1917, the contest to adapt to trench warfare had caused both the Germans and the Triple Entente to develop new types of armies: the German coordination-of-arms model and the Entente tank-army model. The former, a combined arms force, relied on an unprecedented coordination of aircraft, artillery, and shock troops to create and exploit breakthroughs. It included improved small arms, aircraft, and artillery but relied noticeably less on technological solutions than the tank-army model. The tank-army model relied predominantly on the tank to help infantry cross no-man’s-land. At the Battle of Cambrai in November and December of 1917, the British sent 450 tanks followed by 6 infantry divisions across a dry, flat section of the Western Front—and was able to advance 7 kilometers. Though the attack failed, by 1918, tanks backed by massed infantry and supported by

artillery and aircraft contributed heavily to allied breakthroughs. German leaders coined the term *Panzerschreck* (tank fright) to describe the mass fear that tank formations inspired.¹⁶

The new armies constituted a major innovation. They created new tactical and operational concepts, trained their soldiers to fight in a new way, and integrated civilian technology—all of which resulted in forces that were more tightly coordinated than previous military forces and that applied firepower more effectively. The biggest changes to warfare, however, came from the role of tanks and aircraft. Mechanization gave maneuver forces new mobility, survivability, and firepower. Airpower expanded war from the land and sea to the air. Tanks and aircraft fundamentally changed the context within which wars were fought and showed the power of integrating emerging technology and tactics. By comparison, the coordination-of-arms model’s failure to accomplish its strategic objectives showed the cost of an inadequate response to new operational challenges.

The Scale of Change. The states and armies that fought World War I underwent massive changes. The introduction

of dual-use technology allowed both sides to quickly introduce new weapons. The generals who led these armies found themselves unprepared for the type of warfare they would fight; however, contrary to widespread belief, this lack of preparation was due more to their quickly changing circumstances than to incompetence. Instead of fighting the war they had prepared for, generals found themselves struggling to understand how combat had changed from operational maneuver to trench warfare—and then how to alter it yet again to achieve decisive victories.¹⁷

As a result, the armies that marched off to battle in the summer of 1914 would barely have recognized the type of warfare they would fight by the summer of 1917. The Hindenburg Line’s fate illustrates the rate of change on the Western Front. When it was built in 1916, circumstances had changed, and it was one of the strongest, most advanced defensive positions in Western Europe; by the time allied forces reached it in 1918, it was obsolete.¹⁸

The Present

Militaries will undoubtedly face new and sometimes unexpected operational challenges—and to overcome them, they will need to adapt their doctrine, organizational structure, training, and technology. Although no one can predict the future, practitioners should use history to drive their inquiry and to understand how to question their assumptions.¹⁹

What Is the Likely Role of Dual-Use Technology Today? There is every reason to believe that adaptation will continue to play a role in conflict. It is also likely that, much like during World War I, dual-use technology will be adapted for combat. Since the end of the Cold War, the U.S. research and development base has shifted from the government to the private sector. Commercial firms develop most new technologies, including those with possible military application.²⁰ The private sector, including businesses that do not usually work with the military, leads the development of autonomous systems, machine learning, software,

heavy equipment manufacturing and repair, biotechnology, and other potential dual-use technologies at a faster rate than does the Department of Defense (DOD).²¹ If DOD and its foreign counterparts attempt to adapt dual-use technology themselves—or turn to the private sector and ask it to do so for the sake of nationalism and profit—it is highly probable they will be able to quickly weaponize existing technology that is not already in military use. The result is a situation in which states that can more quickly adopt dual-use technology and integrate it into their tactics and strategy will have the advantage.

How Will Changes in Technology Affect Adaptation? Although the summer of 1914 and the present day have some things in common, there are key differences. The most significant is the increasingly important role software plays in society and warfare. Digital systems have become integral to most economies, infrastructure, and social systems. Many militaries, particularly the U.S. military, have become more and more digitized—and therefore reliant on their software’s performance. Eric Schmidt, former chief executive officer of Alphabet and chair of both the Defense Innovation Board and the National Security Commission on Artificial Intelligence, refers to the current day as the age of software supremacy.²² Software can change the capabilities of hardware without changing its physical features. Examples include network updates that reduce vulnerabilities and improve intrusion and anomaly detection, improvements to algorithms that control tracking systems, and changes to data management systems that allow warfighters to communicate faster and more efficiently. Other examples will soon include improvements to autonomous systems that will perform a significant role in actual combat.²³

Software’s role in conflict has already been demonstrated, particularly during attacks on digital systems. Some network breaches—such as Stuxnet and the various and frequent hacks by state actors of one another’s public and private systems—have made headlines.²⁴ In 2017, the U.S. military tested its ability

to stop armored vehicles using computer network attacks, but it has not publicly explored that capability’s limitations or potential in combat.²⁵

One implication of software’s increasing significance is that tactical adaptation will begin to include—and, in some circumstances, require—software changes. If future conflicts see a software-driven race to adapt similar to the race on the Western Front, then adversaries will change their platforms to perform better in the environment and against their foes. Weapons guidance systems will need to better track adversaries using new camouflage, control systems will need to respond faster, electronic warfare platforms will need to better infiltrate enemy systems, and possible autonomous weapons systems will need to better locate and attack their targets.

Software’s Acceleration of Adaptation

One of the biggest discontinuities between today’s software and the types of technology adapted during World War I is that engineers can develop new software more quickly than they can new hardware. Software development relies on programming instead of manufacturing processes, allowing updates to bypass some of the physical constraints that slow down hardware development. Engineers can create new programs as quickly as they can type code and verify its functionality.

Once completed, software changes can also be implemented faster than hardware updates. New programs and updates can spread across the joint force as quickly and as broadly as an email, then install in seconds or minutes. It takes far less time to download a software update on a desktop computer than it does to fly or ship heavy equipment from the United States to an overseas theater.

Overall, software’s increasing importance for military operations, pace of development, and speed of delivery will accelerate the rate of technology adaptation in warfare. Imagine weapon adaptation taking place at the rate Silicon Valley can produce new software updates—instead of the rate at which

factories could produce and deliver new hardware in 1918. In 1918, a ship departing the East Coast for a combat zone arrived in the same state, with the same capabilities, as when it departed. Today, a ship leaving the East Coast that receives software updates to its communication systems, targeting software, and the programs controlling its automatic and autonomous systems can have different capabilities when it arrives in theater; this will only be truer tomorrow.

Recommendations

The joint force should establish rapid development and acquisition capabilities that can help commands quickly react to a changing threat environment, spot opportunities, and create the hardware and software that warfighters need to defeat their adversaries. Although this focuses on the production and use of digital technology, the biggest changes to the joint force will need to be in its investments in human capital and organizational structure.

Public-Private Partnerships. The most commonly discussed solution to military innovation challenges is to establish stronger public-private partnerships. DOD already has several programs in place to improve its relationship with private-sector developers or to solve specific problems.²⁶ Although these programs address important issues, improving public-private partnerships alone will not solve the challenges described herein. The current DOD relationship with the private sector has several challenges. These include a labyrinthine contracting process, cultural differences between the military and startup communities, and the DOD focus on long procurement cycles.²⁷ It is also difficult to predict how organizations that justifiably view themselves as global companies will respond to war.²⁸

Personnel. Instead of relying primarily on the private sector, DOD should grow its own software development capabilities. Stephen Peter Rosen argues that “peacetime innovation has been possible when senior military officers, reacting not to intelligence about the enemy but to a structural change in the security



U.S. Soldiers of 30th Infantry Division with German prisoners following capture of Bellicourt, France, after Battle of St. Quentin Canal, September 29, 1918 (Courtesy Imperial War Museum/David McLellan)

environment, have acted to create a new promotion pathway for junior officers practicing a new way of war.”²⁹ To create the ability to adapt software to rapidly changing circumstances, DOD must have highly skilled military and civilian personnel who provide three things:

- a centralized group of experts that can create high-quality software and algorithms and control their quality
- personnel distributed to tactical units who can recognize new challenges and opportunities and create early versions of new software
- the ability to quickly build and update networks for new capabilities.

These proficiencies are different from those of U.S. Cyber Command, whose focus is on “defending the DODIN [DOD information networks], providing support to combatant commanders for execution of their missions around the world, and strengthening our nation’s ability to withstand and respond to cyber attack.”³⁰ Though critical, that mission focuses more on the defense, exploitation, and attack of networks than on the creation of new software.

To meet these needs, each branch of the military requires its own software

developers. Rapidly identifying opportunities and creating software to exploit them will be a form of maneuver just as critical as performing fleet movements, flying aircraft, or plotting ground forces. Because the Services would be extremely reluctant to rely on outside sources to perform these roles, they should treat software development with the same degree of concern. Parts of the military—such as U.S. Special Operations Command, the Air Force’s Kessel Run, and the Army’s Software Factory—have made a start, but the military needs more software developers in more units.³¹

Code and Data Access. Once in place, software developers require architecture and authorizations that allow them to locally manage, build, review, test, and release code. The Defense Innovation Board Software Acquisition and Practices study recommends managing source code in a single repository but encourages engineers to fix problems “independent of program boundaries.”³² For engineers to manage, build, debug, and release new software, they need access to their systems’ codes, the authorization to change them, and the ability to disseminate changes.

Access to data will also be crucial. Data helps software developers

understand system requirements.

Machine learning in particular requires access to large data sets. Training and retraining algorithms to address new challenges will often require access to data sets from units encountering the challenge. To meet this requirement, tactical units need the bandwidth, computing power, software tools, and training to share and process large data sets. To be clear, this architecture, authorization, and access to data are not intended to create new technology; they are necessary to allow DOD to use existing technology effectively.

Organizational Structure. As it acknowledges the need to quickly create software for tactical environments, the joint force must determine where in its organizational structure it should place its developers and their tools. The degree to which software development and adaptation is centralized should be a function of both the consequences of errors and the consequences of adapting slowly. Systems with little margin for error that do not need to change quickly, such as aircraft carrier preventive maintenance, should be tightly controlled at a centralized facility where maintenance and development experts can methodically control quality. Other capabilities have a wider margin for error and require more rapid, localized adaptation. Units in ground combat have fewer systems that can produce catastrophic failures, and these units often experience stark differences in their operating environment; they may have to operate with limited bandwidth to their higher headquarters. In these circumstances, decentralized adaptation—and, in some cases, even decentralized development—may be more appropriate.

Some traditional private-sector companies that have integrated artificial intelligence and other modern software development processes have benefited from implementing a hub-and-spoke model. Generally, the hub, or central facility, is responsible for the training, education, and management of experts, some research and development, and the development and promulgation of standards. Spokes, or decentralized teams that reside within other programs,

identify and exploit local opportunities, all while sending updates to the hub. In the joint force, hubs could exist in unified commands or centers of excellence. Spokes would exist in tactical- and operational-level units.³³

Changing organizational structure does more than concentrate talent, training, and authorities; it is also an important part of building bureaucracy that supports rather than constrains new organizational processes. Barry Watts and Williamson Murray speak to the “unavoidable necessity of bureaucratic acceptance to successful peacetime innovation. . . . 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.”³⁴ Organizational structures such as a hub-and-spoke system help incentivize bureaucratic acceptance by senior leaders serving in the hub, channel funding into necessary programs, and constitute one of the best ways to establish viable career paths.

Given the rapidly changing state of both civilian and military technology, the next war’s initial salvos will likely include weapons never before fired in anger—and whose combined effect on warfare is difficult to predict. If the conflict lasts very long, it will shift into a race to adapt to those effects and gain a competitive edge in the new operational environment. Military and civilian innovators will quickly repurpose civilian technology for military use. The state that wins the race may win the war. If the United States wants to prevail, it needs to develop the ability to quickly identify challenges and opportunities, and then field new technology to meet them. JFQ

Notes

¹ Edward N. Luttwak, *Strategy: The Logic of War and Peace* (Cambridge, MA: Belknap Press, 1987), 28–31.

² Williamson Murray, *Military Adaptation in War: With Fear of Change* (Cambridge, MA:

Cambridge University Press, 2011), 1.

³ Hubert C. Johnson, *Breakthrough! Tactics, Technology, and the Search for Victory on the Western Front in World War I* (New York: Presidio Press, 1994), 6–7.

⁴ Jorn Leonhard, *Pandora’s Box: A History of the First World War* (Cambridge, MA: Belknap Press, 2018), 228.

⁵ Bruce I. Gudmundsson, *Stormtroop Tactics: Innovation in the German Army, 1914–1918* (Westport, CT: Praeger, 1995), 11–12.

⁶ Paul Kennedy, “Military Effectiveness in the First World War,” in *Military Effectiveness, Volume 1: The First World War*, ed. Allan R. Millett and Williamson Murray (Cambridge, UK: Cambridge University Press, 2010), 330.

⁷ Murray, *Military Adaptation in War*, 74–76.

⁸ Hew Strachan, *The First World War* (New York: Penguin Books, 2003), 165–173.

⁹ Cathal Nolan, *The Allure of Battle: A History of How Wars Have Been Won and Lost* (New York: Oxford University Press, 2017), 358–365.

¹⁰ Johnson, *Breakthrough!* 114–115.

¹¹ John Keegan, *The First World War* (New York: Random House, 1998), 192–196.

¹² David E. Johnson, *Fast Tanks and Heavy Bombers: Innovation in the U.S. Army, 1917–1945* (Ithaca, NY: Cornell University Press, 2003), 30.

¹³ Strachan, *The First World War*, 313.

¹⁴ Nolan, *The Allure of Battle*, 373–374.

¹⁵ Johnson, *Fast Tanks and Heavy Bombers*, 44.

¹⁶ Leonhard, *Pandora’s Box*, 784.

¹⁷ Johnson, *Breakthrough!* 1.

¹⁸ Strachan, *The First World War*, 319.

¹⁹ Eliot Cohen, “The Historical Mind and Military Strategy,” *Orbis* 49, no. 4 (September 2005), 579.

²⁰ John McCain, “Restoring American Power: Recommendations for the FY 2018–FY 2022 Defense Budget,” Senate Armed Services Committee, January 16, 2017.

²¹ Andrew P. Hunter and Ryan A. Crotty, *Keeping the Technological Edge: Leveraging Outside Innovation to Sustain the Department of Defense’s Technology Advantage* (Washington, DC: Center for Strategic and International Studies, 2015), available at <https://csis-website-prod.s3.amazonaws.com/s3fs-public/legacy_files/files/publication/150925_Hunter-KeepingTechnologicalEdge_Web.pdf>.

²² Eben Shapiro, “Eric Schmidt Thinks This Is the Best Age to Start Measuring Excellence,” *Time*, November 29, 2020, available at <<https://time.com/5915269/eric-schmidt-future-leadership-ai/>>.

²³ Paul Scharre, *Army of None: Autonomous Weapons and the Future of War* (New York: W.W. Norton & Company, Inc., 2018), 14–15.

²⁴ Paul D. Shinkman, “America Is Losing the Cyber War,” *U.S. News & World Report*, September 29, 2016, available at <<https://www.usnews.com/news/articles/2016-09-29/>>.

cyber-wars-how-the-us-stacks-up-against-its-digital-adversaries>.

²⁵ Rachael Kalinyak, “Soldiers Deter Simulated Tank Assault with Cyber, Electronic Warfare,” *Army Times*, June 8, 2017, available at <<https://www.armytimes.com/news/your-army/2017/06/08/soldiers-deter-simulated-tank-assault-with-cyber-electronic-warfare/>>.

²⁶ Defense Innovation Unit, “Solutions-Portfolio,” available at <<https://www.diu.mil/solutions/portfolio>>; Cheryl Pellerin, “Project Maven to Deploy Computer Algorithms to War Zone by Year’s End,” Department of Defense, July 21, 2017, available at <<https://dod.defense.gov/News/Article/Article/1254719/project-maven-to-deploy-computer-algorithms-to-war-zone-by-years-end/>>.

²⁷ Michael Griffin and Eric Schmidt, *Promoting DOD’s Culture of Innovation*, Testimony Before the House Armed Services Committee, Washington, DC, April 17, 2018.

²⁸ Daisuke Wakabayashi and Scott Shane, “Google Will Not Renew Pentagon Contract That Upset Employees,” *New York Times*, June 1, 2018, available at <<https://www.nytimes.com/2018/06/01/technology/google-pentagon-project-maven.html>>.

²⁹ Stephen Peter Rosen, *Winning the Next War: Innovation and the Modern Military* (Ithaca, NY: Cornell University Press, 1991), 251.

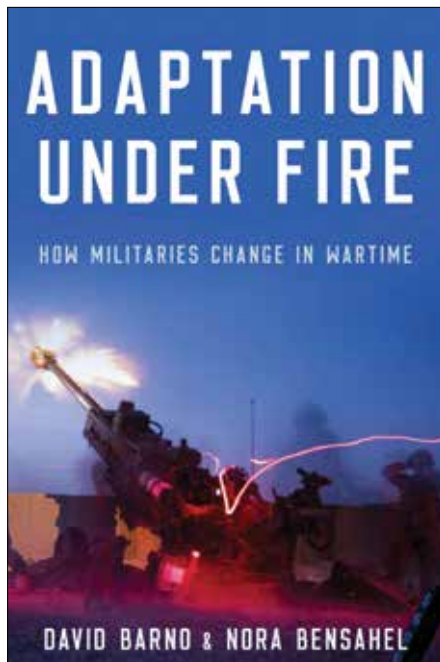
³⁰ See “Focus,” U.S. Cyber Command, available at <<https://www.cybercom.mil/About/Mission-and-Vision/>>.

³¹ Connie Lee, “SOCOM Rolls Out New Software Program Office,” *National Defense*, July 1, 2020, available at <<https://www.nationaldefensemagazine.org/articles/2020/7/1/socom-rolls-out-new-software-program-office>>; Steve Kelman, “Why Kessel Run Is Such a Big Deal,” *The Lectern*, February 12, 2019, available at <<https://fcw.com/blogs/lectern/2019/02/kelman-kessel-run-usaf-big-deal.aspx>>; Scott Maucione, “Army Sets Up Software Factory for 2028 Battle and Beyond,” *Federal News Network*, July 14, 2020, available at <<https://federalnewsnetwork.com/army/2020/07/army-sets-up-software-factory-for-2028-battle-and-beyond/>>.

³² J. Michael McQuade et al., *Software Is Never Done: Refactoring the Acquisition Code for Competitive Advantage* (Washington, DC: Department of Defense, March 21, 2019), 10.

³³ Tim Fountaine, Brian McCarthy, and Tamim Saleh, “Building the AI-Powered Organization,” *Harvard Business Review*, July/August 2019, available at <<https://hbr.org/2019/07/building-the-ai-powered-organization>>.

³⁴ Barry Watts and Williamson Murray, “Military Innovation in Peacetime,” in *Military Innovation in the Interwar Period*, ed. Williamson Murray and Allan R. Millett (Cambridge, UK: Cambridge University Press, 1996), 409.



Adaptation Under Fire: How Militaries Change in Wartime

By David Barno and Nora Bensehel
New York: Oxford University Press,
2020
430 pp. \$34.95
ISBN: 978-0190672058

Reviewed by Bryon Greenwald

In the 1970s, the late Sir Michael Howard cautioned military leaders that they would inevitably fail in predicting the conduct of the next war. What really mattered, he opined, was not getting it right, but not being “too badly wrong” and having the individual and institutional wherewithal to adapt to the new or revealed conditions of conflict in time to avoid defeat and ultimately prevail.

In *Adaptation under Fire*, Lieutenant General David Barno, USA (Ret.), and Dr. Nora Bensehel, frequent contributors to *War on the Rocks*, analyze this “adaptability gap” in the American Army with specific examination of doctrine, technology, and leadership at the individual and institutional levels during the wars in Iraq and Afghanistan. The book is a welcomed addition to the field. Although

necessarily selective in its examples and case studies, it should generate ample discussion within the military Services and, importantly, their professional military education (PME) institutions.

The work unfolds in three parts. The first section provides a brief summary of the literature on prewar innovation and in-war adaptation, drawing heavily on the work of Allan Millett and Williamson Murray, Stephen Rosen, Barry Posen, and Adam Grissom. Additionally, Barno and Bensehel offer short illustrative examples of success or failure in the adaptation of doctrine, technology, and leadership to prepare the reader for the later analysis of the conflicts in Iraq and Afghanistan.

The second section, the heart of the book, provides the reader with a withering critique of the Army’s performance, particularly at the institutional (big Army) level, in adapting its doctrine, accepting new/modified technology, and altering its strategic plans. Perhaps as expected, the individual Soldier and tactical leader (exemplified by Captain John Abizaid adjusting his company’s tactical plan in Grenada in 1984) come off well, while the institutional Army performs poorly across all areas, with the possible exception of General David Petraeus’s going around the Army bureaucracy to produce the 2006 Field Manual (FM) 3-24, *Counterinsurgency*, in record time.

In four excellent chapters, Barno and Bensehel hail the doctrinal and technical adaptability evident in the drafting of FM 3-24, the creation of Provincial Reconstruction Teams, the modification of Apache helicopter tactics to provide close air support in Afghanistan, and the MacGyver-like ability of those pilots in keeping their aircraft flying. Appropriately, they eviscerate the institutional Army (and Marines) for failing to accept the MRAP (mine-resistant ambush protected vehicle) and Palantir Technologies’ intelligence system (over Distributed Common Ground Station—Army) earlier during the conflicts.

Regarding tactical leadership, they extol the adaptive thinking of then colonels Sean McFarland and H.R. McMaster in Iraq for changing their

tactical approach and applying classic counterinsurgency doctrine in Ramadi and Tal Afar a year before FM 3-24 appeared, and Special Forces Captain Mark Nutsch, for his team’s support of Uzbek warlord Abdul Dostum during the early days of Operation *Enduring Freedom*. They also offer withering criticism of Generals George W. Casey, Jr. (commander, Multi-National Force—Iraq, June 2004–February 2007) and David D. McKiernan (commander, International Security Assistance Force, and U.S. Forces–Afghanistan, June 2008–May 2009) for failing to understand the conditions of conflicts they were fighting and adapting their theater strategies to maximize U.S. and coalition opportunities for success.

The third section considers the challenges of future war, particularly the influence of the space and cyber domains; assesses the U.S. military’s adaptability today; and recommends how the Department of Defense (DOD) and the Services could improve their individual and institutional adaptability. Their critiques and recommendations will find favor and raise questions. Regarding doctrine, they recommend that the joint force add “adaptability” as a principle of war, integrate adaptation and free play into major exercises, train and test units under degraded conditions, and emphasize resilience across the force. Concerning technological adaptability, they recommend that DOD restore rapid adaptive organizations such as the Strategic Capabilities Office and the Asymmetric Working Group, require all military technology operate in degraded (non-networked, no space link) environmental conditions, and sponsor an annual rapid-adaptation competition. To improve leadership adaptability, they advocate that the Services add it as a rated area on efficiency reports, expand the technical literacy of future commanders, and send more officers to an Advanced Civil Schooling program. And while their commentary on PME is episodic and perhaps dated, they are nonetheless correct in arguing that PME reform would advance adaptable thinking within the military.

It is with this last recommendation that this reviewer, a retired senior officer

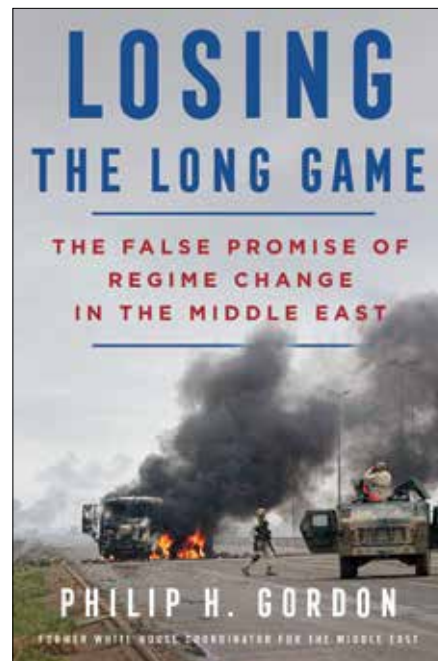
and PME administrator and instructor, quibbles slightly. *Adaptation Under Fire* tends to tar all PME with wide and indiscriminate brushstrokes. As they note, PME should be more academically rigorous, and even fail students, but in their critique the authors fail to acknowledge that some institutions, such as the Joint Advanced Warfighting School, conduct over 40 individual and collective assessments of students and routinely fail colonels out of the war college for academic (nonethical) reasons.

Barno and Bensahel argue for more civilian schooling to avoid the groupthink prevalent among uniformed faculty and students; but beyond stereotyping, they neglect to cite the increasing number of civilian faculty employed at those institutions for the express purpose of elevating academic rigor and infusing curricula with external ideas and attitudes. Like others, they also wistfully compare DOD's PME institutions to the Nation's best graduate schools, like the Johns Hopkins School of Advanced International Studies (SAIS), where they teach. For a host of reasons including mission, faculty, student body, political capital, and budget, this is an illogical comparison. SAIS has one of the best and most selective international relations 2-year master's degree programs in the country; its purpose is to prepare much younger students (average age 26, with 2-years of work experience) for lower level work in business and government. The mission of DOD's officer education enterprises, specifically its war colleges, is to educate and prepare almost 600 senior officers annually for positions of higher responsibility. Unlike very selective graduate programs, not every captain (O6) or colonel entering PME is an Einstein or Eisenhower. They are competent, tactically proficient leaders, but not all possess the inherent capacity to become strategic saviors. The task of PME is to improve the critical thinking and communication skills of those individuals such that they contribute to the Nation's defense at the next, if not perhaps the ultimate, level of military responsibility.

Adapting Under Fire is a solid and useful addition to the literature on

innovation, adaptation, and change in the military. Its analysis of the wars in Iraq and Afghanistan are its most compelling and illuminating chapters, but its recommendations should and will generate much worthy conversation and debate. JFQ

Professor Bryon Greenwald, Ph.D., is the former Dean of the Joint Forces Staff College and a Professor at the Joint Advanced Warfighting School, where he teaches military theory, history, and innovation.



Losing the Long Game: The False Promise of Regime Change in the Middle East

By Philip H. Gordon
St. Martin's Press, 2020
368 pp. \$26.49
ISBN: 978-1250217035

Reviewed by Thomas C. Greenwood

Few authors are more qualified to write on U.S.-sponsored regime change in the Middle East than Philip Gordon, who worked as Special Assistant to President Barack Obama for the Middle East (2013–2015) and as Assistant Secretary of State for European and Eurasian Affairs

(2009–2013). His book, *Losing the Long Game*, is elegant, thoroughly researched, and comprehensible; it belongs on the syllabus of every war college and policymaker's desk for two reasons. First, the author shines a spotlight on the opaque (sometimes secretive) history of U.S.-sponsored regime change in the Middle East and, in so doing reveals many rich insights. Second, Gordon dispels the misguided notion that American exceptionalism endows the United States with unmatched foresight and wisdom to effectively reengineer Middle East governments in a way that advances U.S. national security interests, promotes regional stability, and strengthens the international order.

Gordon examines seven cases of regime change over the past 70 years: Iran (1953), Afghanistan (1979–1992), Afghanistan (2001), Iraq (2003), Egypt (2011), Libya (2011), and Syria (2011). They all failed to deliver the policy outcomes desired by Washington, made the Middle East more volatile, and more recently, were a strategic distraction from other emerging threats such as China and Russia.

The author explains that these failures did not result from impure U.S. motives (for example, take the oil and run) or even an unwillingness to double down by increasing troop levels and funding, which failed to save the day in either Iraq or Syria. Rather, once policymakers decide on regime change as their preferred option, “they overstate the threat, underestimate the costs and risks, overpromise what they can accomplish, and prematurely claim success if and when the targeted regime falls.” Yet Gordon does not ignore the possibility that the costs of inaction (that is, of not intervening and undertaking regime change) could have been higher and more harmful over the long run.

Two of Gordon's most riveting ideas, however, are that regime change frequently fails because of the security vacuums it creates (filled by actors who are often more repressive than the toppled regimes), and the unanticipated consequences that escape rigorous

analysis by policymakers before they act: raising tension between armed opposition groups, disrupting the distribution of scarce resources, fostering long-term dependency on outside powers, and perpetuating the harmful optic that the United States is the self-appointed global cop.

Gordon uses the example of Libya to illustrate just how dangerous security vacuums can be. When Muammar Qadhafi's successor, Abd al-Hakim Belhaj—former head of the al Qaeda-affiliated Libyan Islamic Fighting Group—declared himself the leader of all liberation forces, other Western-oriented opposition leaders became infuriated and competing militias began killing each other. By June 2014, Libya had two competing governments backed by competing militias, and the country had descended into a multi-sided civil war with no end in sight.

Gordon is also equally damning about the ripple effect the moral hazard created in Libya had on Syria's rebel groups. The latter believed that by escalating violence, the world's most powerful militaries would intervene on their behalf. Sadly, instead of leading to Bashar al-Asad's ouster, it caused, "the greatest humanitarian catastrophe since World War II, a refugee crisis, the destabilizing of Syria's neighbors, the growth of the [so-called] Islamic State, and political spillover into Europe and beyond."

Gordon believes the following factors contribute to regime change failures: inadequate planning for what comes after regime collapse; U.S. forces being viewed as occupiers instead of liberators; not recognizing that local actors will pursue their interests first; regional neighbors seeking to destabilize new regime leadership; moral hazard created elsewhere; a general lack of U.S. knowledge about the Middle East; the difficulty of staying committed after intervening; unrealistic expectations about transplanting democratic values abroad; and a mistaken belief that throwing more money and troops at a problem will make it better. Unfortunately, these factors can become intertwined and unleash their own dynamics that neither the White House nor Pentagon can control.

The book's overall thesis would have been strengthened had Gordon discussed the limitations of regime change—a means to a higher end—within the context of U.S. grand strategy. Here, introducing G. John Ikenberry's idea of a "liberal hegemonic order" would have helped readers better understand why U.S. leaders of all stripes feel the messianic urge to spread democratic values around the globe—even if they can only be imposed by force and by violating other countries' sovereignty and right to self-determination.

After taking the reader on a journey of tears, the author recommends a policy alternative to regime change. It is a hybrid approach of practical measures including a mix of containment, deterrence, diplomatic engagement and support for partners, selective military action, arms control, and economic investment and "the restoration of the United States as a respected, prosperous, and democratic alternative [that] will produce better results than the pursuit of costly, quixotic and unrealistic campaigns to overthrow regimes."

Perhaps. But even if policymakers adopt the author's more robust menu of soft and smart power policy options, the temptation to undertake regime change will remain irresistible as long as America fails to internalize the hard lessons of the Middle East and remains wedded to a misguided sense of exceptionalism. JFQ

Colonel Thomas C. Greenwood, USMC (Ret.), is a Research Staff Member in the Joint Advanced Warfighting Division at the Institute for Defense Analyses.

STRATEGIC HUMANISM

Lessons on Leadership
from the Ancient Greeks



CLAUDIA HAUER

Strategic Humanism: Lessons on Leadership from the Ancient Greeks

By Claudia Hauer

Toronto: Political Animal Press, 2020
180 pp. \$24.99

ISBN: 978-1895131444

Reviewed by Christopher Kuennen

At some point between the legendary Greek siege of Troy and the infamous defeat of Athens at Syracuse, the philosopher Heraclitus rather astutely discerned that *Éthos anthropôi daimôn* (Character is fate). His assertion might be thought of as a pithy distillation of the practical wisdom of ancient Greece. In *Strategic Humanism*, Claudia Hauer urges leaders to engage with this tradition; military officers and defense policymakers stand to gain not only theoretical insights from an attentive reading of the Greek classics, but also a way of perceiving the world and its conflicts as beyond total human mastery and yet shaped by the virtues and vices of human character.

Hauer's presentation of the value of humanistic study is especially compelling in light of the evolving implications of

artificial intelligence (AI) for the profession of arms. In February 2020, the Department of Defense (DOD) officially adopted five ethical principles to guide its ongoing development and use of AI: namely, that it be responsible, equitable, traceable, reliable, and governable. Though these principles are meant to embody “existing and widely accepted ethical and legal commitments,” DOD has nevertheless recognized its need to better understand how to actually apply the principles. It is this perennial and important challenge of putting principles into practice that Hauer addresses in *Strategic Humanism*.

The primary obstacle to imposing ethical norms on the technical development and operational application of AI is the infinitely complex context in which practical choices occur. The finite aims and mechanisms of a given technology pose inherent obstacles to unfettered appreciation for the range of morally relevant factors surrounding its use in any particular situation. In the crowning chapter of Hauer’s book, she emphasizes this fundamental lesson of Aristotelean ethics: “As something essentially interactive, moral action cannot be worked out in advance, prior to our immersion in whatever situation calls for our response.” This condition of moral decisionmaking should influence not only the objectives of algorithmic design but also the manner in which tech developers and operators are trained in ethics. If there are no “categorical imperatives”—no universally applicable rules for judgment—then moral action demands a character capable of discerning what is best in any given situation. AI cannot be “ethical” if the human beings designing it and employing it lack a virtuous ethos, an excellent character.

Strategic Humanism presents Homer, Herodotus, Thucydides, and Aristotle as partners in an ever-fruitful dialogue aimed at educating such a character. Hauer argues that these thinkers provide an important check on the somewhat ironic, though widely influential, Cartesian prejudice against the role that human subjectivity plays in even the most rigorously scientific analysis. She

draws on the account of King Croesus in Herodotus’s *Histories*, for instance, to illustrate the danger of interpreting situational ambiguity according to a framework constructed of one’s own preconceived hopes and biases. Herodotus recounts how around 550 BCE a mounting Persian threat prompted the Ionian Greeks to prepare for conflict. For his part, King Croesus of Lydia offered sacrifices to the Delphic Oracle for divine counsel. The oracle answered Croesus’s supplications by predicting that if he attacked the Persians, a great empire would be destroyed. Croesus proceeded to begin a campaign against Persia—but in the end, it was his own empire that was ruined. According to Hauer, Croesus’s failure exposes the limits of his interpretive imagination; he failed to consider how the particularities of his situation bore on the information at his disposal.

Since technology too has the effect of not only solving problems but also framing them in a specific way, our tools can sometimes impede our interpretive imagination, our ability to perceive all the factors relevant in making ethical decisions: “If all you have is a hammer, then everything looks like a nail.” Indeed, reducing unintended bias (for example, for race or gender) is already one of the foremost topics in the discipline of AI ethics, and DOD directly addresses such bias in its own “equitable” principle. *Strategic Humanism* offers a strategy for expanding the moral imagination of its readers—including military AI developers and users—by putting key themes of the profession of arms in dialogue with the Greek humanists.

Hauer accomplishes her intended goal—“to familiarize the reader with a Hellenic way of seeing the world, in which character displays itself in action”—by exploring how the Greeks wrestled with such diverse and timely topics as vengeance, intercultural competency, and violent deterrence. Running through the collection of six essays that constitute *Strategic Humanism* is an insightful metanarrative that connects the fate of the ancient Greeks to their character, socially and individually. The power of Greek city-states grows as they use

a common language to share stories of virtue and notions of the common good, and withers as utilitarian nihilism drives them to act out of self-interested fear. Hauer successfully demonstrates how engaging with the Greek classics can help broaden one’s moral imagination, even as the technology one depends on might otherwise limit it.

Strategic Humanism draws on Hauer’s time as a visiting humanities professor at the Air Force Academy, and though her work lacks explicit connections to many of today’s most prominent defense issues (for example, warfighting in the space and cyberspace domains), her perspective manifests a perspicacious and broadly applicable awareness of the poverty of a technocratic approach to forming military minds. Especially as AI rapidly alters the pace and nature of our decisionmaking, we should take seriously the ability of the Greek classics to “liberate human judgment to reflect strategically on what we are doing.”

Readers convinced by Hauer’s account of the relationship between human character and technology can find additional insight in the work of AI ethicist Shannon Vallor, including in her *Technology and the Virtues: A Philosophical Guide to a Future Worth Wanting* (Oxford University Press, 2016). But even if you do not read Hauer or Vallor, heed their advice: read the Greeks. JFQ

Captain Christopher Kuennen, USAF, is an Intelligence Officer at the National Air and Space Intelligence Center.



Waterborne Romanian troops prepare to move across Danube River as part of U.S.-led exercise Saber Guardian 2017, in Romania, July 17, 2017 (Courtesy NATOChannel, Jack Somerville)

U.S. Joint Doctrine Development and Influence on NATO

By George E. Katsos

Those possessed of a definite body of doctrine and of deeply rooted convictions will be in a much better position to deal with the shifts and surprises of daily affairs.

—SIR WINSTON CHURCHILL

Joint doctrine captures and socializes fundamental principles that guide the Armed Forces in campaign activities and military operations. Moreover, its content forms the foundation for assisting partnerships such as the North Atlantic Treaty Organization (NATO) in its implementation of collective defense, crisis management, and cooperative security activities. Joint doctrine's importance is so influential that NATO modeled its own allied joint doctrine development system after it. While the library of U.S. joint publications (JPs) continues to be a steadfast repository of information, joint doctrine's Achilles's heel is its inability to reflect changes quickly

Colonel George E. Katsos, USAR (Ret.), is a Program Manager on the Joint Staff.

enough to optimally serve today's generation of warfighters that is actively implementing policy. As such, it cannot drive rapid systemic changes in the NATO system. This article examines how the U.S. system is becoming more responsive to change and could influence NATO more quickly.

Military advice can often be conflicting unless coming from the same school of thought.¹ In 1985, a Senate Armed Services Committee staff report identified poorly developed joint doctrine as one of the symptoms of inadequate unified military advice.² Joint doctrine's purpose is to provide a common framework that U.S. military leaders refer to when providing advice to civilian counterparts and leaders. As a result of that report, at least in part, the following year Congress issued legislation that vested overall responsibility for U.S. joint doctrine development in a single individual—the Chairman of the Joint Chiefs of Staff (CJCS).³ Shortly after, the Chairman placed joint doctrine and terminology standardization responsibilities in the Joint Staff J7. Over the next few decades, the joint doctrine development system brought together some of the brightest minds in the Department of Defense (DOD) to build a common foundation for the modern era of joint doctrine.

Joint doctrine is official advice and should be followed unless a commander determines otherwise. However, joint doctrine offers much more than guiding mission success; it informs DOD and allied personnel on joint warfighting capability improvements, senior civilian leadership on approaches to military workforce employment, and non-DOD and non-U.S. Government personnel on how the U.S. military perceives and interacts with their organizations.⁴

A recently published document by the Joint Chiefs of Staff (JCS) states that the U.S. military workforce requires leaders at all levels who can achieve intellectual overmatch against adversaries.⁵ In the face of new geopolitical realities, expanding warfighting domains, emerging technical capabilities, and accumulating resource constraints, reflections on these issues are already challenging the doctrinal status

quo.⁶ From global integration to the competition continuum to creating a new military Service or adding members to the JCS, it is important that joint doctrine navigates leaders and readers away from outdated approaches that may not allow military workforces to adapt quickly enough. New challenges and anticipation of them—whether impacting cooperation or stemming from adversarial competition or conflict—are occurring faster and with less warning from more directions simultaneously and with far greater precision, lethality, and disruption than ever before.⁷ While joint doctrine has served the United States and supported NATO efforts well in the past, its system must constantly be reassessed as to whether it is agile or responsive enough to meet the challenges presented by external factors that now drive change.⁸

In the past 30 years, the process of the U.S. joint doctrine development system is often described as a consensus-driven function that links together a capstone, keystone, and subordinate JP pyramid hierarchy based on traditional Joint Staff directorate lines of responsibility (J1, J2, J3, and so forth) through vertical and horizontal alignment. This system continues to survive waves of expansion, contraction, and reorganization.⁹ The NATO system was originally structured on the U.S. model. It bins allied joint publications (AJPs) content in three categories: Level 1, capstone/keystone; Level 2, functional area publications that make up the AJP library; and Level 3, lower level publications. Both U.S. and NATO publications are developed within a consensus-based system.

The issue with a consensus-based system is that it usually drives to the lowest common denominator of agreement and is often seen as one interest group rolling another or the development of content watered down, losing original intent.¹⁰ For the topics of library expansion and contraction, the iterative challenge is whether one process automatically course-corrects the other or whether correction has to happen with brute force. For library reorganization, the balance is fought between necessity and political will. Other challenges include

the interpretation and separation of broad policy direction versus strict joint doctrine guidance, the expectations of individual subject matter experts versus enterprise gatekeepers (doctrineers and terminologists), and military Service capability relevance in the face of joint force integration.¹¹

In order to be adaptable and better support allies, the U.S. joint doctrine community must refine its policies and streamline its procedures to address these and other challenges and overcome status quo tendencies. To reinforce both Alliance purpose and unity, the United States agrees to abide by certain NATO policies and procedures and participates in the allied joint doctrine development process. The following groupings provide an overview of U.S. and NATO systems and processes as well as potential efficiencies.

Twentieth-Century Growth (1905–1991)

U.S. doctrine can be traced back to the Civil War, but formal U.S. doctrine comes into focus in 1905 with the publication of Field Service Regulations (FSRs).¹² (European history also contains many individual doctrine writings, most from military scholars from the 18th century onward.) U.S. origins stem from the early 1920s Army and Navy joint action in pursuit of coordination during operations.¹³ In 1939, FSRs were superseded by U.S. Army field manuals. During World War II, the Army developed its first military dictionary to improve interoperability among military Services and allies. In 1948, that document transformed into the first U.S. joint dictionary.¹⁴ After World War II, Service-driven doctrine became the backbone for 29 JCS publications guided by joint action policy.¹⁵ While the nomenclature system was at best random, the JCS publication footprint and subsequent 1959 guidance on united Armed Forces action policy informed the modern 1991 JP library structure. Through this period, the Services were still given wide latitude in JP development responsibilities. While NATO early on had communications,



Croatian soldiers discuss logistics during Immediate Response 19, co-led by Croatian armed forces, Slovenian armed forces, and U.S. Army Europe, in Croatia, May 27, 2019 (Courtesy NATO)

technical, and other publications, in 1958 it also developed its first official glossary of NATO terms and definitions subsequently published in the 1959 U.S. dictionary of military terms, further strengthening the foundation of cooperation between entities.¹⁶

Post–Cold War (1991–2000)

Before the 1986 National Defense Authorization Act, there was no individual responsible for U.S. joint doctrine development. There was no standard process for initiating, coordinating, approving, or revising joint doctrine. Moreover, there was no requirement for congruity between joint and Service doctrine, nor was the difference between joint and Service doctrine clear. Significantly, there was no mechanism that incorporated the expertise and knowledge that commanders were expected to use. In addition, the joint doctrine development system had no

means of either identifying or addressing doctrinal voids.

Joint doctrine was also published without formal evaluation. Initially with approximately 58 JPs in 1988, development continued; however, command staffers years later found it difficult to maneuver through joint doctrine's 120-plus approved and emerging JP titles. In essence, readers did not know where to start or what they needed to know.¹⁷ NATO's development policies and architecture formulated in the mid-1990s had approximately 35 AJPs and were built and based on the U.S. model.¹⁸

At one joint doctrine semiannual conference, General John Shalikashvili personally addressed the U.S. joint doctrine community and certain NATO attendees about the joint doctrine development system and process being stovepiped, time development horizons too elongated, and library subject matter unorganized (and of lesser quality

and consistent content).¹⁹ Compared to previous practices, the Chairman was now solely responsible for joint doctrine development and, through the J7-managed development system, refined its process and established new definitions, procedures, processes, and structures along with refining key positions (that is, lead agent, primary review authority, JCS doctrine sponsor, coordinating and technical review authorities).²⁰ Moreover, not only did J7 lead the effort to organize the joint doctrine library structure, but it also spearheaded ongoing JP consolidation and creation. This change brought structural logic to the joint doctrine library under traditional JCS directorate lines of responsibility, while new JPs filled joint doctrine gaps in support of joint operations.

Additionally, combatant command involvement was now mandatory, and the 5-year JP revision cycle required content consistency within and without

revised JPs. As such, the J7 began to exercise a more assertive role to include JCS directorate involvement and to keep them active in the process while the Services adhered to the primacy of joint doctrine.²¹ Overall, actions taken between 1991 and 2000 got the U.S. joint doctrine house in order.

For allied joint doctrine development, the J7 Joint Education and Doctrine Division was responsible for ratifying Levels 1 and 2 AJPs for the United States. The J7 also ensured U.S. joint doctrine was used as the initial basis for U.S. inputs during NATO Levels 1 and 2 AJP staffings and worked with multinational partners and U.S. representatives to minimize impacts of variances between the United States and NATO. Other DOD entities were responsible for Level 3 allied publication ratification. The J7 also acted as the U.S. Head of Delegation for allied joint doctrine and terminology standardization purposes at the NATO Military Committee Terminology Board and Allied Joint Doctrine (AJOD) working group. NATO foreign liaison and exchange officers on the Joint Staff also attended and briefed at the semi-annual joint doctrine planners conference, thereby staying informed of U.S. military workforce challenges and improvements and using lessons learned to improve their own allied joint doctrine development system.

9/11 (2001–2010)

On September 10, 2001, the Joint Staff J7 published JP 3-0, *Joint Operations*, and the *Joint Doctrine Capstone and Keystone Primer*.²² Linked to existing strategic guidance and the primacy of traditional approaches to warfare (violence used to dominate opponents), the very next day these two documents became obsolete in the preparation for conflict with state and nonstate actors and their irregular approaches to offsetting dominant opponent advantages. The response to the terrorist attacks of September 11, and the subsequent second conflict with Iraq, generated a strategic shift in policymaking that overcame a nonexistent National Defense Strategy (published in 2005) and an

out-of-date National Military Strategy (published in 1997 and replaced in 2004).²³ While strategic guidance took its time to arrive, so did its impact on joint doctrine.

The U.S. joint doctrine library retained its hierarchy with a capstone JP underpinned by six keystone JPs supported by a subsequent layer of subject matter JPs. Changes to joint doctrine's keystone layer of JPs were slow to appear, based on traditional versus irregular content after 9/11, as the joint force awaited senior-level policy guidance. A reissuance of JP 1-0, *Joint Personnel Support*, took almost 5 years; JP 2-0, *Joint Intelligence*, almost 7 years; JP 3-0, 5 years; JP 4-0, *Joint Logistics*, 6 years; JP 5-0, *Joint Planning*, 5 years after 9/11 and over 2 years after the planned invasion of Iraq; and JP 6-0, *Communication Systems*, over 4 years. Most concerning, however, was that joint doctrine's capstone document, JP 1, *Doctrine of the Armed Forces of the United States*, took years to be reissued, waiting for National Defense Strategy and National Military Strategy direction and publication. Regardless of national limitations in strategy formulation, the aforementioned senior-level JPs were what U.S. military planners and operators went to war with both in Afghanistan (2001) and Iraq (2003).

NATO's joint doctrine development system began similar to the U.S. one but has significant differences that influenced its evolution. One difference is that NATO manages voting participation from individual nations with their political influences compared to the U.S. system managing DOD voting organizations (combatant commands, military Services). Another is that NATO allows its military committees to formulate and catalogue both doctrine and policy terminology, while the United States eventually halted that practice and generated criteria for joint doctrine terminology primarily from JPs.

For the U.S. process, joint doctrine development managed the JP life cycle adequately, but with multiple draft benchmarks, many JP dates did climb well beyond the 5-year threshold. Joint doctrine revision and production time

horizons were so long and slow that there was a demand to send out draft joint doctrine to push updated information to the warfighter quicker. The NATO process was similar in time and steps. To address revision practices and library expansion, the U.S. joint doctrine enterprise not only refined procedures but also embarked on its second consolidation effort to reset the JP library structure by decreasing it by over 33 percent. This reset was similar to the first organization—forced by circumstance, but with J7 now advocating for top-down driven approaches both to protect resources and for its process to be more responsive to change and to the warfighter.²⁴ To further expedite joint doctrine development, a test publication process was refined that became a vehicle for field-testing validated joint concepts.

Both U.S. and NATO processes provided more opportunities for individual publication consolidation and quick revision. While these processes were born 10 years apart and the models operated similarly, there was a year-and-a-half lag time for NATO to capture related changes made in the U.S. system. Moreover, a joint doctrine survey to the joint force revealed the size of, and impact to, full-time staffs and government billets dedicated to joint doctrine development. This survey opened the aperture for future discussions on what and how much product the joint doctrine development community should or could focus on. Additionally, the irregular warfare construct finally began to make its way down from policy into filling voids in joint doctrine.²⁵

While J7 socialized more top-down changes, community consensus limited progress. Efforts did bear fruit, however, with the standardization of military terminology. As an ever-expanding doctrinal dictionary was impacted by policy term infiltration from DOD directives and NATO proposals, this lack of clarity in and protection of the DOD dictionary added much confusion as to who was in control of the language that U.S. military forces used to communicate with each other.²⁶ As a result, the dictionary changed focus to reflect well-vetted JP glossary doctrinal terms with acceptance

of senior-level policy terms that filled temporary gaps in joint doctrine development. While the strategic surprise in this era of the 9/11 attacks showed how slow the joint doctrine development process and system were to change, the example of exercising a top-down approach with terminology cascaded into subsequent reform efforts in joint doctrine formulation.²⁷

For organizational purposes, U.S. Africa Command (USAFRICOM) stood up in 2007 and became a part of the joint doctrine development community. As more U.S. military support activities occurred on the continent, USAFRICOM's area of responsibility brought new perspectives on doctrinal gaps relating to civilian populations on the move from natural and manmade threats.²⁸ NATO also created bilateral strategic commands. In support, the U.S. European Command commander served as the Supreme Allied Commander, Europe, and the U.S. Joint Forces Command commander served as the Supreme Allied Commander, Transformation (SACT), with command over force development activities including doctrine development and NATO's centers of excellence.²⁹ Additionally, former Warsaw Pact nations began to join NATO, increasing the numbers of allied joint doctrine voting members, and France rejoined NATO's integrated military command structure.

The Next Decade of War (2011–2020)

The publication of the titles *Decade of War* and *Lessons Encountered* exposed that military forces and leaders had to change their approaches to working with civilian-led organizations.³⁰ While the incline was real, some writers credited the joint doctrine enterprise with being one of two remaining U.S. Government Beltway entities that consistently reached out to cooperate with civilian-led organizations on whole-of-government efforts. Richard Hooker and Joseph Collins wrote, “Unfortunately, emphasis on working whole-of-government issues is fading across the U.S. Government, except in the field of joint concept and doctrine

development.”³¹ Furthermore, J7 addressed previous reports on the lack of interoperability with interagency stakeholders by cooperating with them to build the first *Joint Guide for Interagency Doctrine*. Released in 2019, the guide expanded on current knowledge and assisted in the strategic art of navigating government bureaucracy to make workforces collaborate more efficiently in pursuing national policy objectives. Additionally, J7 formulated an annual call process that many of these civilian-led organizations now have as a direct link to the highest levels of the U.S. military for the first time through the joint doctrine development process.³² In this process, interoperability improved between workforces through input on joint doctrine assessments and draft JPs that reflect organizational perspectives and interaction that put civilian organization perspectives in front of senior military leaders and warfighters.

In pursuit of resource efficiencies, some progress in reorganizing JP content to the warfighter was stunted by support for, and translation of, outdated restrictions and policies. In turn, J7 adopted a more assertive top-down approach to joint doctrine development under a senior-level initiative termed Adaptive Doctrine. Under Adaptive Doctrine, J7 instituted a more agile process to optimize the JP library in becoming more adaptable and flexible in organization as well as meeting joint force demands to best support joint operations and not be overrun by individual communities of interest. The J7 reduced its library 15 percent over the last 2 years.

Annually, JPs are now selected for revision by the joint doctrine development community based on necessity and importance. This approach removed the traditional 5-year JP time horizon revision cycle. With an annual master priority list and new single draft system, changes streamlined the revision process, putting JPs that fell under annual cut lines and those with similar content to other JPs as well as others with older dates under more scrutiny.

For library reset purposes, J7 split its capstone JP into two volumes, an

evolving one that reflects senior-level guidance and a static one that is concerned with theory and foundations. JP 3-0 continued its vertical alignment with JP 1, but now other keystones align horizontally with JP 3-0 to best support it. The primacy of individual keystones now reinforces subsequent vertical alignment. Library organization now has reinforced logic and can support top-down directed policy insertion placement. Procedures now support updating doctrinal expertise from multiple sources into a specific JP with a one-time horizon. Under Adaptive Doctrine and new business rules, the United States cut 8 to 10 months off staffing timelines, removed lower level staffing that subsequently emphasized O6/planner-level involvement, and supported one product per routine revision in 12.5 months with the development stage as well as more streamlined U.S. staffing efforts on NATO Levels 1 and 2 publications without losing quality.

While some challenges persist, progress was made on issues that existed in the previous decades. J7 initiated joint doctrine notes to encourage still emerging ideas. Standardized terminology and the DOD dictionary received more protection from policy term infiltration by housing it as an appendix in the CJCS-signed JP 1. Consolidation and top-down action reversed hierarchy structural erosion that made keystones weaker than subsequent hierarchical JPs. Campaign schedule and plan efficiencies countered sequestration and resource constraints. Strategic guidance and countering adversarial practices content were captured faster through change processes, top-down driven actions, and mid-year schedule and plan corrections. Furthermore, library reset put in motion the system's third consolidation effort via top-down guidance, but this time with an automatic 5-year reset disclaimer that protects the joint doctrine development community from future burdensome practices, driving the community toward evolution and away from permanent stasis and automatic expansion.³³

Since 2011, NATO's AJP library has increased 23 percent. NATO's routine development stage estimate timeline is

now 8 months longer than the recently shortened U.S. model with more staffing products. This divergence not only affects national resources in both systems but also brings to light the opportunity for efficiencies. The best example is that the United States began the process of combining content from five standing JPs on joint intelligence under one JP with a single time revision horizon. NATO, however, remains at 10 Levels 1 and 2 joint intelligence-related AJPs with 10 different time revision horizons to update the complete joint intelligence doctrinal footprint. Additionally, multiple drafts push off senior officer input until the end of the process. The number of custodians, revisions, and ratification commitments of intelligence AJPs and other sources should generate reassessment of national resource commitments to non-U.S. efforts. NATO has also expanded its membership to 30 nations, all with voting rights in allied joint doctrine development.

For military organizational structure, the doctrine development community added the National Guard Bureau, U.S. Cyber Command, U.S. Space Command, and U.S. Space Force as voting members. U.S. Joint Forces Command was disbanded in 2013 and NATO's SACT responsibilities transferred to a French general officer. Joint Warfighting Center doctrine personnel now fall under the Joint Staff J7 Joint Education and Doctrine Division. The DOD Terminology Program reformed and implemented new policy that streamlined 75 percent of the DOD dictionary content and encouraged the U.S. Government to build and publish its own compendium of interagency terms.³⁴ Furthermore, program managers for both DOD terminology and allied joint doctrine development assist in senior-level guidance and influence efficiencies and resource protection.

Top-Down Approach

U.S. and NATO joint doctrine system and process challenges are not isolated. Other areas, such as U.S. policy, strategy, and plan formulation, face similar impediments to becoming more agile



Soldier from North Macedonia in full "ghillie suit" camouflage during Immediate Response 19, in Croatia, May 29, 2019 (Courtesy NATO)

and innovative in the face of today's complex threats. Former Under Secretary of Defense Michèle Flournoy testified to Congress about defense policy formulation becoming a "bottom-up staff exercise [that] includes hundreds of participants and consumes many thousands of man-hours, rather than a top-down leadership exercise that sets clear priorities, makes hard choices, and

allocates risk." The late Senator John McCain (R-AZ) stated:

development . . . in DOD has become paralyzed by an excessive pursuit of concurrence or consensus. . . . Innovative ideas that challenge the status quo rarely seem to survive the staffing process as they make their long journey to senior civilian and military leaders. Instead, what results too often



U.S. Marine with Marine Rotational Force-Europe 21.1, Marine Forces Europe and Africa, stands watch during cold weather training in preparation for Exercise Reindeer II, in Setermoen, Norway, November 12, 2020 (U.S. Marine Corps/William Chockey)

*seems to be watered-down, lowest common denominator thinking that is acceptable to all relevant stakeholders precisely because it is threatening to none of them.*³⁵

While U.S. systems face procedural challenges in the speed of decisionmaking and content dissemination, a top-down approach could further explore and forcefully emplace improved organizational results.

Next 30 Years

Given the last decade, it is important to continue capturing and formulating content on adversarial approaches and competitor influences and how military force is applied, whether tied to conflict or not.³⁶ In order to further reduce and eliminate policy and process imperfections, the new 5120 Series CJCS

Instruction and Manual will establish a more explicit top-down approach that sets boundaries for the Joint Staff to be more assertive in managing change. The policies will empower process owners to consolidate or cancel publications at any stage of the JP life cycle, better navigate the process of updating like-minded information simultaneously, and save the joint doctrine community thousands of hours and free hundreds of thousands of man-hours for other priorities in joint doctrine development. Conservative estimates show that a routine full JP revision cycle costs approximately \$300,000 (\$100,000 per full revision of NATO AJP) and 8,000 man-hours (2,000 man-hours and 500 custodian hours per full revision of NATO AJP). Per the old 5-year JP cycle, documents lined up in a queue regardless of topic.

Now, communities can commit their expectations and resources toward topics of necessity and importance.

A new committed approach to consolidation and library reset could update the full library in 3 years or less. Moreover, joint doctrine was disseminated as hard copies. Distribution went from mailing copies to compact disc management and then to Web page access and downloading. Looking toward the future, more U.S. joint doctrine will be considered sensitive and protectable behind firewalls with limited access.

For NATO, there is a huge efficiency in allied joint doctrine gained using the new U.S. JP 2-0 as a strawman for intelligence allied joint doctrine reorganization. NATO could also explore moving away from its 30 voters, at least in the AJOD, and move toward strategic

and subordinate commands as voters to remove barriers. U.S. and NATO challenges to be aware of and navigate are strict U.S. criteria-based terminology approaches that at times run into being subordinate to international laws and agreements, U.S. enterprise proposals compared to NATO standardization and national influences, and the capacity of U.S. support versus sustainable maintenance, especially within identified burdensome work practices.³⁷ In this, NATO's Allied Command Transformation and Military Committee Joint Standardization Board could strengthen the AJOD's role as the chief operations officer of allied joint doctrine development by driving top-down approaches to change library organization, policy and process formulation, standard agreement streamlining, and system implementation to effect real change in pursuit of a successful comprehensive approach. Furthermore, there must be an understanding that national resource commitments must be reviewed in light of resource constraints.

In totality, the U.S. joint doctrine development system is entering a third 30-year time period for library reset (1959, 1991, 2020). Joint Staff J7, with new policies and a vision for the future, will be better positioned to generate more practical decisions and informed recommendations to leadership, provide a quicker response to policy guidance demands, harmonize with allies such as NATO, and present a more organized and logical joint doctrine library to warfighters to best support joint operations. JFQ

Notes

¹ Dudley W. Knox, "The Role of Doctrine in Naval Warfare," U.S. Naval Institute *Proceedings* 41, no. 2 (March–April 1915), 325–354, available at <<https://www.usni.org/magazines/proceedings/1915/march/role-doctrine-naval-warfare>>.

² Senate, Committee on Armed Services, *Defense Organization: The Need to Change*, Staff Report, 99th Cong., 1st sess., Committee Print (S Prt 99-86), October 16, 1985, 163–165.

³ *Goldwater-Nichols Department of Defense Reorganization Act of 1986*, Pub.L. 99-433,

99th Cong., H.R. 3622, October 1, 1986, available at <<https://www.govinfo.gov/conent/pkg/STATUTE-100/pdf/STATUTE-100-Pg992.pdf>>.

⁴ Douglas C. Lovelace, Jr., and Thomas-Durell Young, "Joint Doctrine Development: Overcoming a Legacy," *Joint Force Quarterly* 14 (Winter 1996–1997), 94–100.

⁵ *Developing Today's Joint Officers for Tomorrow's Ways of War: The Joint Chiefs of Staff Vision and Guidance for Professional Military Education & Talent Management* (Washington, DC: The Joint Staff, May 2020), available at <https://www.jcs.mil/Portals/36/Documents/Doctrine/education/jcs_pme_tm_vision.pdf?ver=2020-05-15-102429-817>.

⁶ Gidget Fuentes, "INDO-PACOM Commander: New Warfighting Concept Requires More Joint Training, Ranges to Prep for Tougher Fights," USNI News, March 4, 2020, available at <<https://news.usni.org/2020/03/04/indo-pacom-commander-new-warfighting-concept-requires-more-joint-training-ranges-to-prep-for-tougher-fights>>.

⁷ Linton Wells II, Theodore C. Hailes, and Michael C. Davies, *Changing Mindsets to Transform Security: Leader Development for an Unpredictable and Complex World* (Washington, DC: Center for Technology and National Security Policy, 2013), 167, 225–226, available at <<https://ndupress.ndu.edu/Media/News/Article/1216550/changing-mindsets-to-transform-security-leader-development-for-an-unpredictable/>>.

⁸ *Ibid.*, 167.

⁹ "Joint Doctrine Hierarchy Chart," Joint Electronic Library, available at <<https://www.jcs.mil/Portals/36/Documents/Doctrine/pubs/status.pdf?ver=2020-07-30-140030-920>>.

¹⁰ William F. Furr, "Joint Doctrine: Progress, Prospects, and Problems," *Airpower Journal* 5, no. 3 (Fall 1991), 39, available at <https://www.airuniversity.af.edu/Portals/10/ASPJ/journals/Volume-05-Issue-1-4/1991_Vol5_No3.pdf>.

¹¹ George E. Katsos, "DOD/JDD Programs Brief—Allied, Terminology, Interagency," 64th Joint Doctrine Planning Conference, November 6, 2019.

¹² Francis Lieber, *Instructions for the Government of Armies of the United States in the Field, Originally Issued as General Orders 100, Adjutant General's Office, 1863* (Washington, DC: Government Printing Office, 1898), available at <https://www.loc.gov/rr/frd/Military_Law/Lieber_Collection/pdf/Instructions-gov-armies.pdf>; War Department, *Field Service Regulations, United States Army: 1914; Text Corrections to February 4, 1916, Changes No. 4* (New York: Army and Navy Journal, 1914).

¹³ United States Joint Army and Navy Board, *Joint Army and Navy Action in Coast Defense* (Washington, DC: Government Printing Office, June 5, 1920), available at <<https://www.loc.gov/resource/dcmsiabooks>.

<<https://www.loc.gov/resource/dcmsiabooks>>; United States Joint Army and Navy Board, *Joint Action of the Army and Navy* (Washington, DC: Government Printing Office, April 23, 1927), available at <https://www.google.com/books/edition/Joint_Action_of_the_Army_and_the_Navy/Y41CTgx7uOwC?hl=en&gbpv=1&bsq=doctrine>; Departments of the Army, the Navy, and the Air Force, *Joint Action Armed Forces* (Washington, DC: Government Printing Office, September 1951).

¹⁴ *Dictionary of United States Military Terms for Joint Usage* (Washington, DC: Government Printing Office, June 1948).

¹⁵ United States Joint Army and Navy Board, *Joint Army and Navy Action in Coast Defense*; United States Joint Army and Navy Board, *Joint Action of the Army and Navy*; Joint Chiefs of Staff Publication (JCSP) 0-2, *Unified Action Armed Forces (UNAAF)* (Washington, DC: Joint Chiefs of Staff, November 1959); JCSP 0-2, *Unified Action Armed Forces (UNAAF)* (Washington, DC: Joint Chiefs of Staff, December 1, 1986).

¹⁶ JCSP 1, *Dictionary of United States Military Terms for Joint Usage* (Washington, DC: Joint Chiefs of Staff, July 1959), 147 (North Atlantic Treaty Organization [NATO] Allied Administrative Publication [AAP]-6(A), September 29, 1958), available at <https://www.google.com/books/edition/Dictionary_of_United_States_Military_Ter/i0AtAQAAIAAJ?hl=en&gbpv=1&dq=1959+dictionary+joint+usage&printsec=frontcover>.

¹⁷ Joseph W. Prueher, "Rethinking the Joint Doctrine Hierarchy," *Joint Force Quarterly* 14 (Winter 1996–1997), 44. Early 1990s joint doctrine development briefing, date unknown.

¹⁸ NATO-AAP-47, *Allied Joint Doctrine Development* (Washington, DC: Department of Defense, February 19, 2019); NATO-AAP-47, *Allied Joint Doctrine Development Supplement to AAP-3 Series* (Washington, DC: Department of Defense, December 19, 2013).

¹⁹ Joint Doctrine Working Party Minutes, October 22–23, 1996.

²⁰ David A. Sawyer, "The Joint Doctrine Development System," *Joint Force Quarterly* 14 (Winter 1996–1997), 36.

²¹ Lovelace and Young, "Joint Doctrine Development," 99.

²² Joint Publication (JP) 3-0, *Doctrine for Joint Operations* (Washington, DC: The Joint Staff, September 10, 2001); *Joint Doctrine Capstone and Keystone Primer* (Washington, DC: The Joint Staff, September 10, 2001).

²³ *The National Defense Strategy of the United States of America* (Washington, DC: Department of Defense, March 2005), available at <https://history.defense.gov/Portals/70/Documents/nds/2005_NDS.pdf?ver=FA4Qqo94ZB0x_S6uL0QEg%3d%3d>; *The National Military Strategy of the United States of America: A Strategy for Today; A Vision for Tomorrow* (Washington, DC: The Joint Staff, 2004),

available at <<https://history.defense.gov/Historical-Sources/National-Military-Strategy/>>; *National Military Strategy: Shape, Respond, Prepare Now; A Military Strategy for a New Era* (Washington, DC: The Joint Staff, 1997), available at <<https://history.defense.gov/Historical-Sources/National-Military-Strategy/>>.

²⁴ 30th Joint Doctrine Working Party Minutes, November 12–14, 2002.

²⁵ 37th Joint Doctrine Working Party Minutes, May 24–25, 2006.

²⁶ 38th Joint Doctrine Working Party Minutes, November 7–8, 2006.

²⁷ JP 1-01, *Joint Doctrine Development System, Change 1* (Washington, DC: The Joint Staff, June 29, 2001); Chairman of the Joint Chiefs of Staff Instruction (CJCSI) 5120.02, *Joint Doctrine Development System* (Washington, DC: The Joint Staff, November 30, 2004); CJCSI 5120.02, *Joint Doctrine Development System, Change 1* (Washington, DC: The Joint Staff, July 20, 2005); CJCSI 5120.02A, *Joint Doctrine Development System* (Washington, DC: The Joint Staff, March 31, 2007); CJCSI 5120.02B, *Joint Doctrine Development System* (Washington, DC: The Joint Staff, December 4, 2009).

²⁸ George E. Katsos, “The U.S. Government’s Approach to Health Security: Focus on Medical Campaign Activities,” *Joint Force Quarterly* 85 (2nd Quarter 2017), 66–75; George E. Katsos, “The U.S. Government’s Approach to Food Security: Focus on Campaign Activities,” *Joint Force Quarterly* 87 (4th Quarter 2017), 112–121; George E. Katsos, “The U.S. Government’s Approach to Environmental Security: Focus on Campaign Activities,” *Joint Force Quarterly* 89 (2nd Quarter 2018), 130–139; George E. Katsos, “The U.S. Government’s Approach to Economic Security: Focus on Campaign Activities,” *Joint Force Quarterly* 90 (3rd Quarter 2018), 106–112; George E. Katsos, “The U.S. Government’s Approach to Civilian Security: Focus on Campaign Activities,” *Joint Force Quarterly* 91 (4th Quarter 2019), 97–104.

²⁹ Supreme Headquarters Allied Powers Europe, available at <<https://shape.nato.int>>; NATO’s Warfare Development Command, available at <<https://www.act.nato.int>>.

³⁰ *Decade of War, Volume 1: Enduring Lessons from the Past Decade of Operations* (Suffolk, VA: Joint and Coalition Operational Analysis, 2012), 2, 25–28, available at <<https://apps.dtic.mil/dtic/tr/fulltext/u2/a570341.pdf>>; Richard D. Hooker, Jr., and Joseph J. Collins, eds., *Lessons Encountered: Learning from the Long War* (Washington, DC: NDU Press, 2015), 9, available at <<https://ndupress.ndu.edu/Media/News/News-Article-View/Article/717665/lessons-encountered-learning-from-the-long-war/>>; James C. McArthur et al., “Interorganizational Cooperation—Part I of III: The Interagency Perspective,” *Joint Force Quarterly* 79 (4th Quarter 2015), 106–112; James C. McArthur et al., “Interorganizational

Joint Publications (JPs) Under Revision (to be signed within 6 months)

JP 1-0, *Personnel Support*

JP 2-0, *Joint Intelligence*

JP 3-0, *Joint Operations*

JP 3-03, *Joint Interdiction*

JP 3-07, *Joint Stability*

JP 3-XX, *Information*

JPs Revised (signed within last 6 months)

JP 1, *Doctrine for the Armed Forces of the United States, Volumes 1 and 2*

JP 3-05, *Special Operations*

JP 3-26, *Combating Terrorism*

JP 3-36, *Joint Air Mobility and Sealift Operations*

JP 3-72, *Joint Nuclear Operations*

JP 3-85, *Joint Electromagnetic Spectrum Operations*

JP 5-0, *Joint Planning*

Cooperation—Part II of III: The Humanitarian Perspective,” *Joint Force Quarterly* 80 (1st Quarter 2016), 145–152; James C. McArthur et al., “Interorganizational Cooperation III of III: The Joint Force Perspective,” *Joint Force Quarterly* 81 (2nd Quarter 2016), 129–139.

³¹ Hooker and Collins, eds., *Lessons Encountered*, 9.

³² Joint Doctrine Interorganizational Cooperation Program, available at <<https://www.jcs.mil/Doctrine/Interorganizational-Documents/>>; *Joint Guide for Interagency Doctrine* (Washington, DC: The Joint Staff, November 4, 2019), available at <https://www.jcs.mil/Portals/36/Documents/Doctrine/Interorganizational_Documents/jg_ia.pdf?ver=2020-02-03-151039-500>.

³³ Chairman of the Joint Chiefs of Staff Manual (CJCSM) 5120.01, *Joint Doctrine Development Process* (Washington, DC: The Joint Staff, January 13, 2012); CJCSI 5120.02C, *Joint Doctrine Development System* (Washington, DC: The Joint Staff, January 13, 2012); CJCSM 5120.01A, *Joint Doctrine Development Process* (Washington, DC: The Joint Staff, December 29, 2014); CJCSI 5120.02D, *Joint Doctrine Development System* (Washington, DC: The Joint Staff, January 5, 2015).

³⁴ George E. Katsos, “Department of Defense Terminology Program,” *Joint Force Quarterly* 88 (1st Quarter 2018), 124–127, available at <<https://www.jcs.mil/Doctrine/DOD-Terminology-Program/>>.

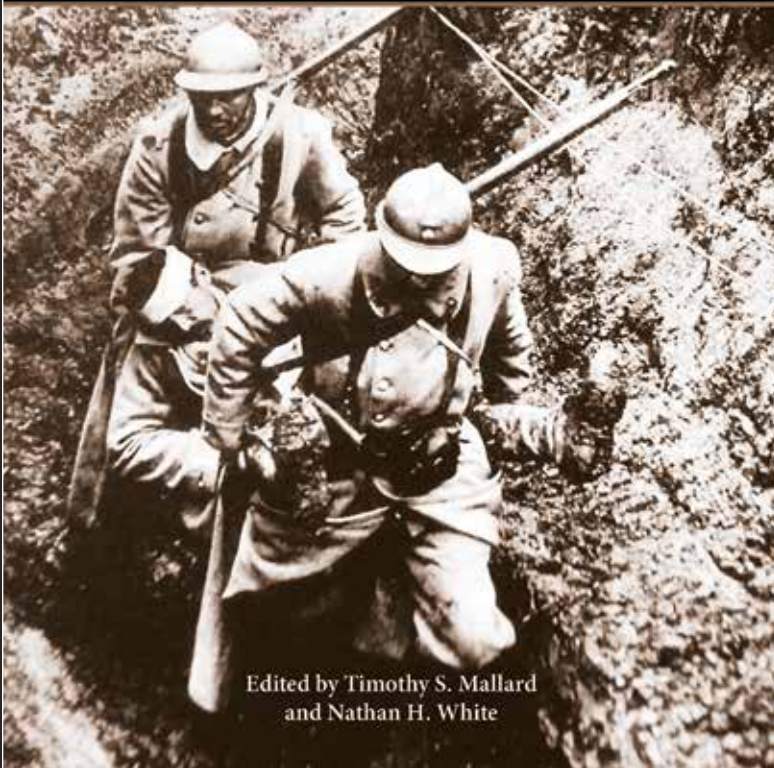
³⁵ Joe Gould, “QDR Dead in 2017 Defense Policy Bill,” *Defense News*, April 25, 2016, available at <www.defensenews.com/home/2016/04/25/qdr-dead-in-2017-defense-policy-bill/>.

³⁶ Scott Kendrick, *Vice Versa: An Artistic Appraisal of Joint Doctrine’s Expression of Campaigns, Major Operations, and Objectives* (West Point, NY: Modern War Institute at West Point, July 11, 2018), 10, available at <<https://mwi.usma.edu/wp-content/uploads/2019/03/Vice-Versa.pdf>>.

³⁷ George E. Katsos, “DOD/JDD Programs Brief—Allied, Terminology, Interagency,” presentation to the 64th Joint Doctrine Planning Conference, November 6, 2019.

A PERSISTENT FIRE

The Strategic Ethical Impact of World War I
on the Global Profession of Arms



New from NDU Press

**A Persistent Fire: The Strategic Ethical
Impact of World War I on the Global
Profession of Arms**

Edited by Timothy S. Mallard and Nathan H.
White

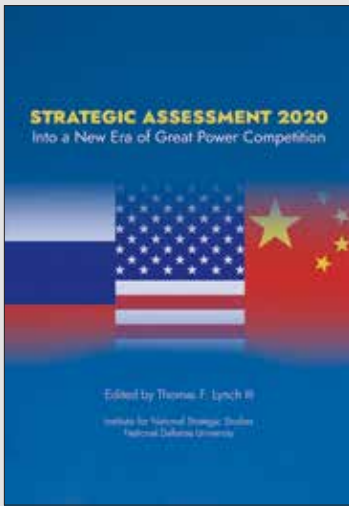
2020 • 412 pp.

Since “the war to end all wars” witnessed the rise of global war among competing nation-states conducted in often tenuous alliances with nascent professional militaries—characteristics that continue to mark contemporary warfare a century later—then studying that conflict’s impact seems a relevant method to decide ways in which the profession of arms will develop in the next 25 to 50 years. Indeed, like a smoldering, persistent fire that threatens to re-erupt into a fresh conflagration, World War I continues to deeply shape and guide the profession of arms today.

Download the EPUB, MOBI, or PDF version
for free.



Scan the QR Code above or go to:
[https://ndupress.ndu.edu/Publications/
Books/A-Persistent-Fire](https://ndupress.ndu.edu/Publications/Books/A-Persistent-Fire)



New from NDU Press

Strategic Assessment 2020: Into a New Era of Great Power Competition

Edited by Thomas F. Lynch III

Great Power competition is a framework for understanding interstate relations that dominated geopolitics for centuries prior to World War II. Past GPC eras have featured multiple powerful states jockeying for relative status and position. After lying dormant during a two-decade period of post-Cold War globalization and American international primacy, the dynamics of GPC returned to international relations and security studies in earnest during the late 2010s.

Strategic Assessment 2020 provides an expert and nuanced understanding of the most important emerging dimensions of GPC between the three Great Powers in 2020: the United States, China, and Russia. It establishes that the United States stands atop the triumvirate, with China a rising competitor and Russia vying for top-level prestige while facing clear signs of decline. The Sino-American competitive dyad is likely to be the dominant Great Power rivalry into the future. Chapters focus on the critical activities among these Great Powers and develop major implications for other state actors, nonstate actors, and global institutions.

Authors include scholars from the National Defense University and the Institute for National Strategic Studies who have been directly engaged as thought leaders and policymaking pioneers grappling with the strategic contours of the new era of GPC. Chapters and combinations of chapters will be not only useful for students of national security, international relations, and foreign affairs in an academic setting, but also of great value to policy practitioners.

Have you checked out NDU Press online lately?



With 40,000 unique visitors each month, the NDU Press Web site is a great place to find information on new and upcoming articles, occasional papers, books, and other publications.

You can also find us on:



Facebook



Flickr



Twitter



Pinterest

Visit us online at: <https://ndupress.ndu.edu>



JOINT FORCE QUARTERLY

Published for the Chairman of the Joint Chiefs of Staff by National Defense University Press
National Defense University, Washington, DC

