JFQ | Joint Force Quarterly

Issue 90, 3rd Quarter 2018

Strategic Shaping

Innovation on a Budget

Demosthenes, Churchill, and the Consensus Delusion

Joint Force Quarterly

Founded in 1993 • Vol. 90, 3rd Quarter 2018

http://ndupress.ndu.edu

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Cover 2 images (top to bottom): Sailor from Navy Wounded Warrior—Safe Harbor waits for signal to begin 100-meter cycling event at 2018 Department of Defense Warrior Games at U.S. Air Force Academy, Colorado Springs, June 2, 2018 (U.S. Navy/Morgan K. Nall); Senior Airman Heather Carter throws shot put during track and field competition at 5th Annual Air Force Wounded Warrior Trials on Nellis Air Force Base, Nevada, February 27, 2018 (U.S. Air Force/James R. Crow); Marine with 1st Marine Division boxing team faces opponent, British Royal Marine, at Commando Training Centre Royal Marines, Lympstone, England, May 3, 2018 (U.S. Marine Corps/Megan E. Brown)

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U.S. Army Soldier Second Lieutenant Shelby Blad makes fire in Northern Territory, Australia, August 30, 2016, as part of survival training during Exercise Kowari in Indo-Asia-Pacific region (U.S. Marine Corps/Osvaldo L. Ortega III)

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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.

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3rd Quarter, July 2018
ISSN 1070-0692

Senior Airman checks inside of C-17 Globemaster III before beginning preflight inspection March 27, 2013, at Wright-Patterson Air Force Base, Ohio (U.S. Air Force/Mikhail Berlin)

Executive Summary

How well does the U.S. military transform? When are the best time and circumstances to change how the joint force does business? In search of some answers, I came across a short but powerful article written a few years ago by two consultants to the United Kingdom Ministry of Defence, David Chinn and John Dowdy. They conducted a survey in December 2014 of "almost 1,000 leaders and senior employees in more than 30 U.S. Government agencies and found that only 40 percent believed that their transformation programs succeeded." Even though these results do not seem heartening to those "change agents" among us, their research suggests how to change one's military even in a period of budgetary pressure, as was recently experienced in Europe and the United States. In fact, as of this writing, the Budgetary Control Act (or so-called sequestration) is still in force, but the Department of Defense budgetary outlook is fairly bright. So, if we needed to do some thinking when money was tight, should these suggestions not be applied as the situation improves? Let's take a minute to see if this is the case.

Chinn and Dowdy suggest that real transformation can best be applied at the "sharp end," or, as we know it, the tactical unit. As an example, "just in time" logistics has already been applied widely, and 3D printing may even further reduce the demands on the supply chain that feeds warfighting units. The authors suggest that "leading through the line," instead of top-down direction, places line commanders with expanded authorities but holds them accountable. Recently, the Air Force initiated an experiment in one of its combat wings, eliminating an entire leadership layer, the group, by placing squadron commanders directly under the wing commander. No billets were lost, but the chain of command became short, with the idea of empowering those line commanders to run their squadrons with only one boss directly above them at the tactical level. A big change to be sure.

Somewhat conversely, Chinn and Dowdy next suggest militaries should not reorganize but look for quick wins that can build a momentum for change. They also recognize the biggest problem with change in militaries—resistance to move away from the status quo. To achieve a successful transformation, leaders have to set a clear idea for change and reinforce how that move is tied to the mission. Next, leadership has to show personal and lasting commitment to the change. The authors' last suggestion may be the

one needed most for success: invest in building the right capabilities. Some 75 percent of U.S. Government leaders surveyed who achieved limited success in their change efforts blamed not having the right capabilities to make transformation happen. Maybe as new capabilities are introduced into the joint force, these capabilities will induce a round of game-changing experiences. If they do, I hope you will write to us and explain your experience. Until then, we have some useful ideas to get you started thinking about changes that might be needed.

This issue's Forum brings three diverse but important articles that offer some new ideas about today's increasingly complex and competitive security environment. With a seemingly constant barrage of concerns about data breaches and the use of big data to potentially solve complicated problems, Cortney Weinbaum and Jack Shanahan offer some interesting insights into the impact of data in the evolving world of intelligence. Former Headquarters Pacific Air Forces commander Terry O'Shaughnessy (now commander of U.S. Northern Command and the North American Air Defense Command) and his teammates Matthew Strohmeyer and Christopher Forrest have done some excellent thinking about shaping strategy and its potential to expand our deterrence options in great power conflicts. Honored to have one of the leading defense scholars in the pages of *JFQ*, we welcome back Michael O'Hanlon from the Brookings Institution as he considers the environment that planners are likely to face when looking at future combat employment of Navy carriers.

JPME Today returns in this issue with three interesting articles on topics including space, joint exercises, and acquisition reform. The great Canadian "strategist" Joni Mitchell once sang "you don't know what you've got 'til it's gone." Our space capabilities certainly fall into that category, so Chadwick Igl, Candy Smith, Daniel Fowler, and William Angermann suggest the best way to deal with any losses that we might take in that arena is to *seriously* plan. A constant concern for commanders at every level is the readiness of their units, and exercises have been an effective way to prepare for their missions, with joint exercises being the most prized of experiences. William Buell, Erin Dorrance, and Robert West suggest that even with the continuing demands of combat operations across the world, having a transregional capstone exercise is necessary to be prepared for future crises. With programs that were meant to solve problems faced by the joint force often becoming headlines in the news for their cost overruns, Michael McInerney, Conway Lin, Brandon Smith, and Joseph Lupa offer some useful sugges-tions for joint acquisition reform.

In Commentary, we offer three articles that should get you thinking about changes and how they might be brought about in the joint force. Joint Special Operations University's Charles Black, Richard Newton, Mary Ann Nobles, and David Ellis discuss how U.S. Special Operations Command is using a design approach to bring back creativity and innovation. Following our discussion of "by, with, and through" from *JFQ* 89, Keith Smith believes one of the best ways to succeed in conflict is through security force assistance. Taking a page from television reality shows involving cooking, Mike Jernigan and Jason Cooper believe we can innovate through a more competitive approach.

The Features section provides some interesting explanations to some nagging questions in the defense and security environment. Cole Livieratos has researched U.S. involvement in asymmetric conflicts and explains why the United States prefers kinetic solutions to other options, which he believes might yield less costly results. Potentially offering force solutions to the issues raised by Livieratos, James Hayes believes special operations forces operating in the multidomain battle of the future will play an essential part in achieving victory. As we have read in previous issues, China is reforming its military at an unprecedented scale and rate. Shane Smith, Thomas Henderschedt, and Timothy Luedecking help explain how the Chinese are using a version of Goldwater-Nichols as a guide to create a joint force. Lastly, Michael Ferguson's case study comparison of Demosthenes and Winston Churchill is not only entertaining but also impressive, given the youthfulness of the author.

One of the great advantages of my position in the joint professional military education world is knowing some exceptional scholars who also happen to be great teachers. Our Recall article is written by *JFQ* alumnus Bryon Greenwald, one of my teaching battle buddies at the Joint Forces Staff College. His article is an excellent look at World War I through the lens of two of today's most important concepts: combat adaptation and jointness. In Joint Doctrine, along with our joint doctrine update, George Katsos discusses economic security and its relationship to campaign planning and activities. We also include three engaging book reviews for your consideration.

With this issue your *JFQ* team completes our 90th edition and prepares to celebrate the journal's 25th anniversary this fall, all thanks to our readers, authors, and the veterans of NDU Press, who have kept this great idea of General Colin Powell moving forward in support of the joint force. Join us in supporting what the general called "the cool yet lively interplay among some of the finest minds committed to the profession of arms." **JFQ**

William T. Eliason
Editor in Chief

Errata
A *JFQ* 89 caption misstated the date General Colin Powell met with NDU Press staff. The meeting occurred in January 2018. Also, author David P. Polatty's name was misspelled in the same issue. NDU Press regrets the errors.

Sailor aboard guided-missile destroyer USS *Michael Murphy* takes part in Office of Naval Research demonstration of new and improved training combining software and gaming technology to help naval forces develop strategies for diverse missions and operations, Pearl Harbor, March 24, 2016 (U.S. Navy/John F. Williams)

Intelligence in a Data-Driven Age

By Cortney Weinbaum and John N.T. Shanahan

In a foreseeable future, battles may unfold using weapons and tactics that the United States is ill-prepared to detect or counter. Today's ballistic missiles take tens of minutes to cross an ocean, but tomorrow's hypersonic weapons may take merely minutes. Urban warfare could occur in hyper-connected cities where overhead sensors provide limited value, while ubiquitous ground sensors provide too much data for analysts to mine. In the cyber domain, by the time an operator detects a "launch," a weapons package may have already reached its target and achieved its desired effect. Attacks against satellites, economic attacks, and covert influence campaigns can all occur undetectable to the human senses until too late.

The vector, volume, velocity, variety, and ubiquity of data are disrupting traditional tools and methods of national security policy, operations, and intelligence. The scope of such disruption will only grow and accelerate. Under the adage that "information is power," society has created technologies capable of creating volumes of structured and unstructured data so large as to overwhelm all previous forms of analytic tradecraft and pattern recognition. As part of their recommendations from the January 2017 public meeting, the U.S. Defense Innovation Board asserted that whoever amasses *and organizes* the most data—about ourselves as well as our adversaries—will sustain technological superiority.[1] Failure to treat data as a strategic asset will cede precious time and space to competitors or adversaries.

The U.S. Intelligence Community (IC), to include the Defense Intelligence Enterprise, faces daunting challenges

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of pure scale—volume and velocity—as well as an ever-increasing complexity of data—variety and veracity. The IC is challenged to acquire, manage, correlate, fuse, and analyze ever-increasing amounts of data across agencies and with allies and partners. In our experiences, data in the IC are generated in too many diverse formats, in too many disconnected or inaccessible systems, without standardized structures and without overarching agreed-upon ontology. This situation risks wasted collections, lack of timeliness, missed indications and warnings, and lack of relevance for decisionmaking. The result is an inability to fuse data to create multi-sourced intelligence as early in the intelligence cycle and as close to the point of collection as possible. Analysts are given a task too difficult, too cumbersome, and with too many hurdles to clear to provide timely and relevant analytic judgments or actionable intelligence to policymakers and warfighters.

These challenges should be addressed by:

- embracing machine-learning algorithms that can parse data, learn from the data, and then respond
- encouraging creativity and deep thinking by intelligence professionals
- designing the policy, information technology (IT), agile acquisition, and security environment that allows human-machine tradecraft to flourish.

These problems cannot be solved within any one agency, program, or intelligence discipline. We see a compelling need for creative ways to adapt to this new environment that must include improving the technological and operational advantages of the IC with systems and machines capable of manipulating and understanding big data, as well as advancing human-machine and machine-machine collaboration, so analysts can make the best use of their time working on the hardest problems.

Meanwhile, serious questions linger about the unforeseen repercussions of a machine-learning "black box" that can generate solutions in ways that might not be readily explainable to its human operators. Artificial intelligence (AI) systems have created their own languages that human programmers could not read[2] and have taught themselves to play games using tactics that humans did not teach and cannot comprehend.[3] The repercussions of these effects in national security systems are unknown, untested, and remain largely unexplored.

The Future Battlespace

The future battlespace is constructed of not only ships, tanks, missiles, and satellites, but also algorithms, networks, and sensor grids. Like no other time in history, future wars will be fought on civilian and military infrastructures of satellite systems, electric power grids, communications networks, and transportation systems, and within human networks. Both of these battlefields—electronic and human—are susceptible to manipulation by adversary algorithms.

In electronic environments, algorithms are already used to monitor and maintain control over most areas of critical infrastructure (electric, water, food, financial, communications, and so forth). Russia and China have demonstrated their interest in testing the capabilities and weaknesses of these systems in the United States, and intelligence agencies need the ability to fuse data across multiple sources to understand adversary activities and intended outcomes.

To disrupt human networks, the theft of personal data on cleared government workers in the Office of Personnel Management breach provides a rich data set for an adversary to tailor a covert influence campaign against *each individual* military leader or policymaker.[4] If this data were to be combined with financial records stolen from Equifax, email records from Yahoo!, medical information from Anthem health insurance, and data from additional sources, algorithms could create highly sophisticated and individualized covert influence campaigns against the United States. In a less sophisticated campaign, North Atlantic Treaty Organization military forces recently reported that soldiers' phones were hacked by Russia during military training exercises "to gain operational information, gauge troop strength, and intimidate soldiers," according to Alliance officials.[5]

The ability to fuse enormous amounts of data from across disparate data sets and provide meaningful answers are exactly what artificial intelligence and machine learning were designed to do. As long as the commercial sector can find a way to use data to anticipate the brand of car or toothbrush that a consumer is likely to purchase, vendors will sell capabilities to identify user preferences and weaknesses with a specificity that intelligence officers might expect to find in psychological profiles.

The United States is at risk of allowing adversaries to accelerate and steal the competitive advantage. China has a national strategy for AI with commensurate pledges to invest billions of dollars in AI technologies over the next 5 years.[6] Chinese researchers publish more journal articles on AI than their U.S. counterparts,[7] and People's Liberation Army strategists are preparing for a world where humans cannot keep pace with battlefield decisionmaking.[8]

In the United States, the recently published National Security Strategy and National Defense Strategy both address the importance of AI and autonomy to national security and warfighting.[9] Beyond the 2016 National Artificial Intelligence Research and Development Strategic Plan, however—which is largely focused on research and development—the United States does not yet have a sweeping national strategy for AI.

Eric Schmidt, executive chairman of Alphabet (parent company of Google) and chair of the Defense Innovation Advisory Board, described China's advances in AI compared to the United States: "By 2020, they will have caught up. By 2025, they will be better than us. By 2030, they will dominate the industries."[10]

A Looming Intelligence Failure

Future intelligence tradecraft will depend on accessing data, molding the right enterprise architecture around data, developing AI-based capabilities

to dramatically accelerate contextual understanding of data through human-machine and machine-machine teaming, and growing analytic expertise capable of swimming and navigating in enormous data lakes. The IC needs to develop tradecraft and methodologies for accessing, arranging, and analyzing data, including structured analytic techniques and analytic tradecraft standards for machine intelligence. New technology is evolving faster than the ability of the Department of Defense (DOD) and IC to implement it, train on it, and use it effectively.

Within the Defense Intelligence Enterprise, investments in collectors and sensors are generating an ability to collect more data from more sensor types than at any time before. The DOD roadmap for unmanned systems describes a plan for thousands of unmanned air, sea, and ground systems, without a clear path for how all the data from those systems will be analyzed to create value.[11] This is in addition to space systems and publicly available unclassified systems. An increase in collection, to include from the most highly classified exquisite sensors, does not necessarily equate to more or better intelligence or orientation, especially when facing near-peer competitors who may prove equally adroit at adapting to the information environment.

DOD Project Maven, led by Lieutenant General Shanahan, has a goal of overcoming human intelligence analysts' inabilities to deal effectively with the massive amounts and types of collection across every domain, a quandary called "success catastrophes."[12] As a starting point and pathfinder project, former Deputy Secretary of Defense Robert Work tasked the Maven team to find AI and computer vision solutions to augment, amplify, and automate exploitation of unmanned aerial system full-motion video.

Current intelligence practices involve extracting information of value from large datasets of cross discipline (cross-intelligence) information—the needle in the haystack—leading to the bulk collection and storage of hay in hopes that eventually all needles will exist inside. In a more data-oriented era, it is increasingly possible to draw intelligence of value from the data in aggregate (temporal and geospatial behavior patterns, for example). This can result in an ironic dilemma in which there is too much data for humans to search effectively for needles, yet not enough accessible data from which to draw and validate useful intelligence.

Next is the question of what to do with intelligence once it is attained. The military Services are developing and acquiring combat systems with a greater hunger for data and *intelligence* than in the past, and intelligence mission data must be transferred to these systems as early as possible in the acquisition cycle and then updated frequently and fast enough for use in combat, in ingestible data structures, and at classification levels the combat systems can handle.[13] Meanwhile, within the policy community, policymakers are increasingly relying on unclassified publicly available information when classified intelligence is too slow to arrive or too highly classified to be useful.[14]

In his groundbreaking work on the *observe*, *orient*, *decide*, and *act* (OODA) loop, Colonel John Boyd, USAF (Ret.), emphasized the importance of operating at a tempo or rhythm that an adversary cannot comprehend or match. Operating inside an adversary's OODA loop helps accomplish those objectives by disorienting or warping an opponent's mental images so that he can neither appreciate nor cope with what is happening around him. In today's fast-paced and ever-changing data-driven age, the terms *information dominance* or *information superiority* are chimerical; instead, *temporal advantage* might be the best possible outcome. Yet even that could be sufficient to gain the upper hand, if U.S. warfighters can stay inside the adversary's OODA loop while simultaneously using data in imaginative ways to distort the adversary's own orientation.

Artificial intelligence and machine learning provide opportunities to accelerate through every step of the OODA loop by making sense of data in real time as the data arrive, evaluating options and initiating an action in milliseconds, and acting. Such decisions may include responding to indications and warnings before human operators have time to read an alert or initiating a response within a predetermined set of approved parameters. Machine learning offers new opportunities to shrink the first two phases of the OODA loop, greatly increasing the potential for humans to accelerate decisionmaking and taking action.

We may well be facing a future involving algorithm-versus-algorithm warfare, leading us to question whether 21st-century warfighters might look at minutes of decision time as luxurious relics of the past.

Solutions Exist Within Reach

Intelligence agencies can and should invest in cross-domain, cross-program, and cross-discipline machine-learning capabilities and require intelligence officers to use these capabilities to their fullest potential. Any data that remain stovepiped in compartments, proprietary databases, and on classified domains that algorithms cannot reach will require manual integration by intelligence officers, delay intelligence assessments, and create protected bubbles of data where officers may not be able to see inside to bring all sources to bear on analytic problems. This vision threatens concepts of "need to know" and would force the collection and analytic communities—with their brethren in counterintelligence and security offices—to reconcile threats from outside with threats from within. Data protection policies may give algorithms access to data fields that human analysts are not cleared to see, possibly requiring decisions about how much trust can be placed in machines and how their work can be audited for vulnerabilities that are both naturally occurring and adversary generated.

To create this endstate, several activities should be considered. First, finding the answer to any intelligence question should start with the proposition that every analyst needs all potentially relevant data, from every possible source.[15] This suggests striking a different balance between the classic deductive (searching for the known unknowns) and inductive

Soldier with 3rd Battalion, 6th Field Artillery Regiment, 1st Brigade Combat Team, 10th Mountain Division (LI), navigates new Precision Fires-Dismounted system, which includes viewing live-streaming full-motion video from unmanned aerial vehicles on smartphone, 3D digital maps, and ability to send precision target coordinates, at Mission Training Center, Fort Drum, April 5, 2018 (U.S. Army/James Avery)

(synthesizing to discover the unknown unknowns) analytic approaches. It also requires a different approach to collection because all data may be relevant long after collection and should be accessible in discoverable archives; the processes for doing this will depend heavily on whether datasets include information on U.S. persons and other protected entities, while data controls and data quality assurance become essential functions.

Widespread integration of machine learning and AI will present new opportunities for deception resulting from data that have been altered or manipulated. Counter-AI will become prevalent while influence operations will take on new dimensions that have yet to be fathomed, requiring a renewed emphasis on both offensive and defensive cognitive-centric operations. Intelligence analysts need to be trained on how to recognize attempts by an adversary to use altered or manipulated data, including understanding how to use AI to maximum advantage to prevent even the more sophisticated influence operations from affecting desired operational outcomes.

Second, data would not be treated as an IT problem; instead, IT systems should be framed by the operational problems they solve. This requires moving from closed, proprietary architectures and untenable lack of data standards to open architecture and Agile Methodology—open architectures and fast transient adoption of new technologies and applications—where any data from any source can be found and ingested by any analyst at any time. More often, algorithms will be moved to the data, rather than trying to move data to the algorithms. Global cloud solutions are essential to integration, optimized for all aspects of AI rather than only for data storage or search. Data access must be mastered to provide the fuel for machine learning and human-machine teaming. In turn, rapid data access requires effective data management, which calls for new skill sets and expertise—such as data architects and data scientists. Network access across all security domains, access to all relevant data types, and agile integration of disruptive technologies are key to achieving and sustaining decision advantage.

Third, publicly available information and open source information will provide the first layer of the foundation of our intelligence knowledge. This requires a major shift from assuming that the highest classified intelligence is the most infallible to embracing and integrating nontraditional and unclassified sources. Exquisite collection from all other intelligence disciplines will enhance foundational intelligence and fill in existing knowledge gaps. This flips a 60-year paradigm and challenges the very concept of "intelligence"

Airman with 379th Operations Support Squadron performs maintenance on satellite dish at Al Udeid Air Base, Qatar, March 30, 2018, as part of Operation *Silent Sentry*, protecting critical satellite communication links (U.S. Air National Guard/Phil Speck)

when classification is not a requirement for information to be of intelligence value.[16]

Fourth, shift the joint and combined analytic workforce from industrial-age production line processing and exploiting single collection streams of data to an information-age enterprise model where some analysts conduct multi- and all-source correlation and fusion, fully integrated with joint, national, and international partners. While layering intelligence data is a decent start, it is insufficient. Both human and AI system sense-making are needed to deliver time and space for decisionmaking. This principle also introduces broader questions about the future balance of breadth and depth across the analytic workforce. Training would require more emphasis on synthesis and creativity in analysis.

Finally, the solutions described above would require a revolution in IC life cycles for human capital, budgeting, acquisition, and research and development. Hiring and security clearance processes that last 2 years or more result in agencies on-boarding employees who were at the top of their game 2 years ago (an eon in a data-driven world), and, for mid-career hires, position requirements value experience in government over science, technology, and analytic experience in the commercial and academic sectors.[17] In the best of circumstances DOD and the IC have been challenged to create multi-year budget strategies within the 4-year Planning, Programming, Budgeting, and Execution process, while in today's climate of chronic continuing resolutions, creating a budget *strategy* is a hope rather than a regular occurrence. Intelligence agencies have tried again and again to create innovative acquisition reforms using small subsets of their budgets and "innovation offices," but these solutions stall when scaled across national or military intelligence programs.

Changes to the IC's traditional acquisition processes will require a generation of contracting officers who have the training and resources to manage an overhaul of contracting processes that puts focus back on quality, results, and the speed of relevancy rather than defaulting to lowest price technically acceptable contracts.[18] Adapting Agile Methodologies would facilitate faster paces of technology development, implementation, and refinement. Finally, each of these reforms would create an environment where research and development (R&D) offices—in IC agencies and military Services—can thrive. R&D organizations need the brightest technologists to build partnerships among collectors, analysts, and industry vendors, and they need the support of proactive contracting officers and an effective budget environment to succeed—ultimately leading to an AI-ready, *prototype warfare* culture.

Concluding Thoughts

Our proposal has at least one Achilles' heel that the United States should plan for and mitigate: an over-reliance on

technology. Even in the age of autonomous systems, war will remain a human endeavor. If the Nation were to fight a technologically primitive enemy, such as in the mountains of Afghanistan or jungles in Africa, warfighters and intelligence officers risk being too reliant on systems that require large quantities of data. Alternatively, in a near-peer scenario the United States may one day fight an enemy who finds and exploits vulnerabilities in our technology and blinds our warfighters or uses data against us in new and creative ways. As a result of both scenarios, the Nation will continue to value intelligence analysts and warfighters skilled in low-tech tested and reliable tradecraft and solutions.

The best intelligence analysis derives from the right combination of art and science. The art of intelligence may be the same today as it was 2,000 years ago. What is different now, however, is the necessity of getting much better much faster at the science of the tradecraft, which is centered on data. Analysts must have the tools they need to deal with massive amounts of information that enable them to close intelligence gaps and enable better operational outcomes at the speed of data.

Artificial intelligence and machine learning will be instrumental to increasing the effectiveness of the future intelligence analyst workforce, improving the odds of gaining and sustaining a competitive or temporal advantage. Digital transformation, methodic multidomain data integration, and algorithmic warfare will be the heart of the intelligence enterprise's role in sustaining a long-term competitive advantage. This is as much about strategic innovation as it is innovation at the tactical or analyst level. One without the other is necessary but insufficient.

The IC is nearing critical decisions on AI and machine learning. Despite a number of disadvantages inherent in 16 years of continuous counterterrorism and counterinsurgency operations, the IC forged a highly experienced, battle-trained analytic workforce unlike any other in the world. The IC's greatest potential asymmetric strengths remains its ability to make sense of data quickly and remaining inside the adversary's OODA loop. Will the United States and its adversaries slow down their machines to the speed of human thought to maintain a man in the loop? Or will each country pursue AI to its fullest potential, fearing that if not, its adversaries will pursue it first? The time has arrived for the Intelligence Community to decide how it wants to answer these questions. **JFQ**

Notes

[1] "Defense Innovation Board Holds Public Meeting," *DOD News*, video, 1:54:30, October 24, 2017, available at <www.defense.gov/Videos/videoid/560180/#DVIDSVideoPlayer1133>. Emphasis added.

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Seaman handles mooring line on fantail of aircraft carrier USS *Theodore Roosevelt* during regularly scheduled port visit to Singapore, April 2, 2018 (U.S. Navy/Michael Colemanberry)

Strategic Shaping
Expanding the Competitive Space

By Terrence J. O'Shaughnessy, Matthew D. Strohmeyer, and Christopher D. Forrest

To prevail, we must integrate all elements of America's national power—political, economic, and military. . . . The United States must develop new concepts and capabilities to protect our homeland, advance our prosperity, and preserve peace.

—2017 National Security Strategy

Deterring or defeating long-term strategic competitors is a fundamentally different challenge. . . . [O]perations must introduce unpredictability to adversary decisionmakers. . . . [W]e will challenge competitors by maneuvering them into unfavorable positions, frustrating their efforts, precluding their options while expanding our own, and forcing them to confront conflict under adverse conditions.

—2018 National Defense Strategy

The strategic imperative to succeed in great power competition demands a new approach to strategy to deter, compete, and win against rising and resurgent powers.[1] Competitors are exploiting gaps between the traditional understanding of "peace" and "war" to aggressively advance their interests below the threshold of armed conflict—often in ways that undermine the U.S.-led international order. Russia encroaches on the sovereignty of its neighbors, such as the Ukraine, while the international community struggles to respond in ways that will deter this behavior in the future.[2] China flouts international law, claiming new territory and others' intellectual property as their own, while eroding U.S. influence in the Indo-Pacific.[3]

Both the 2017 National Security Strategy and 2018 National Defense Strategy recognized this paradigm shift in warfare and now identify China and Russia as strategic competitors who exploit advantages below the threshold of armed conflict to reach their strategic objectives.[4] General Joseph Dunford recently referred to these actions, broadly termed *hybrid warfare*, as "adversarial competition with a military dimension short of armed conflict."[5] The National Defense Strategy puts an even finer point on the challenges that China and Russia pose, stating "they have increased efforts short of armed conflict by expanding coercion to new fronts, violating principles of sovereignty, exploiting ambiguity, and deliberately blurring lines between civil and military goals."[6] These actors make operational gains with means that fall short of the Western definition of war—and the West fails to provide options to deter or counter these competitors' further gains.[7]

While U.S. strategic guidance calls for a new approach to these challenges, military planning and strategy still reflect previous ideas of deterrence and coercion. Current paradigms rely on the direct threat or application of military force—posturing force against force in the field to compel an opponent to back down.[8] In a similar way, these paradigms often view shaping operations prior to conflict as a means to set the battlespace for tactical and operational success in military conflict. The result of this strategy is often a military campaign that lacks strategic vision beyond the tactical fight and an operational battle of attrition where the larger or better equipped force prevails. This approach served the United States well over the past century while it enjoyed a dominant global military advantage. In the decades since Operation *Desert Storm*, however, the Nation has increasingly relied on technological dominance, ceding quantitative military superiority to these competitors. This strategy has proved effective against countries and nonstate actors over which the United States still retains an asymmetric military advantage.

However, such a strategic approach may be ineffective in the face of the rapid military advancements of China and Russia, particularly within their immediate regions.[9] The eroding American advantage demands that the joint force consider additional concepts that move beyond regional attrition-based warfare to exploit competitor weaknesses and apply U.S. global advantages. Moreover, the National Security Strategy specifically calls for new concepts enabling the United States to "deter potential enemies by denial, convincing them that they cannot accomplish objectives through the use of force or other forms of aggression."[10] Furthermore, the National Defense Strategy compels the joint force to consider approaches that "introduce unpredictability to adversary decisionmakers" and "challenge competitors by maneuvering them into unfavorable positions, frustrating their efforts, precluding their options while expanding our own, and forcing them to confront conflict under adverse conditions."[11]

This article argues that to counter these actions and maintain an enduring military and national competitive advantage, the U.S. defense establishment must develop new strategies and operational concepts that expand the competitive space to deter great powers from escalating prior to or during crisis and ensure that we maintain military advantage at an acceptable cost in conflict. To this end, this article presents a new approach termed *Strategic Shaping*. Strategic Shaping is a coercive strategy employing an integrated whole-of-government approach that aims to complicate an adversary's calculus and target his strategic intentions, not just his forces. The objective is to create a sharp deterrent effect by removing the adversary leadership's sense of control of the crisis or conflict. There are three pathways through which the United States can strive to impact strategic perceptions:

- by rapidly presenting the adversary with multiple dilemmas, degrading adversary leadership's sense of control
- by enhancing the complexity of the situation, instilling doubt in the adversary leadership's mind of their own capabilities
- by posturing to react globally instead of locally, leveraging U.S. strengths against adversary weakness.

Strategic Shaping contributes to the current debates on how to manage in great power competition by providing a new approach for countering countries' attempts to make operational gains on the margins of "peace." It is also more than horizontal escalation; it is a paradigm shift from a force-on-force approach to one that first seeks to create deviations in an adversary's expectations. Lastly, the concept of Strategic Shaping builds on classic research in the areas of coercion and deterrence that highlight

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the untapped asymmetric advantages that exist in first exploiting adversary perceptions and desired strategic outcomes.[12] Rather than advocate for a new theory of deterrence or warfighting, this article offers a tangible way to put the advice of these thinkers into practice to address today's great-power challenges. In the words of Air Force Chief of Staff David Goldfein, the joint force, as part of a whole-of-government approach, must transition from "wars of attrition to wars of cognition."[13] To achieve this approach, military strategists must rethink how military force is employed in crisis and conflict, while recognizing the de facto blurring of those lines by our strategic competitors.

While the theory behind Strategic Shaping certainly applies to steady-state strategy for great-power competition, the scope of this work is primarily within the crisis and conflict space. This article first examines leading coercive theories, highlighting their applicability to dealing with rising power challenges in the Gray Zone between peacetime and wartime. We then posit the need to evolve from a focus on attrition and material factors to one of perception and cognitive factors. Finally, we outline the how and what of Strategic Shaping as it might be applied in a whole-of-government approach against a strategic competitor.

Moving from Attrition to Cognition

Coercion is the threat of damage in order to convince a state to yield or comply with one's demands or desires. Both deterrence and compellence are forms of coercion; deterrence is the deployment of military power so as to be able to prevent an adversary from doing something that one does not want him to do, while compellence is the deployment of military power so as to be able either to stop an adversary from doing something that he has already undertaken or to get him to do something that he has not yet begun.[14]

The success of either form of coercion relies on the capability to inflict unacceptable costs, communication of the threat, and the credibility of the threat. To date, the defense establishment has relied heavily on material capabilities, use, and demonstrations of military superiority to meet these three standards in crisis and the ability to attrite fielded forces in conflict. But direct application of force on force may be insufficient to successfully coerce more advanced countries such as Russia or China. Instead, we argue that strategy must focus on using military forces in such a way that impacts a potential adversary's beliefs about the costs, benefits, and likely outcomes of different courses of action.[15] In other words, instead of threatening or attempting to destroy an adversary's fielded forces as much as possible, Strategic Shaping directly targets adversary incentive structures and decisionmaking. Only through affecting cognitive change can U.S. attempts at deterrence and compellence short of war against a near-peer competitor be successful. Additionally, like any coercive strategy, Strategic Shaping is fundamentally a political-diplomatic strategy that is most effective in producing a deterrent effect on the adversary in crisis or early conflict when integrated and synchronized across the whole of government.[16]

The raison d'être of the military is to apply force against an opposing military to produce a desired military and political endstate, but if coercion is fundamentally psychological in nature and is most effective when integrated across the diplomatic, informational, military, and economic elements, how does the military best present forces to achieve coercive effects when it is not *at war*?

Such a planning shift may require the U.S. defense establishment to adjust its paradigms on the effective use of military force. Traditionally, Western powers held to the Clausewitzian model that war is violence and without violent actions, a nation is not really at war. This simple paradigm shackles the military to a myopic search for the war it wants to fight rather than the one its competitors might present. Moreover, in this paradigm, there are mutually agreed-upon rules for both peacetime, such as the rules, norms, and principles of the international order, and those in wartime, such as the Geneva Conventions. But China and Russia often take actions designed to undermine the United States and its allies without escalating to the threshold of armed conflict. Any nation shackled to a binary understanding of wartime and peacetime is necessarily vulnerable to adversary exploitation and unnecessarily cedes valuable competitive space. Understanding an adversary's intentions and war paradigm allows for the development of a counter strategy, one that often must include competition below the threshold of conflict. This is the void into which Strategic Shaping takes the first of many steps to come.

A Complementary Approach

Strategic Shaping is a coercive strategy that applies rapid, whole-of-government strategic actions to present multiple, complex dilemmas to an adversary's leadership and thereby removes their sense of control, deterring them from military conflict. Where pure cost imposition and denial strategies attempt to influence adversary operational capabilities by destroying or dislocating fielded forces, Strategic Shaping directly targets an adversary's strategy to rapidly confound his ability to control the boundaries of a crisis and instill doubt in the efficacy of continued military action. The intent is to reduce the adversary's confidence in his strategy, to create the sense that he has overreached, and to turn his focus to political objectives that now appear to be at risk. By exacerbating uncertainty, Strategic Shaping strives to deter the use of force in crisis and compel an off-ramp in conflict. But if forced to fight, Strategic Shaping also postures forces globally to fight from a position of advantage. Strategic Shaping targets adversary strategic intentions, applying U.S. strengths to confound those intentions for a deterrent effect.

There are three central elements of a Strategic Shaping approach. First, there is the creation of rapid, simultaneous dilemmas that applies during the crisis space before an adversary selects a military course of action to achieve his aims. Specifically, the United States needs to consider how its adversary expects the

SA-330J Puma helicopter drops supplies on flight deck of USS *Truxtun* during vertical replenishment with Military Sealift Command dry cargo and ammunition ship USNS *Richard E. Byrd*, Red Sea, April 12, 2014 (U.S. Navy/Scott Barnes)

crisis to unfold, and in particular how the Nation will respond, and then take actions that confound these expectations. For example, in evaluating a military option, adversary political leadership often seeks assurances from the military that lower level provocations will not result in a crisis or conflict that may put other strategic political goals at risk. If, during a growing crisis, the United States executes concise whole-of-government actions targeted against varied vulnerabilities beyond the immediate issue—to include geopolitical weaknesses, internal political rivalries, national infrastructure challenges, economic dependencies, and geographic limitations—this may cause the adversary to reassess the risks of its approach. Faced with a significant deviation between expectations and reality, doubt and risk aversion increase, sense of control and confidence decreases—all delaying or even preventing the adversary from continuing along his planned course.

The second element of Strategic Shaping encompasses the movement and posturing of forces to positions that can hold at risk adversary weaknesses with the U.S. strength of global power projection. The movement of these forces, while effectively setting the theater with required posture, also multiplies the first element's effects of multiple dilemmas. As the Departments of State and Commerce take coordinated actions with the adversary's bordering nations, the movement of naval and air forces to posture against adversary weaknesses creates additive dilemmas. These challenges increase if American forces can stage in third-party nations, elevating the political cost of in-conflict targeting decisions and thereby their go-to-war calculus. These actions exacerbate the cognitive sense of loss of control and confounded expectations. Most importantly, if the adversary chooses conflict, these globally postured forces allow the United States to respond with multidomain military force from a position of advantage against adversary weaknesses.

The third element of Strategic Shaping is the display of asymmetric military capability to instill doubt in the success of the use of force in the minds of adversary political leadership and applies in late crisis and into conflict. Rather than reducing the adversary leadership's sense of control of the situation, this element seeks to erode their assumptions of military capability and the effectiveness of their forces against the United States. In combination with the previous elements, the Nation would rapidly demonstrate previously undisclosed asymmetric military capabilities. While this comes at a long-term tactical cost of allowing the adversary to develop a response, the short-term political benefit of instilling military doubt and compelling an off-ramp may outweigh the cost. The more that demonstrations

F/A-18F Super Hornet, assigned to Fighting Redcocks of Strike Fighter Attack Squadron (VFA) 22, breaks sound barrier over aircraft carrier USS *Theodore Roosevelt* during airpower demonstration, Pacific Ocean, May 3, 2018 (U.S. Navy/Spencer Roberts)

of capability mask the actual technology or platform, the greater the doubt created in the minds of the political leadership. As the interwar strategist J.M. Speight stated of cognitive effects of new technology, "the mystery of airpower is half its power."[17]

The linchpin of these three elements are speed and synchronization.[18] Taken alone, the movement of military forces during a crisis to an unexpected or threatening location may not create a significant deterrent effect. In fact, such an isolated action may have the opposite result by signaling a lack of real U.S. resolve, appear as an unsupportable overextension, or be used by an adversary as a pretext for war. However, the same movement of forces, if combined with a host of whole-of-government actions and synchronized with U.S. resolve, may compel adversary leadership to select a nonmilitary approach. Such actions may include a variety of nonkinetic diplomatic, informational, military, and economic pressure across varied geographic locations. Because speed and synchronization are vital to create the cognitive effect of these actions, a Strategic Shaping approach must be thoroughly planned and precoordinated at the highest levels of government.

Central to this coordinated response is the need for implied reassurance to the adversary that if he ceases the coercive military action, the United States will remove all corresponding pressure. This reassurance may come as direct messaging to the adversary leadership or through the careful choice of actions that can be quickly reversed and that can minimize lasting political impact, providing the adversary with off-ramps that minimize international and domestic fallout. In this way, the coercive effect is achieved.

Conclusion and Implications

One of the enduring challenges of any strategist or military planner is to understand and correctly assess the operational and strategic environments. A military planner must also understand the characteristics and centers of gravity of the adversary and select the appropriate strategy to meet desired friendly force strategic endstates. There are times, as history has shown, where strict cost imposition and attrition-based strategies are appropriate. This article does not discount their usefulness. Instead, we argue for shifting our coercive strategy paradigms from attrition toward cognition—starting with adversary beliefs and perceptions and then considering operational capabilities. From the perspective of today's antiaccess/area-denial operational environment and great-power use of Gray Zone warfare, competitive overmatch must start from an asymmetric perspective, applying strengths to weaknesses. The wars of tomorrow need to operate within the cognitive domain and with the kinetic and nonkinetic capabilities that can be brought to bear to directly influence adversary choice selection. Strategic Shaping and the concepts discussed herein have the ability to produce the complex dilemmas for an adversary to create significant effect on its sense of control and therefore its decision to use force. Strategic Shaping, at its core, seeks to achieve Sun Tzu's elusive maxim to subdue one's enemy without fighting, and it postures the joint force from a position of strength if it comes to conflict.

We must now evolve our strategy to attend first to adversary intentions and ability to make coherent decisions through an asymmetric approach that pits U.S. strategic strengths against adversary weaknesses. Strategic Shaping directly answers the call from the National Defense Strategy that demands we "develop new operational concepts to sharpen our competitive advantages" and "expand the competitive space, seizing the initiative to challenge our competitors where we possess advantages and they lack strength."[19]

The requirements to consider a Strategic Shaping approach holds several implications for the joint force. Operational planning and strategy must move beyond current paradigms and institutional processes to maintain relevance in a time of great-power competition. Such efforts must consider first the cognitive domain of warfare and integrate whole-of-government actions to produce nonkinetic effects that shock an adversary's strategic expectations. These effects rely greatly on timing and tempo to maximize the deterrent effect. This rapidity of action would require a precoordinated Strategic Shaping plan at the level of the National Security Council to effectively integrate the arms of government and to allow for rapid approval and implementation in crisis.

John Boyd once quipped that neither terrain nor machines fight wars (humans are the ones who fight) and that battles are won by influencing the minds of humans. By focusing on how to best influence adversary perceptions and expectations, a Strategic Shaping approach is better equipped to deter adversary coercion and prevent escalation by instilling adversary doubt in the effectiveness of a military course of action. **JFQ**

Authors' Note: In this article, Strategic Shaping is introduced at the conceptual level in order to illustrate how to apply new and innovative ideas in an era of great-power competition. Pacific Air Forces has applied the Strategic Shaping strategy to the Pacific theater, and the resulting concept of operations is available at higher classification levels should the reader desire more information on this subject.

Notes

[1] It appears as though great-power warfare is not only increasingly possible but also *plausible*: "The main reason why great-power warfare has become somewhat more plausible than at any time since the height of the Cold War is that both Russia and China are dissatisfied powers determined to change the terms of a Western-devised, American-policed international order, which they believe does not serve their legitimate interests." See "The Future of War," *The Economist*, January 27, 2018, 5.

[2] Ibid., 5, 8: "The clearest recent cases of grey-zone challenges are Russia's intervention in the Ukraine and China's assertive behavior in the South and East China Seas." Furthermore, Russia's objective in the Ukraine is not to "win a war" but to bring it further into its orbit and to discourage other countries from doing the same. Finally, a RAND 2015 study points to the very real challenge posed by a Russian attack against the North Atlantic Treaty Organization in which the Alliance would be unable to successfully defend its most vulnerable members.

[3] Ibid., 9–10. The best example here is "China's grey-zone campaign to assert uncontested control over the South China Sea and jurisdiction over disputed islands." In doing so, many suggest that China "has been able to cow most of its neighbors into a sulky acquiescence while avoiding direct confrontation with American naval ships."

[4] See *National Security Strategy of the United States of America* (Washington, DC: The White House, December 2017), 2–3. This point is also echoed in the National Defense Strategy, which states, "China and Russia are now undermining the international order from within the system by exploiting its benefits while simultaneously undercutting its principles and 'rules of the road.'" See *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), 2.

[5] Colin Clark, "CJCS Dunford Calls for Strategic Shifts; 'At Peace or at War Is Insufficient,'" *Breaking Defense*, September 21, 2016, available at <https://breakingdefense.com/2016/09/cjcs-dunford-calls-for-strategic-shifts-at-peace-or-at-war-is-insufficient/>.

[6] *Summary of the 2018 National Defense Strategy*, 3.

[7] "The Future of War," 10.

[8] Standard operational planning models as described in Joint Publication (JP) 5-0, *Joint Planning* (Washington, DC: The Joint Staff, June 16, 2017)—and practiced throughout the combatant commands—emphasize in the design phase that "commanders and planners can design campaigns and operations that focus on defeating either *adversary's forces*, functions, or a combination of both." See JP 5-0, IV-39. Emphasis added.

[9] See Mark Gunziger and Bryan Clark, *Winning the Salvo Competition: Rebalancing America's Air and Missile Defenses* (Washington, DC: Center for Strategic and Budgetary Assessments, 2016), 1, i: "Since the end of the Cold War, the Pentagon had the luxury of assuming that air and missile attacks on its bases and forces would either not occur or would be within the capacity of the limited defenses it has fielded. These assumptions are no longer valid. . . . Despite DOD's urgency, these investments have fallen short of creating defensive architectures with sufficient capacity to counter large salvos of ballistic missiles, cruise missiles and other precision-guided munitions."

[10] *National Security Strategy of the United States of America*, 26–29.

[11] *Summary of the 2018 National Defense Strategy*, 5.

[12] While we did not include an extensive literature review in the article, the primary works of Thomas C. Schelling, Lawrence Freedman, and Alexander George were referenced heavily.

[13] Megan Friedl, "Goldfein Delivers Air Force Update," *AF.mil*, September 19, 2017, available at <www.af.mil/News/Article-Display/Article/1316603/goldfein-delivers-air-force-update/>.

[14] Thomas C. Schelling, *Arms and Influence* (New Haven: Yale University Press, 2008).

[15] Alexander George writes, "coercive diplomacy and deterrence are political and psychological strategies that must be directed by political leaders, coordinated with diplomacy, and sensitive to adversary's political constraints, world views and perceptions." Quoted in Jack S. Levy, "Deterrence and Coercive Diplomacy: The Contributions of Alexander George," *Political Psychology* 29, no. 4 (August 2008), 538.

[16] Just as integration across diplomatic, informational, military, economic powers, and whole-of-government coordination is a pillar of Strategic Shaping, it is also a recognized requirement for just the type of strategic competition called for by the National Defense Strategy, which states that "effectively expanding the competitive space requires combined actions with the U.S. interagency to employ all dimensions of national power" in a seamless and integrated fashion. See *Summary of the 2018 National Defense Strategy*, 4–5.

[17] Len Deighton and Max Hastings, *Battle of Britain* (London: Michael Joseph, 1990), 15.

[18] The focus of speed, maneuver, and resiliency of these forces is also wholly consistent with the guidance in the newly released National Defense Strategy, guiding the joint force to "prioritize ground, air, sea, and space forces that can deploy, survive, operate, maneuver, and regenerate in all domains while under attack. Transitioning from large, centralized, unhardened infrastructure to smaller, dispersed, resilient, adaptive basing that include active and passive defenses will also be prioritized." See *Summary of the 2018 National Defense Strategy*, 6.

[19] Ibid., 4–7.

F/A-18E Super Hornet from Tophatters of Strike Fighter Squadron (VFA) 14 participates in airpower demonstration over aircraft carrier USS *John C. Stennis*, Pacific Ocean, April 24, 2013 (U.S. Navy/Ignacio D. Perez)

The Future of the Aircraft Carrier and the Carrier Air Wing

By Michael E. O'Hanlon

What is the future of the aircraft carrier for the U.S. Navy? Some would argue that the carrier is obsolete. Faced with threats ranging from China's DF-21 and DF-26 ballistic missiles with homing warheads, to the proliferation of quiet attack submarines, to the spread of nuclear weapons, as well as the very cyber systems that not only make modern ships more efficient but also leave them vulnerable to hacking, this school of thought has predicted that the carrier will soon go the way of the battleship.

Others, including most of the existing Navy establishment, appear to hope that the carrier of tomorrow can continue virtually the same missions as carriers of the past. Indeed, the Navy still sizes the carrier fleet using similar criteria to what it employed in those earlier periods—and plans to keep doing so under its envisioned 355-ship fleet of the future. It would appear to envision a similar role for the carrier in any future wars to what transpired, say, in Operation *Desert Storm* in 1991 and in any future high-end crisis diplomacy such as the Taiwan Strait Crisis of 1995 and 1996.

In my view, both these views are flawed. The Navy would do better to plan for fleets of 10 flat-deck aircraft carriers (and another 10 large-deck amphibious ships—its "small carriers") rather than to aim for larger numbers. But it should more clearly prioritize, and

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accelerate, development of long-range stealthy airpower, most likely in the form of unmanned aircraft, to operate off these carriers.

The article begins with a brief summary of today's aircraft carrier fleets and air wings, and then works through the taxonomy of missions for those U.S. military assets—today and tomorrow.

Modern American Aircraft Carriers and Air Wings

The United States has two aircraft carrier fleets today. The first is the one most think about when they hear the term—the large flat-deck carriers, of which the Navy now has 11. Each is capable of holding up to about 75 planes, together known as a carrier air wing, with capacity for catapult-assisted takeoff and tailhook-assisted landing.[1] There are nine carrier air wings in the force today—fewer than the number of carriers themselves, since aircraft need not have quite the same lengthy maintenance and training cycles as ships.[2] These aircraft typically include 44 F/A-18 Hornet or Super Hornet combat aircraft, 5 electronic warfare planes, 4 airborne control planes, 8 antisubmarine warfare aircraft, 2 transport aircraft, and 8 to 11 helicopters for purposes ranging from antisubmarine warfare to search and rescue. (Put differently, there are typically four squadrons of F/A-18 combat jets. There is typically also one squadron of helicopters, one of electronic warfare aircraft, one of airborne command and control planes, and one of antisubmarine warfare aircraft.[3]) Over time, the carrier fleet will include the F-35C, Osprey tilt-rotor aircraft, and eventually perhaps a future derivation of an Unmanned Carrier Launched Airborne Surveillance and Strike (UCLASS) aircraft. They will replace some of the older Hornets, C-2 aircraft, and perhaps other systems as well.[4]

The Navy also has another 11 ships, each with about one-third the carrying capacity for planes as the flat-deck ships. The aircraft on these large-deck amphibious ships, designed primarily to move Marines around the world and provide platforms for some of their operations, can include helicopters, Harrier jets, Ospreys, and, in the future, F-35B Lightning II jets.

The amphibious ships typically weigh 40,000 tons with length of 850 feet or so. By contrast, the flat-deck carriers with 75 aircraft to a wing weigh about 100,000 tons, with a length of roughly 1,100 feet.[5]

Which type of system is better—the large-deck carrier with three times the number of aircraft, or the smaller carrier with a couple dozen? It all depends on the mission. Amphibious ships, per aircraft deployed, are somewhat less expensive over a life cycle than flat-deck aircraft carriers.[6] They are also, however, less capable, plane for plane, so they would not constitute a less expensive or more effective way to deploy airpower for high-end combat. Considerations including survivability, fuel and ammunition storage, and maintenance capacity would favor the larger ships. The flat-deck carrier is also more effective at sustaining operations in bad sea conditions.[7] Affordability issues can favor one type of carrier for some conditions and another for different conditions or missions.

Each of the Navy's aircraft carrier fleets—the flat-deck fleet and large-deck amphibious ships—would increase under the Service's 2016 proposal, now endorsed by the Trump administration, to grow the fleet to 355 ships in coming years. It is an ambitious plan since the current fleet numbers less than 300 ships, and the previous plan aimed for 308. Some, however, would say it is not so ambitious since it would only return the fleet to a size characteristic of the Clinton years—but today's vessels, and the aircraft on them, have never been so capable and in general have also never been so large. Under this new plan, the current figures of 11 flat-deck carriers and 11 amphibious large-deck vessels would grow to 12 and 13 vessels, respectively.[8]

Purposes of Aircraft Carriers in the 21st Century

Aircraft carriers are often described as ships designed to help control the sea lanes or to project power. Those concepts are valid, but a bit vague. I would propose the following more detailed taxonomy of potential missions for the future U.S. aircraft carrier fleet:

- peacetime and crisis presence in key regions (largely for deterrence and reassurance)
- establishment of maritime air supremacy, plus littoral sea control, in key regions against less powerful foes (the Persian Gulf region)
- establishment of maritime air superiority, plus littoral sea control, if possible, against near peers (South China Sea, Baltic Sea)
- power projection ashore against less powerful foes (Iran, North Korea)
- power projection ashore against near peers (Russia, China)
- blue-water sea control (against a peer or near-peer rival).

Thinking through the capabilities of the carrier fleet against each of these possible missions helps clarify what kinds, and numbers, of carriers and air wings the United States should pursue in the future. I group the above six missions into four categories in the following discussion.

Peacetime Presence and Crisis Response. Historically, when conducting force sizing, the Navy has often emphasized the importance of the peacetime presence mission more than combat requirements. The goal of such operations, of course, has been to reassure allies and deter potential adversaries in those regions of greatest strategic concern to the United States, while providing at least some initial response capability should a crisis quickly escalate to open hostilities. The key regions during the Cold War included the Western Pacific, the broader Persian Gulf area, and the Mediterranean Sea, though that last area has been deemphasized during most of the post–Cold War era.

Today's aircraft carriers based in the United States—all of them except the one that is homeported in Japan and considered constantly on station—average just over 25 percent time on deployment. Thus, they typically average perhaps 20 to 22 percent of their time on station in forward waters because they have lengthy

periods of maintenance, preparation, and then sustainment (that is, being on call for rapid response) that consume most of their time and because the Navy rightly prefers to limit the duration of any given Sailor's deployment to 6 or 7 months when possible.[9] Additionally, there are long maintenance periods a carrier generally goes through in its lifetime, with one planned lengthy mid-life overhaul and often a couple more unanticipated (if shorter) ones. This reduces the effective fleet available at any given moment to perhaps nine on average. Thus, a fleet of 11 carriers, with 1 homeported in Japan and 2 probably offline at any moment, can effectively sustain somewhat fewer than 3 on forward station. They would include one or more in East Asia, one or more in the Persian Gulf, and occasionally one in the broader Mediterranean region or the Indian Ocean (these latter deployments often occurring when ships are in transit).[10]

There is considerable logic to the basic idea of peacetime presence. It shows clear American commitment and steady attention to a given region. It is less significant as a way of maintaining decisive combat power in a key area, since one carrier—whatever its many strengths—constitutes only a limited capacity. That is true not only for the obvious situation in which the United States might seek to deter a large power, but also even in cases involving smaller powers. For example, the one aircraft carrier stationed in the Mediterranean just before the outbreak of the Kosovo war in 1999 was far from enough to deter, or defeat, Serbian strongman Slobodan Milosevic.[11] But an aircraft carrier battle group still represents and conveys American resolve, with the implied promise of likely reinforcements should hostilities break out. In other words, its benefits are largely psychological, but nonetheless important.

America's command of the commons has been rather robust and contributed to one of the most conflict-free periods in major-power relations in recorded history. To be sure, nuclear deterrence and other factors have contributed to the general absence of war as well. But deterrence only works when states clearly signal where their important interests lie and when they demonstrate the kinds of capabilities that can credibly provide combat superiority in a conflict. Carriers have helped enormously in these tasks. They have not prevented all wars, of course—for example, when Washington was not clear about its interests (in the prelude to the Iraqi invasion of Kuwait in 1990, for instance) or when its offshore carrier presence was not particularly relevant to the type of conflict being waged on land (many of the Middle East's civil wars and insurgencies, or those in the Balkans). But they have helped convey America's interest in the security of Taiwan, the waters of the Persian Gulf, and Northeast Asia, among other places. Again, it is difficult to disentangle the various contributors to successful deterrence. It is, however, impressive that in most cases where the United States has established strong alliances and demonstrated commitment to them through forward military deployments war has been avoided.

This quick review of the role of aircraft carriers in American national security policy underscores the importance of perception, more than of demonstrated combat capability or war-winning overmatch, in how the fleet is routinely operated. If that is the case, we should simultaneously conclude two things. First, carriers have likely been quite helpful for deterrence and reassurance. But second, just when and where and how often they must deploy to achieve a given effect is less clear.

Does aircraft carrier presence really need to be continuous in places where the United States also has an established land presence? Are there cases where land-based airpower or other assets could relieve strain on the carrier force? Are there locations where the lesser but still impressive combat capabilities represented by a flat-deck amphibious ship would be adequate, and a large-deck carrier could visit only occasionally, if at all? To be sure, amphibious ships are themselves already typically quite busy as key parts of Marine Expeditionary Units (MEUs), but normal MEU deployments can be rethought in some cases, too.[12]

My own view is that the opportunity to base more land-based tactical fighter aircraft in Gulf Cooperation Council countries—say, one to two squadrons each in Kuwait, the United Arab Emirates, and/or Oman—should be explored as a way to allow occasional gapping of carrier coverage in the broader Persian Gulf region. In addition, the types of presence missions conducted in the South China Sea do not generally involve any heightened risk of imminent conflict and thus can be carried out by even smaller vessels than large-deck amphibious ships. (Indeed, Coast Guard vessels might suffice, and send a useful message of firm but quiet resolve to Beijing.) Surging carriers infrequently near North Korea may be more useful than frequently having just one carrier there.[13] The list goes on. For the presence mission, there is just as strong a case to reduce each of the carrier fleets by one or two ships as to grow them, in fact.[14]

Power Projection Against a Lesser, Regional Foe. Consider two of my categories that focus on regional operations against lesser (but still dangerous) foes. This set of challenges relates most of all to the Persian Gulf region and the waters of Northeast Asia near the Korean Peninsula.

Carriers could be needed to help establish air superiority in coastal regions. They could also be needed to contribute to ground-attack operations.

For air superiority against a regional foe typically possessing 300 to 600 aircraft, many of them likely obsolete or unserviceable, 4 to 6 U.S. carriers would likely suffice. That would provide something approaching quantitative parity with enemy forces, combined with huge qualitative superiority, and a certain hedge against attrition.

For ground-attack, Operation *Desert Storm* provides a useful frame of reference. In that war, there were some 700 key Iraqi strategic targets, presenting a total of about 3,000 aimpoints, that were attacked. These included command and control locations, radar sites, and the like.[15] There might be twice as many aimpoints against Iran or North Korea.[16] (These figures stand in contrast to the

Aviation Ordnanceman works with shipmates to upload ordnance to F/A-18 Super Hornet on flight deck aboard USS *Harry S. Truman*, Mediterranean Sea, May 3, 2018 (U.S. Navy/Thomas Gooley)

total of 40,000 strikes against ground targets during the entirety of the war—which included almost 25,000 against Iraqi ground forces and multiple strikes against many fixed aimpoints.[17]) Perhaps 20 to 50 percent of these target sets would be within the potential reach of the carrier fleet, which could attack many of them within a few weeks. But the carrier fleet would likely have help. Indeed, for providing strike capabilities against ground and coastal targets, it could have lots of help—even more than with the littoral air superiority mission. Not only nearby land-based fighter aircraft but also long-range bomber capabilities (and cruise missiles on other ships and submarines) could contribute. Thus, even in a scenario in which land bases in the region had been overrun or otherwise rendered unavailable due to an initial enemy attack, or in which regional political problems precluded access to other countries' bases for combat operations, a carrier armada of four to six flat-deck ships could probably achieve whatever ground-attack role the regional combatant commander required of it.

In major recent wars, which have been fought largely in the broader Persian Gulf region, the Navy has typically wound up deploying five to seven aircraft carriers at peak strength.[18] Not coincidentally, major post–Cold War defense planning documents starting with the Base Force and the 1993 Bottom-Up Review commonly assumed that five to six carriers would be needed in any future conflicts of similar character. Whether five to seven carriers were always truly needed for conflicts in which the United States generally also had access to land bases is debatable. Whether *more* than five to seven might be needed in a region lacking land bases is another important question. Indeed, over the years, some studies have found that up to nine aircraft carrier battle groups might be needed against an Iraq-like foe in the absence of reliable bases on land—at least for a spell.[19] (Studies have also found that, in many Cold War periods, the United States did not really have anything close to a half-dozen carriers available for a regional contingency—or a "1/2 war," as conflicts against smaller foes were often called back in that era.[20])

Averaged across scenarios, a carrier fleet of 10 flat-deck ships (and another 10 smaller carriers, the amphibious large-decks) would seem adequate to the task of dealing with regional foes like Iran and North Korea. Such a Navy could even likely support up to two regional conflicts at once, as U.S. war plans and broader defense policy still require. If necessary, one operation could probably be handled with three to four aircraft carriers, since ample land bases for tactical airpower would likely be available. (In a worst case, virtually all of the available fleet might

Sailors and Marines participate in flight deck washdown aboard USS *Iwo Jima*, May 7, 2018 (U.S. Navy/Dominick A. Cremeans)

need to be surged to one place until bases on land could be reestablished.)

Some ongoing improvements to the carrier air wing could be useful for regional conflicts, too, including the F-35C stealthy aircraft and longer range ground-attack variants of a UCLASS. However, the case for a different mix of aircraft in the carrier wing is most vivid when considering possible conflict against a near-peer rival.

Scenarios and Missions Against a Near-Peer Foe. Against a country like Russia or China, the challenges of projecting naval power are, naturally, far greater. Those countries have advanced submarine forces, resilient reconnaissance-strike complexes that are difficult to bring down, and potent antiship missiles of various types. Of course, they also have nuclear weapons. Conflict against either is considerably less likely than against the likes of North Korea or Iran, and as such it is not necessary to think in terms of two simultaneous operations. But robust deterrence does require war-winning combat capability against one at a time, today and into the indefinite future.

For scenarios involving either of those countries, there are more profound distinctions between the air superiority mission and ground-attack mission. Establishing air superiority, if even feasible, is most achievable if the carriers are relatively close to the airspace they are defending. Otherwise, huge amounts of time would be lost in transit, and rapid reaction against any kind of enemy surge attack might not occur in sufficiently prompt fashion.

On the other hand, attacking targets on the territories of either potential foe, or ships operating near their coasts, would shift the calculus substantially. For those missions, longer range aircraft are much better. They allow the carriers to remain at greater distance, enhancing their survivability and that of their surface-combatant escorts. Such capabilities could be hugely helpful even if military balances had evolved to the point where the close-in air superiority mission were no longer as feasible as it had once been.

Consider one specific example: an operation involving elements of a Chinese naval blockade against Taiwan, perhaps after Beijing determined that Taipei had taken some steps leaning too far in the direction of declaring independence. China might conclude that a naval blockade could be "leaky" but still be quite potent. It would not need to stop all ship voyages into and out of Taiwan; it would simply

need to deter enough ships from risking the journey that Taiwan's economy would suffer badly. The goal would likely be to squeeze the island economically to a point of capitulation.[21]

The centerpiece of the approach would probably have China's submarine fleet introduce a significant risk factor into all maritime voyages into and out of Taiwan—occasionally sinking a cargo ship with submarines or with mines it laid in Taiwan's harbors.[22] Over the last 20 years, China's fleet of modern attack submarines has grown from roughly 2 to 40.[23] China's precision-strike capabilities have improved to the point where it could conceivably use a preemptive missile and air attack against Taiwanese airfields and ports and associated infrastructure to hobble Taiwan's ability to strike back.[24]

To break the blockade, under current thinking, the basic concept of operations for the United States and Taiwan would probably be to deploy enough forces to the Western Pacific to set up a protected shipping lane east of Taiwan. To carry out that mission, the United States, together with Taiwan, would need to establish air superiority throughout a large part of the region. The United States and Taiwan, and perhaps Japan and other allies as well, would also need to protect ships against Chinese submarine attack and cope with the threat of mines near Taiwan's ports.

The air superiority mission has become much harder given Chinese modernization, combined with the realities of geography and the limited options for basing U.S. aircraft in the region. Fortunately, modern U.S. stealthy or fifth-generation aircraft are still far superior to Chinese planes. Unfortunately, China now has close to 1,000 fourth-generation fighters of rough comparability to U.S. aircraft such as the F-15 and F-16. A RAND simulation estimates that it might take 6 or 7 U.S. fighter wings (each with some 72 planes)—based on Okinawa, in other parts of Japan, on Guam, and on carriers, and supported by aerial refueling tankers—to do the job. The United States could lose a number of aircraft in this process, perhaps even dozens; China could lose dozens, or even hundreds.

Both sides would of course be sorely tempted to attack the adversary's runways, as well as refueling and rearming supplies for the aircraft.[25] Chinese capabilities in these areas are now such that any Chinese attack against military facilities in a place like Okinawa would likely shut down runways for at least some stretch of time, and destroy aircraft, ordnance, and fuel stocks that had not been properly secured in underground areas and/or hardened shelters.[26] China might very well be able to threaten U.S. aircraft carriers, too. The closer they were to Chinese shores, the higher the likelihood that sensor-shooter links could be maintained long enough to guide a cruise or ballistic missile to target. Chinese submarines could target not only cargo ships but also Navy vessels, including carriers. The United States and any allies would use their own antisubmarine warfare assets operating off land bases and carriers to hunt down Chinese submarines.

The typical Chinese attack submarine might succeed in getting off several shots against valuable, and vulnerable, surface ships before meeting its own demise.[27] A recent major RAND study on the U.S.-China military balance concurred with this broad result, especially in cases where Chinese submarines could be cued by sensors to a general area where a target like a U.S. aircraft carrier might operate.[28] China might hope that a quick strike that sank a major U.S. ship and killed hundreds of Americans (or even thousands, in the event of a carrier sinking) would cause Washington to waver in its future commitment to the defense of Taiwan. Thus, the carrier fleet in particular would be important to protect, more so than other military or commercial assets. Yet if the United States made protection of the carrier its preeminent concern, those carriers could be pushed so far out to sea as to be much less useful as platforms launching aircraft for air superiority or antisubmarine warfare operations.

Of course, there would be huge additional uncertainties in this kind of scenario, starting with fundamental doubt as to whether Chinese and American space-based reconnaissance and communications systems could survive in the face of antisatellite and cyber attacks. If the United States, in conjunction with Taiwan and perhaps Japan, concluded that conventional operations were not going their way, they might elect to undertake a systematic campaign of bombing targets in southeast China contributing to the military campaign, such as missile-launching bases, radar and surface-to-air missile sites, and submarine ports (whether or not China had already attacked bases in Okinawa directly). Then there is the risk of nuclear escalation, whether inadvertent or intentional.[29] Even though U.S. nuclear forces far exceed those of the People's Liberation Army, China might conclude that its disproportionate interests in the Taiwan issue in particular would warrant nuclear brinkmanship.

Where does this leave things? I believe the United States does need to prepare for the direct defense of assets of threatened friends and allies (such as Taiwan, or Japan's Senkaku Islands, or eastern farming towns in Latvia or Estonia). However, in the actual event of hostilities, the United States would also want other options—asymmetric ones, what B.H. Liddell Hart might call an indirect approach, that played to its own strengths. Rather than forcibly reopen sea and air lanes into Taiwan, or promptly taking back that notional Baltic farming village, the United States and allies might wish to apply military power at times and places of their own choosing, where the correlation of forces and geography were more favorable. There would be downsides to such an approach; the threatened ally might not be immediately protected. But deterrence—the real goal here—would likely be reinforced because indirect defense may be a more credible, and believable, response than direct defense in some cases.

Thinking in these terms leads naturally to my final mission area for the future carrier fleet—sea control. I think of it as not only a defensive mission to protect western shipping but also an offensive opportunity against the assets of possible adversaries.

Sea Control and the Indirect Approach. Being a maritime nation with allies all around the world, the United States has a special interest in securing blue-water sea lanes as well as the airspace above the oceans. This is particularly true in a globalized world.[30] Fortunately, this is a task the United States remains very good at—and far ahead of China or Russia, even if those two powers could pose limited risks to blue waters with their respective submarine forces.

The sea control mission goes well beyond the simple idea of sustaining free access for all to the global commons in peacetime. There are wartime scenarios where it could also be of great importance, as well.

If Xi Jinping commands an attack on Taiwan, why not take away his dependable sources of oil and his ability to trade by sea with foreign partners, rather than put tens of thousands of Americans in close proximity to the Chinese coast with a direct defense operation? If Vladimir Putin fabricates a pretext to "protect" native Russian speakers in a Baltic state with little green men, do we really need to launch Operation *Desert Storm* on steroids in response? Why not take measures that would strangle Russia's economy, especially now that Western European countries have built up enough alternative sources of energy (through integrated natural gas pipelines and the like) that they could survive any resulting Russian cutoff in their hydrocarbon supplies?

By combining sanctions with the selective application of long-range strike power in parts of the global commons, the United States and its allies can make it entirely unrewarding for Russia or China to carry out aggression against exposed U.S. allies. Provided that we have escalation dominance in such domains, as I believe we do (though more could be done to ensure that, especially in economic realms), this kind of approach could play to Western strengths while also limiting the risks of escalation, since the kinds of military actions I propose would involve relatively few casualties and take place at some distance from adversaries' territories.

Even if China increasingly succeeds with time in making its own littoral regions, including the South China Sea, more difficult and potentially dangerous for American ships, the Indian Ocean basin is a different matter. Ambushes near the Straits of Malacca, or alternatively the Strait of Hormuz at the other end of a notional journey by an oil tanker from the Persian Gulf to China, could constrict China's access to oil. Attacks might also take place in the southern South China Sea, far from Chinese bases. These could involve a combination of bomber, submarine, and carrier-based aircraft, even if no regional states like Singapore or Thailand or the Philippines ultimately wanted to offer America access to bases on their territories. Russian trade could be challenged in ocean waters near the Baltic and Mediterranean seas, as well as the Sea of Okhotsk. In neither case would a blockade, coupled with strong and sweeping sanctions, have to be airtight to be strategically effective over time.

Indeed, such blockades as well as associated sanctions would hurt the West. But such pain is preferable to huge and enormously costly military operations that carry considerable uncertainty about their likely outcomes—not to mention a real risk of nuclear escalation. Moreover, the West needs to bear in mind its inherent advantages. North Atlantic Treaty Organization nations plus Japan, South Korea, and Australia together represent more than half of the world's gross domestic product and by far the world's largest markets. Factories in China and oil and gas producers in Russia need us more than we need them, especially given the world's new sources of energy and the multiple manufacturing centers that could, if need be, replace much of what China and Russia now do for the world economy.

For these kinds of operations, long-range strike capability is highly desirable. The purpose of carriers, and assets like bombers, in these sorts of missions, is less to establish air superiority than to project strike power. Moreover, a thorough bombing campaign against thousands or tens of thousands of land targets is less relevant than an ability to have intelligence-driven strikes against a relatively modest number of the right kinds of larger assets, most of all ships. Numbers matter, but capabilities matter even more in such situations. In some such situations, long-range bombers may be the preferred tool. In others, however, carriers may be useful. They can also be helpful in protecting sea lanes to Europe, Japan, Australia, South Korea, and the Middle East in the event of hostilities against another great power.

Conclusion

In this article, I outlined a nuanced case for the future aircraft carrier force and its associated air wings. The carrier is not becoming obsolete, but its optimal usages in peacetime and especially in war against near-peer competitors are changing.

To be sure, some traditional carrier priorities would remain relevant even with such a revised strategic concept for the United States, which would still want enough carriers for peacetime presence and crisis response, as well as various types of kinetic operations against regional adversaries.

Some of the means and methods by which these operations were conducted could change. Large-deck amphibious ships could substitute more often for flat-deck carriers in some presence operations. More Air Force airpower could be stationed in the Persian Gulf region, alleviating the pressure for the carrier force always to maintain coverage there. Greater use of unpredictable presence operations could sometimes be favored over continuous time on station.

Most of all, the United States needs to rethink how it might fight a near-peer rival so as to enhance deterrence—and figure out what that means for the carrier fleet and carrier wing. No allies should be abandoned in this process, and no strategy of offshore balancing should be adopted. American military assets should also largely remain forward deployed for purposes of deterrence, assurance, and warfighting capability, too. But direct and prompt defense of all allied territory may not be the best, and should not be the only, option for future combat scenarios

against Russia or China. More indirect, asymmetric approaches should figure centrally in warfighting concepts. Thus, a carrier force with 10 flat-deck vessels (and another 10 large-deck amphibious ship carriers) and a carrier air wing with a dozen or two long-range and stealthy UCLASS-derived unmanned systems, rather than a strike force dominated exclusively by F-18 and F-35 manned jets, may make the most sense.

These considerations are especially compelling if the Trump defense buildup, for reasons of fiscal austerity, proves less generous than the Navy now hopes. Rather than emphasize pursuit of a 355-ship fleet, the Navy should think more about new capabilities and new concepts of operations for the fleet it has now, starting with the aircraft carrier force. **JFQ**

Notes

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View from aft flight deck window of DOD picosatellite known as Atmospheric Neutral Density Experiment, after release from shuttle payload bay by STS-116 crewmembers, December 2006 (NASA)

568 Balls in the Air

Planning for the Loss of Space Capabilities

By Chadwick D. Igl, Candy S. Smith, Daniel R. Fowler, and William L. Angermann

An event of considerable technical and scientific importance . . . [its] *importance should not be exaggerated . . . the value of the satellite to mankind will for a long time be highly problematical.*

—Secretary of State John Foster Dulles, 1957

On October 4, 1957, while the United States focused on domestic issues, the Soviet Union successfully launched the world's first satellite, Sputnik. This event, which President Dwight Eisenhower quipped was simply "one small ball in the air," ushered in the Space Era and—following President John F. Kennedy's challenge to land an American on the moon by the end of the 1960s—ignited the Space Race.[1]

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The Space Race encompassed the National Aeronautics and Space Administration's (NASA's) Manned Space Lunar program, which drove America to the moon and inspired groundbreaking American satellite programs. From 1958 to 1960, U.S. space firsts included Corona, the first reconnaissance satellite; Vanguard II, the first weather satellite and the first to take a photo from space; and TRANSIT IB, the first navigation satellite program.[2] These programs laid the framework for the U.S. military's dependence

on the National Reconnaissance Office's imagery and signals intelligence capabilities, real-time weather capabilities provided by the Defense Meteorological Support Program, and the ubiquitous Positioning, Navigation, and Timing (PNT) system, which provides, at no charge to over 2 billion people, access to the Global Positioning System (GPS) constellation. Today, nearly 60 years after Sputnik, the space capabilities and effects provided by 568 U.S. satellites are deeply integrated into all aspects of society, especially the U.S. military, and that dependence upon them is simultaneously unrecognized and irreplaceable.[3] Specifically, the U.S. military is heavily dependent on space capabilities to provide navigation accuracy for weapons employment, bandwidth for telecommunications, signals and imagery for indications and warning, and missile warning for theater operations and nuclear strategic attack. These dependencies create unquantified risk to the United States, and an adversary attack could compromise the effects provided by U.S space systems.

Essentially, space capabilities became a center of gravity (COG) for the United States because the U.S. military depends on these capabilities and effects across all aspects of military operations.[4] Space effects influence planning and execution at strategic, operational, and tactical levels of war. At the strategic level, space capabilities influence national economic and defense policy including investment banking and combatant command theater strategies. Campaigns and major operations depend on space assets at the operational level. Tactically, battles and engagements utilize space assets to gain and maintain advantage over the enemy. In fact, the Department of Defense (DOD) integrates and embeds these capabilities so deeply that warfighters rely heavily on the benefits of space assets without a corresponding understanding of how much the U.S. military depends on them. By examining the assumed and unique risk of space assets, we posit that systemic integration requires commanders and planning staffs to reduce this liability by coherently identifying, comprehending, planning, and mitigating the potential loss of capabilities.

The Importance of Space to the U.S. Military

The uniqueness of the space domain requires combatant commands to acknowledge and protect this COG through the operational art of planning and mitigating risk. The failure to understand and plan for the probability and severity of loss may well lead to the culmination of the United States during war. Unfortunately, many U.S. adversaries already understand the American reliance on space as a COG and an operational military paradigm. Chinese military officers, strategists, and academics demonstrate a clear-eyed view of the space role by pointing out that the opening action of any future war will likely take place in space, due to its nature as a COG.[5] Russia, notable and singular among U.S. near-peers, recently combined its air and space capabilities under one command, not only to ensure a prompt response to an attack on its capabilities but also to ensure it engages adversaries in the first stage of any conflict.[6] Combatant command staffs must plan to mitigate the potential loss of space capabilities if the United States is to counter near-peer adversaries' understanding of space and their attempts to leverage space as a COG during or prior to conflict.

Assessing the Absence of Space Capabilities

Because the Services fully integrate space capabilities into warfighting systems, the space capabilities themselves have become integral to mission execution and, ultimately, mission success. To assume that space capabilities, including ground systems, will be available and dependable in a conflict is inherently dangerous and could lead to U.S. military failure. Given how the U.S. military conducts its simulations of denied or degraded space capabilities in exercises, such failure is possible. In recent exercises, white cell teams quickly restored denied space services and capabilities to allow progress in order to meet training objectives.[7] While the purpose of a joint military exercise is to create an artificial environment that provides warfighters the opportunity to execute wartime operational plans, competing objectives result in an unwillingness to play out the scenarios in a denied or degraded environment that warfighters can expect to experience during actual conflict. This is a clear indicator of the critical dependence U.S. forces have on space. Yet the U.S. military operates daily with the expectation that it will not experience long-term denial of space effects. As with the rest of the exercise training objectives, U.S. military commanders and staffs must assess, plan, and routinely train for the risk of operating without integrated space effects at every level of war. This conflict of interest does not allow the warfighter to understand the true impact of near-peer adversaries' abilities to counter U.S. capabilities on the battlefield.

Identifying risk at the strategic level should begin by addressing the military assumption that long-term GPS denial is unlikely to occur. The common misperception by military commanders in the field is that GPS denial would be localized, temporary, and compensated by alternate options. In October 2008, Dr. Peter Hays, a senior space policy analyst with Falcon Research, stated,

> *One of the greatest distinctions today is that most commanders in the field don't put a lot of time and energy into thinking about how to get the effect they are calling for. They simply call for an effect and they have great confidence that it will be delivered from a wide variety of long-range precision strike capabilities and platforms.*[8]

Highly reliable satellites and their corresponding space effects contribute to this misperception. However, more important, the commander's confidence in space effects results in a lack of plans for operating in a protracted, contested space environment and an implied assumed risk rather than an explicit assumption of risk.

A lack of detailed, articulate plans at the strategic level leads to unacknowledged and unquantified risks at the operational level. A primary consequence of overconfidence in the provision of

AN/FPS-108 Cobra Dane radar, located at Eareckson Air Station, on Shemya, Aleutian Islands, Alaska, collects radar metric and signature data on foreign ballistic missile events and space surveillance data on new foreign launches and satellites in low-Earth orbit (U.S. Air Force/Brandon Rail)

space effects is the risk of having ineffective mitigation and restoration plans. Warfighters must understand what the consequences of a loss of space effects would be, and they should be able to quickly make informed decisions on direct action to restore a capability or operate without it. At U.S. Strategic Command (USSTRATCOM), warfighters who directly control space assets and have mitigation plans to address losses or gaps do not actively utilize the space capabilities allocated in their area of responsibility. In most situations, a warfighter downrange must inform the functional combatant command warfighters who control space assets that a denial or degradation exists. Often, warfighters downrange perceive a denial as fleeting and likely to be resolved without taking action. This usually delays switching to a contingency plan—if one exists. A comprehensive plan must promptly direct operators to identify lost and degraded space effects, quickly notify all users of the outage situation, inform the correct agencies and units that can restore services, and transparently implement immediate mitigation actions.

At the operational level, a long-term GPS or satellite communications denial would cripple all joint functions and result in incalculable risk. Operational commanders' complete isolation from the battlefield would detrimentally affect distributed command and control of forces until mitigation actions resolve the outage. A common operating picture could be unreliable for situational awareness because chat and voice communications dependent on GPS timing signals would be unavailable. The ability to give and receive orders would be restricted to hardline telephones; these could be easily compromised and the adversary could deny line-of-sight radio transmissions. While intelligence, surveillance, and reconnaissance capabilities may be available through classified systems, war-planning rooms dependent on satellite communications would have blank displays instead of routine news feeds. Additional data sources might display a "404–Page Not Found!" error, signaling a failed Internet connection. Accordingly, operational plans need to be in place to ensure mission accomplishment, and those plans need to be exercised extensively in anticipated real-world conditions to retrograde to alternative means or equipment.

The tactical level would also suffer severe limitations for providing an accurate application of lethal force and effective self-defense resulting in the unnecessary risk of collateral damage to people and equipment. Many sensors, munitions, guidance, navigation, and weapons systems have a critical dependence on GPS or other space effects. For example, an unmanned aircraft tasked to conduct a mission in a degraded environment would struggle to proceed to the target and be unable to reliably deliver ordnance or find the way back for a safe recovery. The United States predicates many of its systems designed for the purpose of indication and warning on the availability of space-provided connectivity. Peter W. Singer, a 21st-century warfare expert from the New America Foundation, summarized the military consequences of losing satellites:

As one U.S. military officer put it, [it would] *take us back to the "pre-digital*

age." Our drones, our missiles, even our ground units wouldn't be able to operate the way we plan. It would force a rewrite of all our assumptions of 21st-century high-tech war. We might have a new generation of stealthy battleships . . . but the loss of space would mean naval battles would in many ways be like the game of Battleship, where the two sides would struggle to even find each other.[9]

Near-peer adversaries publicly admitted to challenging continued U.S. reliance on strategic advantages in space, thereby making the expectation of complete control over the U.S. operating environment a risk-laden assumption.[10]

While many of the systems the U.S. military utilizes today can operate in degraded conditions, warfighters lack sufficient proficiency due to limited experience operating the systems in that fashion. The reliability and seamless integration of satellites and their corresponding space effects in military operations cause most warfighters to take space capabilities and effects for granted, which instills a false sense of confidence that will be shattered and paralyzing if or when that capability is unavailable. Confidence in a capability that may not exist—but upon which the warfighter is also completely dependent—quickly becomes a major liability. As Michael Peck, a contributing writer for the *National Interest*, noted, "No doubt the Pentagon will find alternative technologies, perhaps something that will replace GPS. But the larger question is technological dependence. If the [U.S. military] is that helpless when GPS is down, then perhaps the problem is with the user as well as the technology."[11] For this simple reason, the U.S. military must place greater emphasis on education, training, and planning, to include the identification or development of alternate technology to address appropriately operating without space-related capabilities.

The 2012 Capstone Concept for Joint Operations (CCJO) recognizes the shortfall in education, planning, and training. Specifically, it addresses operating in a degraded environment by underscoring the

dramatic increases in the ability of adversaries to disrupt, degrade, or destroy cyberspace and space systems, it is essential that Joint Forces be able to operate effectively despite degradation to those systems. Greater resilience must be built into technical architectures, and the force must regularly train to operate in worst case degraded environments.[12]

While the CCJO states mission command must be integral to training at the tactical level, the concepts of shared understanding and executing commander's intent will only be amplified and severely affected if the tactical warfighters become cut off from operational commanders due to the unplanned and unmitigated loss of space capabilities. This is more than a technical limitation. Education, planning, and training for the loss of space capabilities must be reinforced with routine exercises to firmly incorporate a decision-making paradigm where deployed forces are empowered to make all necessary decisions affecting their force deployment and engagement.

Ensuring Access to Capabilities

A common risk management process, as illustrated in the figure, represents a simplified, structured approach for commanders and combatant command staffs to plan for the loss of space capabilities at all three levels of war. Through a process of continual assessment, U.S. forces must identify problems, assess impacts, develop and implement mitigation plans, and train to manage risk to and dependence on exploitable space systems in a conflict.[13] Any technological advantage U.S. forces have over an adversary could be severely and devastatingly reduced and result in the culmination of the U.S. military through mission failure or unacceptably high attrition. This risk could manifest itself in lost aircraft, ships, Soldiers, and Marines at levels not experienced since the Vietnam War. Under the Trump administration, DOD must include requirements in U.S. grand strategy and national policy to pursue alternative technologies that reduce this exploitable dependency. For GPS, an initia-

Figure. Risk Management Process

tive termed "Assured PNT (APNT)" advocates for an open architecture that has the ability to incorporate multiple PNT-like sensors that improve resilience.[14] Dee Ann Divis, a contributing editor to *Inside GNSS*, highlights how APNT systems under development, including pseudolites and chip-scale atomic clocks,[15] present viable alternatives that provide resiliency and immediate backup capability to on-orbit GPS satellites.[16] Operationally, combatant command staffs must enforce denial or degradation reporting. Prompt reporting enables warfighters to implement mitigation plans and restore capabilities as quickly as possible. These comprehensive plans must also focus on how to maintain command and control through backup and legacy systems as well as direct tactical forces to work independently utilizing tactics and procedures that do not rely on space.

Currently, planning fails to account for the sustained loss of space effects. Commanders rely on staff planners to engage this problem, which they are accustomed to, but space capabilities and effects are not an asset that geographic combatant commands directly control. Due to the global nature of the space domain, space effects extend across all theaters. As specified in the Unified Command Plan, USSTRATCOM is responsible for delivering the requested space effects to meet combatant command requirements. Joint Functional

Armillary Sphere, adopted symbol of Space and Missile Systems Center at Los Angeles Air Force Base, points to partial solar eclipse at approximately 61 percent obscuration of sun at 10:20 A.M. local time, El Segundo, California, August 21, 2017 (U.S. Air Force/Sarah Corrice)

Component Command for Space (JFCC SPACE) accomplishes this through Joint Space Tasking Orders, focusing on effects, not tangible asset allocation.[17] Geographic combatant commanders are not allocated space assets. USSTRATCOM provides other space capabilities, such as satellite communications, as an effect rather than an asset, through a priority-based architecture. In most cases, combatant command staffs do not explicitly plan for space effects because USSTRATCOM provides space capabilities. The personnel responsible for maintaining the technological advantage at the combatant commands are space operations subject matter experts (SMEs). The "U.S. Strategic Command effects" and the corresponding U.S. military advantage in space are assumed asymmetric advantages. However, assumed technological advantages are decreasing rapidly.

The April 2012 Chairman of the Joint Chiefs of Staff White Paper discussing mission command emphasizes the need to empower field commanders to make decisions in the field.[18] This mentality permeates geographic combatant command staffs and joint force headquarters where the joint force commanders (JFCs) rely on SMEs to use their knowledge pertaining to highly complex systems to influence decisionmaking.

From a mission command perspective, the SMEs have the unique responsibility requiring them to consider all possible scenarios and then incorporate the effects into corresponding plans. Within USSTRATCOM, a small number of space SMEs are assigned to the headquarters staff, while a larger number of SMEs are assigned to JFCC SPACE. At the geographic combatant commands, just a few billets are allocated to space SMEs with a predominant number of those billets allocated to the Air Force. The Services must fill these billets with competent, knowledgeable space personnel capable of complete integration into any type of planning process, whether deliberate or crisis action. At the combatant commands, the J3 and J5 staffs must prioritize their space SME billets through the assignment process to ensure a gap in personnel does not result in a loss of military capability because a space SME was not positioned to articulate the importance of space capabilities to routine military operations. Building a robust space SME core is thus a joint effort where both the Services and combatant commands must work together to fill these critical space SME billets.

Operating Without Space

With the onset of combat operations in 2003, DOD focused on reacting to the changing nature of military operations in Iraq and Afghanistan, contributing to a decreased emphasis on maintaining the U.S. technological supremacy over near-peer adversaries. This change in focus allowed adversaries to close the technology gap significantly. The Chinese launch in 2007 of a direct ascent antisatellite weapon to destroy an old satellite in low-Earth orbit caused concern.[19] However, it was the 2013 revelation that China had the capability to launch a direct ascent antisatellite weapon to destroy a satellite in a 22,000-mile geosynchronous orbit that proved China had closed the technology gap.[20] The discovery that China could attack U.S. systems in space quickly sparked the realization that the U.S. military's dependence on space technology may also be its greatest risk. This idea has yet to fully sink in. More concerning to experts is that both China and Russia are developing weapons that threaten U.S. space capabilities on the ground as well as in space.

The discussion of the importance of space capabilities and effects highlights the crucial need to understand space as a center of gravity. The impact of a loss of space effects is clear, especially as near-peer adversaries actively develop capabilities to deny, degrade, and disrupt U.S. access. As the functional combatant command tasked with providing space capabilities, USSTRATCOM has the responsibility to plan for and provide these space effects. However, advanced planning at geographic combatant commands cannot stand by and wait when space effects are lost or disrupted. From a warfighter's perspective, the JFC executes mission command over the assets assigned to accomplish the mission. Planning staffs must recognize the misperception that space effects will always be available and begin educating, planning, and training to operate in a degraded environment to prevent the loss of Servicemembers and materiel, as well as to avoid incurring collateral damage. The fact that geographic combatant commands do not own space assets does not prevent them from continually assessing risk and developing robust plans that mitigate the risk to ensure U.S. forces have the capability to fight a near-peer adversary when space capabilities are lost or degraded. Today's warfighter, from the JFC to the Soldier or Marine with boots on the ground, depends on space capabilities and effects just like the greatest generation depended on "beans and bullets" to win World War II.

Simply recognizing the importance of space effects integration is not enough. Comprehending the assumed risk and developing and exercising active mitigation plans is essential. Failure to do so quickly could lead to a culminating point and a corresponding severe degradation of U.S. military capability with potentially disastrous effects for U.S. national security. Such a failure, measured in lives lost, would be on a scale reminiscent of wars fought in the pre-digital age. A loss on this scale is simply unacceptable to the American public, especially when this risk can be mitigated by proactive planning at the geographic combatant commands.

The goal of this article, however, is not to prescribe specific types of risk mitigation and plans geographic combatant commands should pursue. It is to stress the importance that combatant commands must first *acknowledge* space as a center of gravity and, as such, *accept* that protecting the domain and its capabilities requires planning and risk mitigation. The combatant commands must also allow exercises to play out in order to understand requirement gaps and then clearly articulate those gaps to inform the Services' ability to develop and field systems to meet validated warfighter requirements. This is just the beginning of what should be a long, routine conversation to ensure that the U.S. military maintains the asymmetric advantage provided by space capabilities and effects. Ultimately, warfighters in every corner of the globe must understand and protect the critical capabilities that the 568 balls in the air provide. **JFQ**

Notes

[1] *One Small Ball in the Air: October 4, 1957–November 3, 1957*, Monographs in Aerospace History 10, NASA's Origins and the Dawn of the Space Age, available at <https://history.nasa.gov/monograph10/onesmlbl.html>.

[2] Yanek Mieczkowski, *Eisenhower's Sputnik Moment: The Race for Space and World Prestige* (Ithaca, NY: Cornell University Press, 2013), 368.

[3] Union of Concerned Scientists, "UCS Satellite Database," February 25, 2016, available at <www.ucsusa.org/nuclear-weapons/space-weapons/satellite-database#.Vzomc_krKUk>.

[4] Joint Publication 1-02, *Department of Defense Dictionary of Military and Associated Terms* (Washington, DC: The Joint Staff, November 8, 2010, as amended through February 15, 2016), defines *centers of gravity* as "those characteristics, capabilities, or localities from which a military force derives its freedom of action, physical strength, or will to fight."

[5] John Costello, *Chinese Views on the Information "Center of Gravity": Space, Cyber and Electronic Warfare*, China Brief 15, no. 8 (April 16, 2015), available at <https://jamestown.org/program/chinese-views-on-the-information-center-of-gravity-space-cyber-and-electronic-warfare/#.VyYxUKMrIb0>.

[6] Matthew Bodner, "Russian Military Merges Air Force and Space Command," *The Moscow Times*, August 3, 2015, available at <www.themoscowtimes.com/business/article/russian-military-merges-air-force-and-space-command/526672.html>.

[7] Chadwick D. Igl has witnessed this during multiple Tier 1 exercises since 2011.

[8] Ed Morris et al., "A Day Without Space: Economic and National Security Ramifications," Washington Roundtable on Science and Public Policy, Washington, DC, October 16, 2008.

[9] Peter W. Singer, cited by George Dvorsky, "What Would Happen If All Our Satellites Were Suddenly Destroyed?" *Io9*, June 4, 2015, available at <http://io9.gizmodo.com/what-would-happen-if-all-our-satellites-were-suddenly-d-1709006681>.

[10] Costello.

[11] Michael Peck, "The Pentagon Is Worried about Hacked GPS," *National Interest*, January 14, 2016, available at <http://nationalinterest.org/feature/the-pentagon-worried-about-hacked-gps-14898>.

[12] *Capstone Concept for Joint Operations: Joint Force 2020* (Washington, DC: The Joint Staff, September 10, 2012).

[13] Ibid.

[14] Dee Ann Divis, "Army Plans Awards, Solicitations for Assured PNT with(out) GPS," *Inside GNSS*, June 30, 2016.

[15] *Pseudolite* is a word-blend of "pseudo" and "satellite." Pseudolites include satellite-like transmitters that function similarly to GPS, but signals are transmitted closer to the Earth instead of coming from space, and the transmitters reside in terrestrial rather than on-orbit platforms such as a tent, vehicle, or low-flying aircraft. Chip-scale atomic clocks are small atomic clocks that use one one-hundredth the power (~100 milliwatts or 2AA batteries) of the conventional bread box–size counterparts. They do not keep track of the time of day; instead, they allow two or more geographically separated groups to stay exactly coordinated over time.

[16] Ibid.

[17] Air Force Doctrine Document 2, *Operations and Organizations* (Washington, DC: Headquarters Department of the Air Force, April 2007).

[18] Martin E. Dempsey, *Mission Command White Paper* (Washington, DC: The Joint Staff, April 3, 2012), available at <www.jcs.mil/Portals/36/Documents/Doctrine/concepts/cjcs_wp_missioncommand.pdf?ver=2017-12-28-162056-713>.

[19] Leonard David, "China's Anti-Satellite Test: Worrisome Debris Cloud Circles Earth," *Space.com*, February 2, 2007, available at <www.space.com/3415-china-anti-satellite-test-worrisome-debris-cloud-circles-earth.html>.

[20] Lori Robinson, "China's Military Closing Technology Gap with the U.S., Says American Air Force Chief," *South China Morning Post* (Hong Kong), February 16, 2016, available at <www.scmp.com/news/china/diplomacy-defence/article/1913442/chinas-military-closing-technology-gap-us-forces-says>.

U.S. Marines with Force Reconnaissance Company, 3rd Reconnaissance Battalion, 3rd Marine Division, III Marine Expeditionary Force; British Royal Marines with J Company, 42 Commando; and U.S. Sailors with Explosive Ordnance Disposal Mobile Unit 5, attempt to breach door during raids training in Guam, March 20, 2018 (U.S. Marine Corps/Carl King)

Transregional Capstone Exercise

Training for Tomorrow's Fight

By William A. Buell, Erin Dorrance, and Robert West

"Train the way you fight because you will fight the way you train." Just about every U.S. military commander embraces this time-honored military mantra. In his column for *Joint Force Quarterly*, Chairman of the Joint Chiefs of Staff (CJCS) Joseph F. Dunford, Jr., describes how he sees the current and future fight. Noting the significant implications for how the joint force will fight, he writes, "it [is] probable that future conflicts will most often be transregional and fought across multiple domains and functions. Driven by this assumption, one of my highest warfighting priorities is to improve our ability to integrate joint capabilities in a transregional, multidomain, and multifunctional fight."[1]

In response to the Chairman's guidance, the Joint Staff quickly implemented a Globally Integrated Exercise (GIE) framework that promises to enhance training against the most challenging threats. To fully realize the CJCS vision for fully integrated transregional, multidomain, and multifunctional capabilities across the joint force, however, the GIE framework should include a new Transregional Capstone Exercise (TCE) incorporating all geographic combatant commands (GCCMDs) and functional combatant commands (FCCMDs). While the joint force has shown steady progress toward exercising in multiple domains and across multiple functions within regional theaters, large-scale transregional

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exercising remains in its infancy. This article highlights the transregional threat that the exercise should address, delineates some basic requirements, proposes four training objectives, and addresses three potential challenges to implementation.

Transregional Threats and Response

Militaries must now operate in a complex and dynamic world where several multifaceted real-world threats may affect an ever-growing battlefield. Not only do state actors such as Russia, China, and Iran have the capability to conduct transregional operations, but a variety of nonstate actors, such as the so-called Islamic State, al Qaeda, and a multitude of transnational criminal organizations (TCOs), also threaten to disrupt the international order across traditional combatant command boundaries. While globalization trends have connected countries around the world, they have also enabled threat networks and violent extremist organizations (VEOs) to operate on the global stage. In Admiral Kurt Tidd's 2017 posture statement for U.S. Southern Command, he states that some criminal networks in his area of responsibility are globally integrated enterprises with profit margins that rival Fortune 500 companies. These networks smuggle precursor chemicals and fentanyl from China into Central America and Mexico in order to make extremely potent heroin that causes overdose epidemics in the United States. There are networks that transport large cocaine shipments to the United States, West Africa, Europe, and Australia, while others make tremendous profits by illegally mining gold in Guyana, Peru, and Colombia. Other networks kidnap, money launder, and extort—all moving illicit goods across the globe.[2]

Combatant commanders face some subset of five key challenges (competing long-term with China and Russia, while deterring and countering North Korea, Iran, and VEOs), referred to as the "2+3" in their geographic region or functional area.[3] Speaking at the annual Air Force Association conference in 2016, General Dunford observed that such threats increasingly operate across the regional combatant command structure.[4] For managing these threats, he recommended improving the ability of the Secretary of Defense to work across both geographic and functional combatant commanders and strengthening the Joint Staff.[5]

As early as 2013, a Joint Staff J7 Deployable Training Division paper on mission command and cross-domain synergy noted that, while leadership often discusses the benefits of cross-CCMD activities, the U.S. military has not fully understood or addressed challenges in cross-CCMD coordination. Moreover, how the Office of the Secretary of Defense (OSD) would establish authorities, responsibilities, and processes with necessary Joint Staff support required for globally integrated operations outlined in the Capstone Concept for Joint Operations (CCJO) had not yet been tested.[6] The J7 paper poignantly imagined reallocation processes for critical resources such as munitions, intelligence, support, strategic lift, and cyber assets as limiting to mission success in a global fight.[7] While some initial progress in this area has been made, there are, no doubt, many other challenges the Department of Defense (DOD) has not considered that a global TCE could reveal.

A TCE involving all GCCMDs and FCCMDs would give Secretary James Mattis and General Dunford a realistic, in-time transregional training platform to prepare for conflict against the five key challenges. A total of five TCEs spread over time as part of the GIE framework would focus on each challenge—Russia, China, Iran, North Korea, and VEOs on a global scale—to focus training and allow sufficient time for planning. Currently, there are a handful of exercises that do, in fact, attempt to exercise transregionally with more than one CCMD. In February of 2017, the 3-week Austere Challenge exercise included four CCMDs: U.S. European Command, U.S. Northern Command, U.S. Pacific Command, and U.S. Strategic Command.[8] U.S. European Command Commander General Curtis M. Scaparrotti described the exercise as a complete success, stating that the exercise validated the ability to rapidly respond together with decisive and overwhelming success in Europe and to enable other CCMDs.[9] Austere Challenge is a good initial step toward transregional exercising; however, it is time to build on that success by moving toward a new exercise built on the premise that conflict with the 2+3 will affect the entire force to some degree.

Exercise Program Requirements

As part of the Joint Training Policy, the Chairman's Exercise Program (CEP) is designed to improve capability and readiness of U.S. military forces to conduct joint operations through regularly scheduled strategic, national-level exercises that look at plans, policies, and procedures under different simulated crisis situations.[10] The CEP further stipulates that DOD entities conduct exercises for a multitude of purposes to include joint training, theater-engagement activities, mission and plan rehearsal, concept analysis, lessons learned evaluation, doctrine validation, and interagency integration.[11] A TCE, as part of the GIE framework, would fall under and embrace all facets of the CEP with special emphasis on joint training, concept analysis, and doctrine evaluation.

Implementing the Joint Training Policy, the annual Chairman's Training Guidance is a clear call for leadership to shift their way of thinking about training and exercising. It directs the joint force to conduct "exercises involving multiple CCMDs, the Joint Staff, and appropriate CSAs (Combat Support Agencies) oriented on the priority strategic challenges [2+3] and homeland defense." These exercises should "strengthen the 'connective tissue' between leaders and organizations, validate assumptions, examine globally integrated operations and other mature concepts, test key ideas, and confirm the joint force can execute assigned missions."[12]

Each TCE would incorporate all essential characteristics outlined in the Chairman's Training Guidance. Mainly,

the TCE would reflect the strategic environment, emphasize global integration across the five key challenges, span the range of military operations, and enable innovation.[13] If designed properly with concrete objectives, the TCE would strengthen the connective tissue between key leaders by addressing both higher level collaboration of the Joint Staff with OSD and horizontal coordination among CCMDs that will be needed in crisis.

TCE Objectives

To realize the Chairman's transregional training guidance, a TCE should accomplish four specific training objectives directed toward supporting one of the five key challenges scenario to give GCCMDs and FCCMDs realistic training against a benchmark competitor. These objectives include exercising command and control constructs, improving situational awareness on transregional problems across GCCMD boundaries, improving cross-CCMD coordination, and stress-testing communications systems.

Global Command and Control. Exercising command and control as a training objective in a global scenario is needed to address shortfalls in DOD's ability to integrate operations under the current regional command construct. General Dunford does not believe that the current organizational and command and control constructs are ready for the current or future fight.[14] He states what is truly required is "global integration."[15] In attempting to address mission command and synergy challenges, the J7 recommended incorporating OSD into exercises as a best practice: "Where applicable, exercise the agility of OSD as the establishing authority together with the [Joint Staff] under crisis conditions to plan and direct responsive and synchronized cross–combatant command operations."[16]

To best train for this objective, a TCE's primary training audience should be at the Tier One level and include the Secretary of Defense, CJCS, Joint Staff, and all CCMDs. The Tier One level of training is designed to prepare national-level organizations and combatant commanders and their staffs at the strategic and operational levels of war to integrate interagency, nongovernmental, and multinational partners in highly complex environments. The Joint Training Policy advocates integrating a diverse audience into exercises in order to identify "core competencies, procedural disconnects, and common ground to achieve U.S. unity of effort."[17]

Understanding that the Secretary and CJCS will likely be unable to clear their schedules for the entire duration of the exercise, a global command and control objective would also test the ability of these leaders, as well as combatant commanders, to synchronize and coordinate information while traveling or attending to real-world schedules. This would differ sharply from current exercises where typically a role player is appointed to play the Secretary and CJCS and updates occur at regular intervals, an unlikely scenario during a major crisis.

Common Situational Awareness. Global participation would test not only command and control, but also coordination among nine unified CCMDs as the joint force strives to meet the second objective of improving situational awareness on transregional problems across GCCMD boundaries. This second objective would be useful to determine how the joint force would collectively contribute to shared awareness amid a multitude of defense and commercial options for building a common operating picture or common intelligence picture. While Global Command and Control System–Joint is the program of record intended to provide a one-stop shop for joint planners to build awareness, most combatant commanders gravitate toward some sort of tailored system for their region for a variety of reasons. Google Earth, All Partners Access Network, CENTRIXS (Combined Enterprise Regional Information Exchange System), and BICES (Battlefield Information Collection and Exploitation Systems) are all examples of systems currently in use to build a common operating or common intelligence picture. Classification, bandwidth, manpower management requirements, and compatibility considerations can be evaluated in an exercise environment and lessons learned applied to doctrine development or acquisition programs.

Cross-CCMD Coordination. Once common awareness is established, the joint force should be stressed to use that information in a coordinated fashion against the adversary. Hence, a third training objective to improve cross-CCMD coordination is needed to bridge the gap from information to action. In the joint concept on rapid aggregation, the J7 recommends that CCMDs become increasingly collaborative and interdependent in both planning and execution: "They must expand virtual and physical collaboration among commands to allow for shared situational understanding and for the collective capacity of multiple commands to quickly combine and solve problems."[18]

Communications Systems Stress. Finally, each TCE should stress communication systems. An exercise could then validate communications systems architecture, including satellites, information servers, multinational collaboration networks, and email services, when all CCMDs are straining communications infrastructure simultaneously. Admiral Tidd capitalized on a unique opportunity to stress-test communications when he found himself required to travel for other obligations during PANAMAX 2016, an exercise that brings together land, sea, and air forces in a joint and combined operation focused on defending the Panama Canal. The staff coordinated multiple video teleconferences that patched into Joint Training Center Norfolk headquarters and CENTRIXS from a variety of locations, including one occurrence while airborne. This unintended inject, though fraught with challenges, provided great realistic training and lessons learned to the CCMD.

A proposed TCE could only satisfy the four proposed training objectives with full participation from the primary training audience. Full participation is needed to test a variety of dilemmas that leaders may face, such as how the CJCS and Secretary will prioritize assets to CCMDs when every CCMD would be making

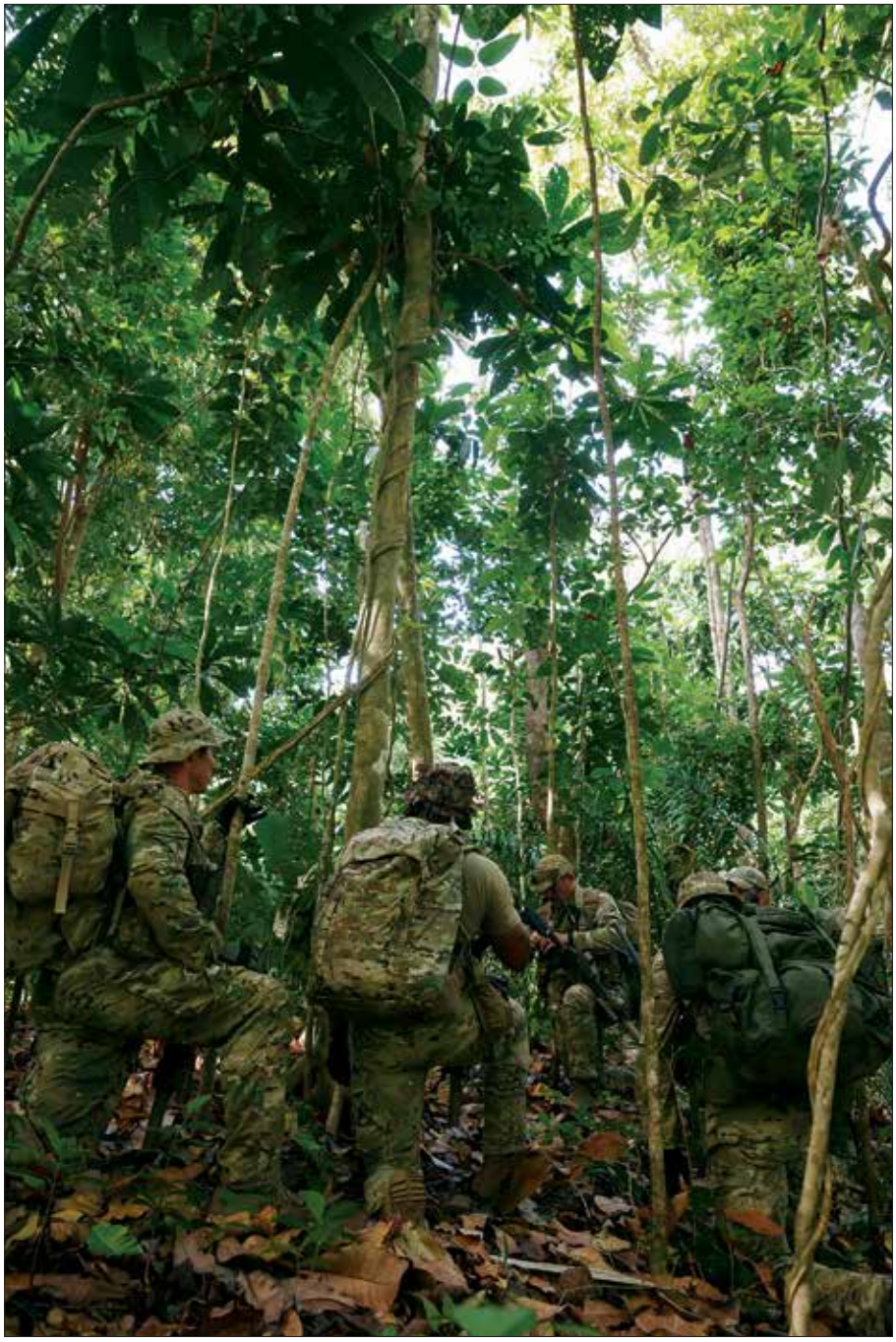
requests at the same time for the same challenge or threat. Conducting this exercise once every 2 years would efficiently train key leaders and their staffs during their command tenures and provide valuable lessons learned to improve the ability to fight transregionally.

Challenges

Too Hard to Integrate with Existing Exercises. Some may say a biennial exercise that includes all GCCMDs and FCCMDs is unrealistic given the often frantic operations tempo and fiscal constraints that burden DOD. At present, this is true. However, reevaluating existing exercises and either canceling or integrating them into the capstone exercise could alleviate much of the additional burden of a new mandatory requirement for the Joint Staff and CCMDs. Development of a TCE should follow the lessons learned from the North Atlantic Treaty Organization (NATO). In the wake of the Crimea crisis, NATO quickly went from about 100 to 300 exercises per year and reached the limit of the Allies' ability to support them. Instead of adding additional exercises, NATO is now focused on increasing their realism, flexibility, and robustness. This change in thinking has allowed for NATO to plan and execute faster.[19] Likewise, a TCE provides an opportunity for combatant commanders to set aside redundant training exercises while keeping the intent of higher guidance providing a "less-is-more" training option for the CCMD.

The first full biennial capstone exercise should not be executed until 2020 to provide planners adequate lead time to plan and schedule the exercise across DOD. Furthermore, a TCE would have to be assigned priority event status to ensure prioritization throughout DOD. Once scheduled far in advance, planners should be able to schedule other events around an established battle rhythm that runs a TCE every other year, on even years, starting in 2020.

Scheduling and Resources. Others might argue that a TCE is just another exercise requirement that takes away time they could spend on real-world issues and that there is not enough time and resources to do both. DOD and other agencies are indeed faced with fiscal challenges that have resulted in the United States having the smallest Army, Navy, and Air Force since World War II.[20] At the same time, with the plethora of exercises already being executed, finding a time that would work across the joint force would be difficult. To address this concern, the Joint Staff and CCMDs should first establish a culture that recognizes the value of a TCE and set it as a top training priority in order to solidify support for aggressive exercise participation. Rotating through the five key challenges in a variety of scenarios could further validate the legitimacy of the exercise, as it would allow assigned



U.S. Army Special Forces reconnaissance team with U.S. Special Operations Command South prepares for patrol during Joint Combined Exchange Training culmination exercise with Panamanian security forces in Colon, Panama, February 1, 2018 (U.S. Army/Osvaldo Equite)

Ships and aircraft representing 19 nations participating in multinational exercise Unitas 2017 conduct joint amphibious landing demonstration, Salinas, Peru, July 22, 2017 (U.S. Navy/Bill Dodge)

CCMDs synchronizing responsibilities to exercise against a variety of benchmark threats. Despite the resource challenges, ensuring the Secretary, Joint Staff, and all GCCMDs and FCCMDs participate in the exercise is central to achieving proposed training objectives, especially command and control and communications stress-testing. Each GCCMD and FCCMD's unique capabilities and geographic expertise should be represented in the exercise, and this would indeed pose the greatest challenge to scheduling and execution.

To address the resourcing issue, it is important to put a mark on the calendar as soon as possible to enable Global Force Management processes time to allocate any shift in resources. The Joint Staff and CCMDs will also need to quickly determine required staff to serve as role players and determine how best to meet this need. Options for building the necessary training elements could include assigning select staff a temporary duty assignment, employing modular training teams, hiring short-term contractors, or creating computer system simulations. For an exercise of this scale, new collaboration mechanisms among training elements might be required, as physical space to house a training element of this magnitude would likely not permit complete collocation. The key to addressing all of these challenges would be sufficient time for planning.

Not Enough Doctrine to Exercise. Another argument against incorporating a TCE into the training schedules of GCCMDs and FCCMDs is the lack of transregional joint doctrine. The Joint Training Policy for the U.S. Armed Forces states that training must be based on approved joint doctrine unless the training is being used primarily for concept development.[21] Currently, there is not a sufficient amount of cross-CCMD doctrine. When combined with the need to determine the resourcing described above, this would indeed be a formidable challenge for joint force planners. It is important to note, however, that this exercise could be a fire starter to generate and/or validate joint doctrine in development.

Each successive TCE would aid doctrine development by feeding a cycle of assessment. As a starting point for development, exercise planners could aim to test some of the ideas put forward in the Globally Integrated Operations CCJO. This concept advocates eight key elements among which mission command, global agility, and flexibility in establishing joint forces could be tested in a TCE.[22]

While mission command may be preferable in most situations, complex conflicts with near-peer adversaries may require integrating mission command with centralized control mechanisms required for employment of nuclear weapons or other national capabilities. Training objectives on global agility could test the joint force's ability to shift resources between CCMDs as strategic dilemmas emerge and help validate existing posture. Lastly, the CCJO insight on flexibility in establishing joint forces should be tested. It notes that while current joint forces are typically organized around geographic or functional considerations, the future force may have to consider that "this might be done globally" or as a "joint task force operating across multiple non-contiguous geographic areas to accomplish its mission against a single threat."[23]

The Chairman has stated that his warfighting priority is to improve the military's ability to integrate joint capabilities in a transregional, multidomain, and multifunctional fight. While the joint force has shown steady progress toward exercising in multiple domains and across multiple functions within regional theaters, transregional exercising remains immature. The joint force needs to institutionalize biennial TCEs that incorporate all GCCMDs and FCCMDs as a key element to realizing the Chairman's highest warfighting priority. A TCE should test command and control constructs, improve situational awareness on transregional problems across GCCMD boundaries, enhance cross-CCMD coordination, and stress-test communication systems as primary training objectives. These objectives reflect current shortfalls and are needed to prepare the joint force to face any of the 2+3 challenges.

Though implementation of a TCE will be met with challenges from competing priorities, scheduling, resourcing, and nascent transregional doctrine, overcoming these challenges will set the joint force on a trajectory to defend the United States against the transregional threats of tomorrow. Without this exercise or another like it, critical shortfalls in joint force capability to address these threats will persist. Smartly adding TCEs within the GIE framework will help realize the Chairman's vision for the future joint force and help him fulfill his statutory responsibilities to advise, direct, assess, and execute joint operations against the most challenging transregional threats. Using a TCE, we can train the way we fight so we will fight the way we train. **JFQ**

Notes

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Scheduled to completely replace CH-53E Super Stallion by 2030, CH-53K King Stallion lands after test flight in West Palm Beach, Florida, March 22, 2017 (U.S. Marine Corps/ Molly Hampton)

The Case for Joint Force Acquisition Reform

By Michael E. McInerney, Conway Lin, Brandon D. Smith, and Joseph S. Lupa

In the past 2 years, Congress has enacted new reforms to enable rapid acquisition of technologies for military use. If successful, these reforms may end up delivering warfighting capability more quickly and cheaply, but they will not solve the fundamental flaw in defense acquisitions. While efficiency is a worthy goal, the bedrock value of acquisitions must be to deliver a joint force with the capability and capacity to effectively meet the demands of combatant commanders.

The Goldwater-Nichols Department of Defense Reorganization Act of 1986 revolutionized how America goes to war by imposing jointness on the command structure of the U.S. military. Goldwater-Nichols turned the military Services into force providers responsible for organizing, manning, training, and equipping units that are then employed by warfighting combatant commanders as a joint force.

This dynamic leaves the Services fundamentally in control of the acquisition process, creating a classic "principal-agent" problem characterized by misaligned incentives. As agents, the Services should act on behalf of their

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principals, developing forces tailored to the needs of the combatant commanders. History has demonstrated repeatedly, however, that the Services are too often motivated by parochial incentives, which do not always align with those of the combatant commanders. The result has been the consistent development of materiel solutions that are not optimized for joint warfighting. To improve joint interoperability and warfighting capability, Congress should reform the Defense Acquisition System (DAS) to empower combatant commanders and the Chairman of the Joint Chiefs of Staff with early, direct, and proactive influence over materiel systems development.

Acquisition System vs. Acquisition Process

For decades, critiques of the DAS have plowed the same infertile ground. Dozens of failed efforts to reform the system have diagnosed the inefficiency of the acquisition process and then suggested additional regulations, authorities, and oversight as the cure. For example, in his March 1973 statement before the U.S. House Committee on Armed Services, Comptroller General of the United States Elmer B. Staats identified that "overly ambitious performance requirements combined with low initial cost predictions [and] optimistic risk estimates . . . lead almost inevitably to engineering changes, schedule slippages, and cost increases."[1] Yet 43 years later, in the 2016 National Defense Authorization Act, Congress articulated the need for a new round of acquisition reforms in parallel language, noting that "both the Department of Defense [DOD] and Congress are complicit in pursuing acquisition strategies that downplay technical risk and underestimate cost . . . resulting in an acquisition process that is not agile enough, too risk averse, and takes too long to deliver."[2]

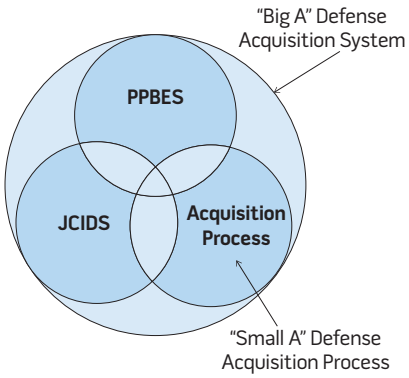
Why do problems with the DAS persist despite decades of attempted reforms? One reason these reform efforts fall short is that their respective analyses tend to concentrate on ways for DOD to more quickly and cheaply purchase equipment.[3] While efficiency and timeliness of acquisitions are obviously important concerns, the myopic focus on these two goals obscures the fact that the biggest defense acquisition problems often have nothing to do with how cost-effectively materiel is purchased.

Stories of money wasted during development of ambitious acquisition programs like the F-35 fighter or the Marine Corps' Expeditionary Fighting Vehicle excite the media and may infuriate taxpayers. What the warfighter finds more troubling, however, is when the Services continue to champion fruitless acquisition programs like the Army's Future Combat System (FCS) for years while underinvesting in capabilities demanded by combatant commanders to support ongoing operations around the globe. Without fixing that issue, efforts to improve the acquisition process may inject some efficiency into the system but will not lead to a more integrated and capable joint force.

To understand this point, it is important to first sketch out the bigger picture of how materiel development and acquisition works. The DAS—colloquially known as "Big A" acquisitions—is actually three interconnected subprocesses within DOD. First, the Joint Capabilities Integration and Development System (JCIDS) is the subprocess that identifies capability gaps and generates requirements. Think of JCIDS as the way that DOD decides what to buy. Second, the Planning, Programming, Budgeting, and Execution (PPBE) system is the subprocess that matches available resources against these requirements to produce a spending plan and a budget. The PPBE is the way that DOD decides how much it can afford to buy and when. Finally, the Acquisition Process—called "Small A" acquisitions—guides how those budgeted resources are spent to develop and procure materiel capabilities. The main concerns in this process are cost and schedule—in other words, how to efficiently buy the equipment. This article purposely does not focus on the Small A subprocess, as it is downstream of the root problem in the Big A system (figure).

To be successful, the DAS must buy the right amount of the right things at the right time. If decisions regarding what, when, and how much are wrong, it does not matter how efficiently money is spent—the wrong equipment is procured.[4] For that reason, and because the Acquisition Process has been studied exhaustively, this article proposes modest reforms to JCIDS and PPBE in order to make the DAS more accommodating of combatant commander needs.

Figure. The Acquisition System



Source: Ronald T. Kadish et al., *Defense Acquisition Performance Assessment Report* (Washington, DC: Office of the Deputy Secretary of Defense, January 2006), 17.

Misalignment of Incentives

The 2006 Defense Acquisition Performance Assessment Report, led by Lieutenant General Ronald Kadish, found that "combatant commanders participate but do not play a leading role in defining capability shortfalls."[5] Often, this leads to the Services generating and validating requirements that are not linked to what combatant commanders really need.[6] Despite almost 17 years of war in Iraq and Afghanistan, criticisms persist that the Services place too much focus on winning conventional wars, leaving combatant commanders perpetually short of the systems needed to conduct intelligence, surveillance, and reconnaissance; deploy joint capabilities globally into contested environments; conduct sustainment; command and control widely dispersed joint forces; and fight the asymmetric wars we currently confront and that we predict for the future.[7]

Ramp crew specialists from 386th Expeditionary Logistics Readiness Squadron secure MRAP onto C-17, December 28, 2017, before its transportation downrange at undisclosed location in Southwest Asia (U.S. Air Force/Louis Vega, Jr.)

Former Secretary of Defense Robert Gates called this "next-war-itis"—the tendency of the Services to overly focus on creating exquisite and expensive systems to dominate possible future battlefields rather than on providing combatant commanders with good enough interoperable capabilities that they need right now.[8] Every program emanating from a "Center of Excellence," which focuses on closing a Service-peculiar capability gap without due regard for what value the capability provides the joint force warfighter, highlights the danger of misaligned incentives in the DAS. When producers deliver a product that their customer does not want or need, it really is not relevant how efficiently that product is produced.

Goldwater-Nichols charged combatant commanders with employment of joint warfighting forces around the globe. It therefore follows that combatant commanders have an incentive to pursue materiel solutions that increase joint capability and prioritize characteristics such as interoperability, deployability, sharing of advanced technologies, minimal duplication of programs with similar capabilities across Services, joint logistical and maintenance support, and compatible software. Meanwhile, although the Services are charged with training and equipping the joint force on behalf of the combatant commander, in practice the Services are actually heavily incentivized and motivated by budget pressures to act in their own respective best interests: dominance of warfighting capabilities within their domains of land, sea, air, space, and cyberspace.[9]

Additionally, even if the Services pursue a joint vision, there are conflicting time-based incentives for the principal and agent. The combatant command focus is on the near-term problems of crisis response, current operations, and showing progress along lines of effort in the 5-year Theater Campaign Plan. The Services are fundamentally focused on long-term problems like preserving budget share over time and managing the life cycle of programs in the Future Years Defense Program and beyond. Therefore, the principal prioritizes short-term thinking, while the agent has a strong disincentive to resource near-term demands at the expense of long-term requirements.

To align efforts, the Services must have more incentive to see the problem from the perspective of the combatant commanders. In the social sciences and in economics, this tension between the

incentives of combatant commanders and the Services is classically defined, as noted earlier, as the *principal-agent problem*. In this construct, combatant commanders are collectively the principal due to their responsibilities to employ forces in joint operations, while the Services are the agents that generate these forces. Normally, an effective principal-agent relationship requires that the agent is compelled to act on behalf of the principal. However, in defense materiel acquisition, a principal-agent problem arises due to a misalignment of the incentives between combatant commanders and the Services.

The result of incentive misalignment is that programmed funding only haphazardly follows joint priorities. The Chairman of the Joint Chiefs of Staff issues the National Military Strategy, which lists his strategic priorities, and the Secretary of Defense issues the Defense Planning Guidance to influence the Services' Program Objective Memoranda. Once the memoranda are complete, the Secretary proposes changes through Resource Management Decisions. However, this process on average results in a change of less than 2 percent in the Service budgets from year to year.[10] In other words, this review ends up being largely a rubber stamp of the Service budgets. Since each Service essentially controls its own budget, it remains stovepiped, focusing on Service requirements ahead of the needs of combatant commanders.

The Chairman's Program Assessment and the Chairman's Program Review theoretically offer additional points for joint input, but evidence over many years and several Chairmen confirms that these tools have little measurable impact on budgets. In fact, "each Service's share of the defense budget . . . with a standard deviation of less than 1.8 percent over a 40-year period" has remained consistent. Despite "massive strategic or technological changes over four decades" and the transition from "Cold War to peace dividend to sustained irregular warfare during the war on terror" or even "during the so-called revolution in military affairs and Donald Rumsfeld's efforts at transformation," Service shares of the defense budget have remained steady. In the end, "if major external factors cannot change Service shares, there must be powerful internal forces at work."[11] In other words, no one outside the Services has any significant impact on Service budgets.

Examples of how the misalignment of priorities affect materiel development are numerous. Greg Milner's book *Pinpoint* highlights an episode from the 1970s in which Air Force leadership underfunded, neglected, and eventually tried to kill the Global Positioning System, known at the time as the 621B Program. Milner notes that "the Air Force gets to build for space, but the Marine Corps, Army, and Navy are much more reliant on actual space services [for navigation] than the Air Force itself is. The budget for space is in the Air Force, but in terms of the number of customers and users, they're all in the other Services."[12] This telling historical example demonstrates how a critical joint warfighting capability was neglected because the Service with the least need for the capability happened to control the budget.

A more recent example is the reluctance of the Army to procure the mine-resistant ambush protected (MRAP) vehicle. To reduce casualties from improvised explosive devices in Iraq and Afghanistan, U.S. Central Command was demanding a blast-resistant vehicle to replace the overburdened and underarmored high-mobility multipurpose wheeled vehicle. At the time, the Army had spent the previous decade championing its $160 billion FCS program, a family of high-tech systems envisioned to fight a near-peer competitor in major ground combat. Rather than divert money away from FCS to pay for the MRAP, Army leadership insisted that "everything we're doing in Future Combat System has a direct relationship to what Soldiers in combat need today."[13] Despite these assurances, the first vehicles were not scheduled to be fielded for another 10 years.[14] Months later, Secretary of Defense Robert Gates personally killed off the FCS and diverted the money to meet U.S. Central Command's need. Simply put, a combatant commander desperately needed a capability to fight an ongoing war, yet the Service strongly resisted due to the long-term monetary impact on other acquisition programs that it rated as a higher priority. While it is difficult to go into much detail here on current capability gaps, a conversation with requirements managers at any combatant command will reveal that these problems persist.

Achieving Joint-Focused Defense Acquisitions

Alignment of combatant commanders' desire for joint capability with the acquisition actions of the Services can be achieved by addressing how requirements and funding are handled in DOD. Some might argue that combatant commanders already have sufficient input in these processes. For example, they submit an integrated priority list (IPL) consisting of their highest priority joint warfighting capability gaps to the Joint Staff annually. The Joint Staff analyzes these gaps and recommends solutions to the Joint Requirements Oversight Council (JROC), a board consisting of the Service chiefs and chaired by the Vice Chairman of the Joint Chiefs. In previous years, the combatant commanders were also members of this council; however, the 2017 National Defense Authorization Act reduced their role from full members "when matters related to the area of responsibility or functions of that command are under consideration" to advisors whose input the "council shall seek and consider."[15]

Despite the joint purview and powerful membership of the JROC, the impact of the IPL on Service budgets is negligible. Of over 250 issues submitted by combatant commands in a recent year, the council only recommended for the Services to "invest additional resources" for four issues. Even then, the Services are not bound to implement these recommendations, and the Chairman of the Joint Chiefs of Staff lacks the authority to direct procurement of any materiel capabilities.[16] Additionally, although the Chairman does publish the Chairman's

Program Recommendation each year, this input is not directive and only affects Service budgets on the margins.[17]

To be effective, reforms must align Service and combatant command incentives in the JCIDS and PPBE. This will not be easy, as it will affect Service equities and may require congressional action, but the cost of failure in both blood and treasure is high.

Our recommended solution requires revamping how the IPL is handled to ensure that combatant commander needs drive the "front end" of the requirement process. Combatant commanders continue to submit their highest priority capability gaps and capacity shortfalls in the IPL. Additionally, the commands should coordinate a list of common high-demand gaps and shortfalls that span all commands. To reduce staff churn and institutionalize longer range thinking, this process should take place no more than once every 2 years.

These submissions would be developed by the Joint Staff Functional Capability Board and validated by the JROC with combatant commands serving as voting members. To put teeth into this effort, the resulting recommendation would nominate the list of gaps and shortfalls to the Secretary of Defense for endorsement.

Next, the Services would have the opportunity to bid on these gaps and shortfalls by proposing programs to address these needs. For example, if strategic power projection is a high-priority gap, the Air Force could present a plan to purchase additional airframes, while the Navy might present a requirement for a new high-speed transport vessel. The JROC would then vote on these proposals, with the winning proposals passed to the Office of the Secretary of Defense for final endorsement and resourcing decisions.

To react to these requirements, the Secretary of Defense would need to provide more flexibility in how Service procurement budgets are allocated. One way would be to designate a percentage of the overall acquisition budget, separate from the Service base budgets, to support this new process. With this budget flexibility, the Secretary would direct corresponding base procurement budget share to the winning bidder's base budget. Once the Service receives the money, it manages these programs the same as every other acquisition program. This aligns incentives because reacting to combatant command needs would add budget share rather than cut into limited resources.

Services would retain control over a majority of their procurement budget for long-term Service needs under this plan. The major change is the opportunity to secure additional base budget resources by satisfying combatant command requirements. The incentive not to shift money away from these programs would be the simple fact that failing to deliver on these programs would influence later rounds of bidding. This plan places the JROC at the center of joint force development, aligns combatant command and Service incentives more closely, and leaves civilian control of the military and its finances with the Secretary of Defense and ultimately with Congress.

Although Goldwater-Nichols imposed jointness on the U.S. military, it failed to fundamentally change the incentives that had long driven the Services to competition and self-interest rather than cooperation. To get the Services to act on behalf of the combatant commanders—working together to develop forces tailored for joint warfighting—the DAS must be reformed to empower combatant commanders and the Chairman of the Joint Chiefs of Staff with direct, proactive control over requirements and funding. **JFQ**

Notes

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U.S. Army 10th Special Forces Group (Airborne) Soldier checks map of training area during long-range snowmobile movement drill for Northern Griffin 2018 in Rovaniemi, Finland, March 12, 2018 (U.S. Army/Kent Redmond)

U.S. Special Operations Command's Future, by Design

By Charles N. Black, Richard D. Newton, Mary Ann Nobles, and David Charles Ellis

As U.S. Special Operations Command (USSOCOM) celebrates its 30th anniversary, it faces a future characterized by increasingly complex, dynamic, and ill-defined security challenges. And since the terrorist attacks of September 11, 2001, USSOCOM has been at war for half of its existence. During this period, USSOCOM has rapidly evolved into a global enterprise with broad joint warfighting, interagency, and international partnering responsibilities.[1] To better address the highly complex challenges of modern conflicts, USSOCOM developed the USSOCOM Design Way (SDW), an approach to problem-solving that encourages creativity, critical thinking, and innovation.

As the command has matured, a number of contradictions have emerged. First, although USSOCOM has Service-like responsibilities, with a mandate to man, train, and equip the Nation's special operations forces (SOF), it "owns" no forces. Because SOF are under combatant command of USSOCOM, with operational control exercised through the USSOCOM Service component commands, the headquarters sets policies and standards

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for its Service components to achieve, yet these components are still subordinate to their parent Services. Second, when USSOCOM was given authorities to assume warfighting responsibilities in 2005, it was limited to "synchronizing" activities with the geographic combatant commands (GCC) charged with integrating SOF into the joint activities ongoing or planned within their areas of responsibility.[2] Third, many of the missions assigned to USSOCOM were of a combined, joint, and interagency nature, with authorities and permissions distributed across multiple commands and agencies. Against this backdrop, USSOCOM and SOF relied on joint and Service planning methods such as the Joint Planning Process (JPP) and Military Decision Making Process (MDMP) to plan its assigned operations and missions.

While JPP and MDMP are excellent processes for what are primarily warfighting functions, their limitations as planning tools for comprehensive operations were exposed during more than a decade of complex operations requiring whole-of-government approaches. By 2015, then-USSOCOM Commander General Joseph Votel recognized the need for a problem-solving process that better addressed persistent, seemingly intractable problems. Thus, he inaugurated the USSOCOM Design Way.[3]

To restore SOF's tradition of unconventionality, General Votel judged that overcoming complex problems required reinvigorating the creativity and innovation that had gone dormant across the SOF enterprise.[4] Eighteen months after the command launched the SDW project, the USSOCOM Chief of Staff, Major General J. Marcus Hicks, noted that

USSOCOM has embraced design-thinking and it has improved the way we deal with complex and ill-defined challenges. The more we learn to use design-thinking and become comfortable with its collaborative approach, the more it will improve our critical thinking, creativity, and innovation, thereby helping the command overcome many of the bureaucratic obstacles that every large organization faces.[5]

Based on USSOCOM's experience, this article suggests that SDW offers an approach beneficial to other joint, interagency, or multinational organizations for confronting and addressing a wide range of complex challenges. SDW goes beyond operations planning and has proved useful in confronting the complexities of resourcing, strategy, policy and acquisitions, as well as informing, and leading, joint planning and programming. This article first explains why USSOCOM required a design-thinking solution. It next describes SDW while distinguishing it from operational design as described in Joint Publication 5-0, *Joint Planning*. The article then offers practical examples of how SDW has been applied to current challenges at USSOCOM. It concludes with a prediction of how the SDW might evolve to potentially benefit the broader joint force and interagency community in deriving truly comprehensive approaches to the challenges that bedevil the Nation.

A Unique Command in a Structured World

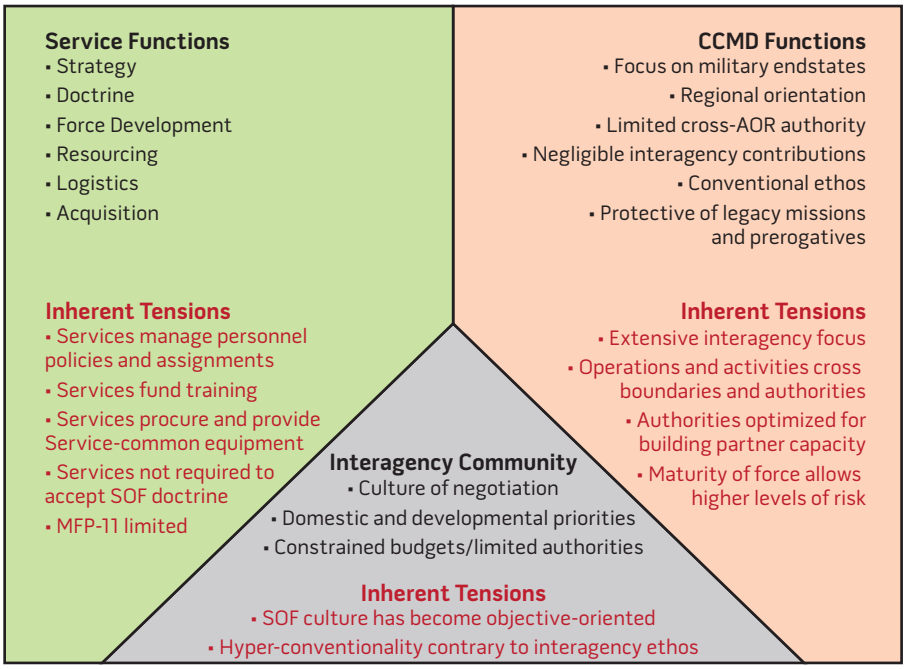
For operationally oriented activities, joint and Service planning processes provide structured, repeatable, understandable, and scalable methodologies for accomplishing complicated tasks. It is important to note that while doctrinal planning processes recognize the need for a comprehensive approach in order to fully understand the complexity of modern warfare, in practice most planners ignore doctrinal recommendations to spend time gaining a deep understanding of the nature of the question they are being asked to answer. They usually jump right into determining how to achieve the proffered endstate. While doctrinal planning processes recommend that commanders develop a comprehensive understanding of the environment before planners begin framing the problem, practice has repeatedly defied doctrine. Reality has shown that military planners typically, and intentionally, forgo the inclusion of interagency and multinational partners and are often frustrated when a consensus-based campaign plan is required.[6]

What the USSOCOM design-thinking team discovered was the confusion inherent in joint doctrine; first directing a comprehensive and inclusive approach to operational design, but then focusing squarely on a military endstate. In another place, joint doctrine highlights the essential nature of gaining an understanding of the environment and defining the problem before planning, but at the same time dives right into determining centers of gravity, critical factors, termination criteria, and so forth, that are the essential outcomes of mission analysis. The formulaic structure of JP 5-0 unnecessarily crushes the creativity and innovation that operational design was intended to restore.

Between 2001 and 2015, USSOCOM was cushioned by an extraordinary infusion of resources at the headquarters and across the enterprise.[7] Incongruities or gaps in processes were compensated for by extra people and ad hoc solutions. Authors of the USSCOM white paper noted, "In many cases, conventional planning, programming, budgeting, and procurement processes [were] outpaced by special operators adapting and improvising to address the dynamic and complex situations they [were] facing."[8] The focus across the SOF enterprise was on maintaining high levels of direct action proficiency, what some have called "hyper-conventionality," and ensuring the force was adequately trained and equipped for this narrowly focused mission. The observation was that SOF and USSOCOM had lost the spirit of creativity and innovation that had made them "special" in the past.[9] SDW offered an approach that encouraged creativity, critical reflection, and innovation beyond operational planning in order to address the huge array of complex challenges facing a globally oriented combatant command in the unique position of also fulfilling many of the responsibilities traditionally reserved for the Services.

In the process of determining an approach that would restore creativity and critical thinking to USSOCOM's planning and resourcing challenges, the SDW designers rediscovered the inherent challenges facing USSOCOM as a functional combatant command with global

Figure 1. USSOCOM's Challenges



responsibilities, but one that remains a hybrid creation exercising some of the responsibilities and authorities of a Service and operating in an environment where negotiation and diplomacy are usually more important than warfighting skills. Because of this unique predicament, USSOCOM wrestled with complex social problems for which JPP and MDMP were inappropriate tools.

Figure 1 details the unique tensions USSOCOM faces given its hybrid nature. As a Service-like entity, it sets the requirements for SOF but relies on its Service components for personnel, common equipment, and the majority of training. Each Service sets its own internal career paths for its personnel, which often supersede SOF-specific personnel requirements. As a combatant command, USSOCOM can only synchronize its forces' activities. The global combatant commands actually control the commitment of SOF through their regionally aligned theater special operations commands (TSOC). Transregional issues, for which USSOCOM is ideally suited due to its global mission, inevitably become regional problems because the GCCs retain operational control of forces, which requires exhaustive coordination efforts. As a member of the interagency community, USSOCOM often serves as an integrating element with national agencies, sometimes in the lead, but most often in support. Differences among interagency member resourcing, missions, and priorities contribute to extraordinary complexity in achieving unity of effort since all participants essentially volunteer to work together.

From the organizational culture perspective, the SDW team realized that over the course of almost 15 years of constant conflict, the command's focus was leaning heavily toward the tactical realm. More importantly, though, the staff officers and middle management at the headquarters, components, and TSOCs, only a few of whom come from the core SOF military occupational skill sets, seemed to become mired in a bureaucracy of support that morphed into an end unto itself. The SDW team offered the USSOCOM Design Way to help the SOF enterprise regain the ethos that had made it so successful during the first half of the command's existence.

SDW Characteristics

The USSOCOM Design Way is a practical solution for synthesizing a variety of perspectives across U.S. joint and interagency capabilities.[10] At its core, the SDW focuses participants' efforts on broadening their perspectives and engaging in deliberate research and reflection. Consequently, subtle but critical differences exist between more doctrinal design processes promulgated by the Joint Staff and Services. Doctrine-based planning begins with the commander issuing an operational approach in the form of initial planning guidance—the starting point for achieving an endstate.[11] Doctrinal processes permit creativity and innovation in terms of how the variety of actors *converge* to achieve the designated military endstate. However, it is the commander's understanding of the environment that guides staff convergence.[12] The potential for conceptual group-think relative to complex problems elevates under these circumstances since leaders typically have little to no time to devote to deliberate thinking in the modern military context.[13]

In contrast, the SDW recognizes that complex problems require a learning process through which commanders are educated along with their staffs by way of an iterative process of discovery. Design-thinking in this way forms a complementary bond with traditional planning methods by first informing commander's guidance.[14] Obviously, time available for learning plays a crucial role in the degree of appreciation staffs may accomplish, but even limited design efforts can appreciably improve approaches to complex problems.

The USSOCOM Design Way is comprised of three elements: Appreciate the Context, Define the Problem, and Develop an Approach (see figure 2). Moreover, SDW intentionally adopts a systemic—different from a systematic—view of complex problems. In so doing, SDW recognizes that bureaucratic, organizational, and population-centric activities operate in a world of open systems, not closed ones.[15] This is a crucial distinction because current military planning constructs are based on the theory that military endstates may be achieved through rigorous application of

engineering principles, identifying all relevant variables, controlling the variables through proven practices and limiting uncontrollable variables, and then repeating those practices through doctrinally approved processes, like JPP and MDMP. While such practice is certainly possible for complicated problems, when factoring in the human elements that characterize modern military operations, doctrinal planning processes tend to break down, often with dire consequences.[16]

Appreciate the Context is, therefore, the most important part of SDW, as it empowers commanders and staffs to explore complex problems from a multitude of perspectives, both internal and, critically, external to the organization. SDW specifically seeks out *divergent* perspectives to better anticipate how organizational, social, cultural, and political interests might respond to the range of potential actions being contemplated. Design-thinking acknowledges the difficulty of overcoming organizational and personal cognitive blinders without meaningful deliberation among advocates of differing perspectives.[17] As a conceptual process, SDW encourages a culture of innovation by "exploring all facets of a situation in order to discover hidden potentialities and overlooked opportunities."[18]

Using an open systems approach, the SDW rejects the notion of endstates because when dealing with complex situations, there is no end to human interaction. At best, there will be a range of future beginnings, which attitudinally indicates a need for constant engagement, reflection, and updated appreciations of how a system continues to evolve in response to the actions being taken (figure 3). Social interactions are not linear and rarely quantifiable in an engineering sense. Planning processes that presume the mathematical repeatability of social systems are subject to significant risk.[19] The task from a design-thinking perspective is for the commander and staff to determine a range of acceptable futures and navigate the evolving and emerging conditions as best as possible. Interestingly, Lieutenant General James Dubik, USA (Ret.), uses the term *acceptable, durable political arrangement* with his students at Georgetown University when discussing the frustrating (at least for military planners) inconclusive nature of public diplomacy—an overwhelmingly sociological, and thus complex context.

With an open systems perspective, then, the focus of critical observation and reflection should be on why trends are moving in a particular direction and how actions might be adjusted in order to change the trending direction of the system or achieve different potential outcomes. The Appreciate the Context phase explores the mental models driving human systems and investigates how changes in structures might affect the patterns and trends that define the character of organizations, societies, and cultural groupings.[20]

The early explorers' search for the Northwest Passage might be used as a metaphor to explain design-thinking. Their desired future was a shorter, faster sea route around North America. The problem was that no human knew where or if such a passage existed. So as early as 1497, the approach was for explorers to sail west from Europe to probe and research different paths. Each expedition (inquiry) was influenced by known and unknown factors, few of which were controllable, yet these factors shaped the next iteration of the approach (iterations of research, discovery, and reflection). It has only been since 2009 that we now enjoy a true Northwest Passage—but it has taken climatic changes in the region, something certainly not foreseen 600 years ago, to enable the emergence of an ice-free Northwest Passage connecting the Atlantic and Pacific oceans across the top of North America, at least for a few weeks each year (figure 4).

Determining the range of desired futures, that is, recognizing that the future is an aspiration and a direction rather than a military endstate in the doctrinal sense, enables the commander and staff to discover obstacles and opportunities in the trends, structures, and mental models that define the environment. These obstacles and opportunities translate into the gaps in policy, capabilities, resources,

Figure 2. Elements of USSOCOM Design-Thinking

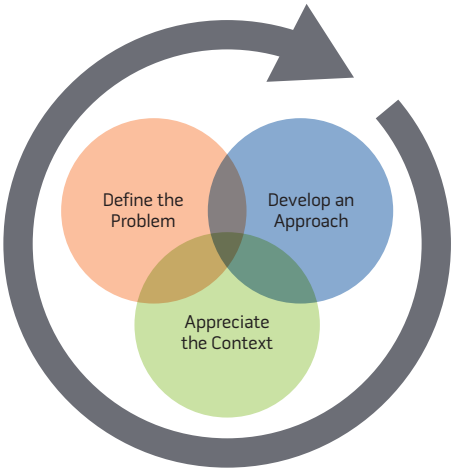
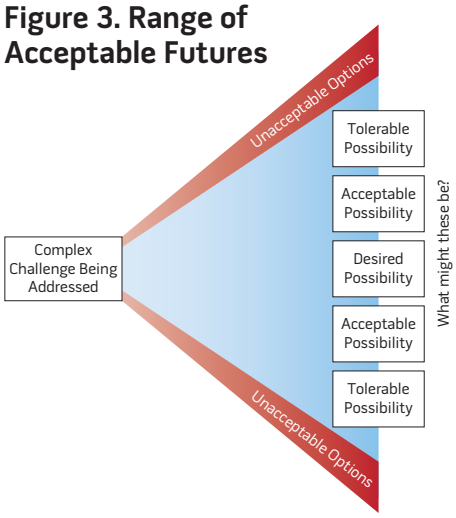


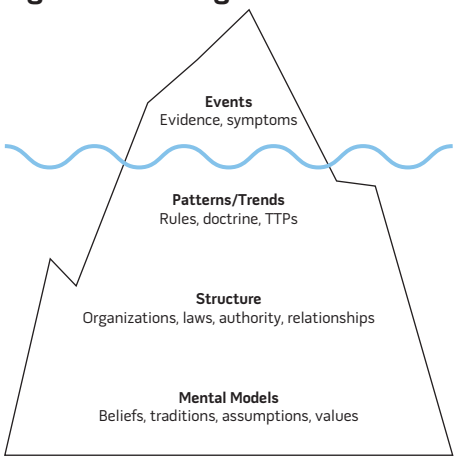
Figure 3. Range of Acceptable Futures



partners, access, placement, and/or knowledge that might prevent changes in negative trends or imperil positive ones.[21] Once the desired future is determined and the obstacles and opportunities identified, a commander and staff are then able to Define the Problem. This statement captures the commander's revised, comprehensive understanding of the complex problem the staff is being asked to address. The result is a significantly higher likelihood of the staff solving the "correct" problem.

With an initial appreciation of the context in hand and the problem appropriately identified, the commander

Figure 4. Iceberg Model



and staff are now able to Develop an Approach that will become the commander's guidance to the staff. Depending on the situation, the approach may take the format of doctrinal commander's planning guidance (purpose, endstate, operational risk, etc.), an abridged commander's estimate, commander's vision, commander's intent, or a simple narrative. The key element is that the document, in whatever form it takes, is the *commander's* articulation of the approach the staff should take.[22] For complex challenges, it is nearly always helpful to include both a visualization and a narrative statement to explain how to move the system from the current state toward the range of acceptable futures.

Applying the USSOCOM Design Way to joint and interagency problem sets seems a natural evolution. Since the SDW emphasizes appreciation as the most important step, participants in a design inquiry are afforded ample time to contribute their personal and organizational appreciations of the topic at hand.[23] It is essential to note that design-thinking does not distribute research roles according to directorate or organizational competency, such as the J2 owning intelligence research and only the J4 researching logistics concerns. Instead, SDW advocates for team-based research and learning, thereby overcoming the issue of functional stovepipes.[24] Through collaboration, the probability for developing a common perspective improves, but this does not relieve executive-level stakeholders from participating in the process and providing their interpretations of higher headquarters' requirements, and the political and strategic situation tempered by the benefits of the commander's experience and education.

SDW in Action

The impact of SDW is not theoretical. It has been applied at USSOCOM headquarters with excellent effect. In the past year, design facilitators from the Joint Special Operations University (JSOU) have facilitated design inquiries with the USSOCOM J4, J5, and J6, and supported North Atlantic Treaty Organization (NATO) Allies as well. Demand for SDW courses provided by JSOU has doubled based on staff-level interest, interest from the Services, the TSOCs, other combatant commands, and other governmental agencies. Perhaps more telling, though, is the growth in demand being placed on JSOU to facilitate additional design inquiries as these practical applications of SDW demonstrate tangible success. Some examples of the impact SDW has had on current complex problems follow.

Colonel Steve Allen, USSOCOM Director of Logistics, concluded,

> *Design-thinking allowed the SOCOM J4 a holistic perspective on how our logistics enterprise supports the SOCOM commander's priorities. The opportunity to bring together a diverse group of logisticians from across the global logistics enterprise enabled divergent thinking, which ultimately has informed new ideas on global sustainment and logistics in support of future SOF operations.*[25]

In December 2015, the J4 was confronted with preparing for the annual enterprise-wide logistics conference that usually concluded with executive sessions and decisions to address major problems. The first challenge was how to appreciate the multitude of problems the directorate faced.

From 2001–2014, SOF transformed from a force designed for short duration, surgical strike missions, and small, discreet teams building partner capacities with minimal U.S. support to a global network of geographically dispersed forces engaged in long-duration operations. From the earliest days of the command, SOF logistics capabilities were built to sustain episodic small-scale and low "footprint" operations, actions, and activities. For larger operations, SOF has relied heavily on the Services to provide most logistics and base operating support, especially after the opening days of an operation. This construct worked well prior to the terrorist attacks of 2001 because SOF were able to leverage mature theaters and operate alongside robust conventional forces and capable strategic partners in what was a relatively resource rich and often low threat environment. This reality has now changed with reductions in conventional force structure and the requirement for SOF to support themselves globally in what are usually immature theaters—little to no U.S. presence, infrastructure, or support, for example, Africa, Southeast Asia, Central and South America.[26] All of these factors compounded the J4's challenges to effective sustainment and logistics support to special operations.

To further complicate the problem, the USSOCOM logistics enterprise is comprised of the four Service components and the TSOCs and is tied into each of the GCCs and their respective executive agents—for example, the Navy is the executive agent for U.S. Pacific Command, the Army for U.S. European Command, and the Air Force for U.S. Northern Command (USNORTHCOM).

This global enterprise represents more a confederation of separate commands with different missions, unique challenges, and dependent requirements than an integrated logistics chain. Many members also share challenges centered on supporting a large global SOF footprint across geographic boundaries. As the focal point for SOF logistics and sustainment, the J4 directorate has wide-ranging responsibilities associated with USSOCOM's train, organize, and equip mission as well as the exercise of combatant command over TSOCs. As

Estonian and U.S. special operations forces consolidate after fast rope training from U.S. Air Force CV-22 Osprey, assigned to 352nd Special Operations Wing, near Amari, Estonia, December 12, 2017 (U.S. Army/Matt Britton)

such, the J4 must successfully navigate a web of policy, organizational command and control, and fiscal and legal restraints and constraints to meet its many responsibilities.

The realities of the strategic environment demanded that SOF logisticians refine, terminate, or transform how they thought about challenges and how the joint global logistics enterprise applied the principles of logistics in support of military strategy. Even in historically mature theaters like U.S. Central Command, force management level constraints result in fewer logisticians deployed in support of operations. Moreover, the joint, interagency, intergovernmental, multinational, and commercial community operates in a global environment where access, basing, and overflight authorities have significantly reduced logistics lines of support. Finally, there are instances when authorities, processes, and systems cannot move at the "speed of operations," which ultimately increases operational risk to SOF.

Given the realities of the current system, there was general consensus in 2015 among senior staff and key representatives from the SOF logistics enterprise that there was a range of perennial and emergent issues that directly affected the deployed force and needed attention. It was concluded that standard thinking and approaches to these challenges would likely produce yet another series of temporary fixes and perpetuate current negative trends. To that end, the J4 requested a design inquiry with the goal of achieving an innovative approach to its perennial problems.

The USSOCOM Design Way was introduced to the participants at the J4's 2016 annual conference, highlighting the core difference from traditional planning. Initially, there was much skepticism among the attendees, with many voicing a strong desire to jump straight into problem solutions using the same well-meaning, but often unsuccessful, methods of the past. The nearly 100 participants were divided into several diverse teams representing the SOF logistics enterprise. The goal was to overcome any potential for institutional loyalty or group-think and work toward a common perspective. The facilitators led the groups using a range of divergent thinking methods to develop a shared "Appreciate the Context" (current system). This endeavor evoked emotion, highlighted organizational and personal blinders, and sometimes illuminated dogmatic thought. In the end the groups evolved, self-organized, and, with consistent coaching, began to see things anew. The range of desired futures developed by the groups were characterized by recognition that the future of SOF required a robust global

Complicated vs. Complex

The character of conflict has evolved, at least since the end of the Cold War, from complicated to complex. This shift has presented challenges to leaders and planners steeped in traditional, apolitical, and military-centric problem-solving.

Complicated challenges are predictable and repeatable; thus, planning and desired endstates are often based on repeating previous successes. Checklists, battle books, and standard operating procedures ensure successful processes are recorded and repeated.

Complex problems, however, are defined by human interactions, relationships, emotions, and dynamic connections. They cannot be solved through quantitative or predictive processes. Traditional problem-solving techniques come wanting when dealing with problems in the inherently complex human domain.

Complex human-centric systems change based on influencing actions. They learn and adapt where complicated systems do not, making it nearly impossible to apply the objective or quantitative solutions found in structured processes.

Design-thinking offers a way to overcome traditional problem-solving and deal with the challenges of modern conflict in the human domain.

logistics system, fully integrated with joint, interagency, international, and commercial logistics networks.

A second iteration of the J4 design inquiry focused on refining the previous "Appreciate the Context," exploring the range of desired futures, and identifying problems that prevented transformation. After a week of rigorous collaboration and divergent thinking, the talented group of experienced logisticians reached the preliminary desired future and problem statement. These logisticians' desired future was one where USSOCOM possessed the authorities, permissions, and funding to fully leverage the global logistics network in support of SOF.

The group spent considerable time assessing the underlying obstacles and realized that the preliminary problem was broad, with both internal and external variables. Accordingly, SOF logistics were not appropriately organized, manned, or arrayed for critical integration during planning and operations at the strategic, operational, or tactical levels. The logistics infrastructure and processes had not kept pace with the expansion of SOF after 2001. Furthermore, the ability to influence military and civilian talent management was constrained by inflexible manpower systems managed by the Services, which did not value logisticians' service with SOF. The result was a constant pool of new Service logisticians having to learn the skills needed to support a command that was neither a Service nor tied to any one theater-level executive agent. The outcome of J4's design inquiry led to changes in organizational perceptions and priorities and provided the foundation for transformation to align resources to support emergent and future SOF operations in new and innovative ways.

There are numerous classified examples of SDW in action during the past 18 months, although a second unclassified example relates to Special Operations Command–Northern Command (SOCNORTH). SOCNORTH is unique in that its mission is heavily oriented to the interagency arena because its area of responsibility is the U.S. homeland. The command was at its 3-year milestone in its growth and development from a directorate within the USNORTHCOM J3 to a distinct special operations component and subunified command.[27]

In the closing weeks of September 2016, a team of senior planners, with support from JSOU design-thinking facilitators, embarked on a reflective reframing of SOCNORTH's existing campaign support plan to the combatant command's theater campaign plan. The goal was to evaluate and question how the command saw itself, its role, and its mission, as well as questioning how SOCNORTH should organize itself to provide the most value to USNORTHCOM. After much debate, discussion, and learning a new desired future and approach emerged.

SOCNORTH's design inquiry resulted in a fundamentally new perspective that reoriented the commander's vision. Much like USSOCOM, SOCNORTH recognized its unique position among TSOCs in that the authorities and permissions to act rest primarily with its interagency partners. SOCNORTH changed its perspective and came to view its value in terms of becoming a key supporting player instead of the star quarterback on the USNORTHCOM team. This transformed mindset guided and informed the command's planning efforts and set the initial framework for SOCNORTH's "cooperative action" among interagency and partner nations.[28]

A third example demonstrating the practical success of SDW is a design inquiry for the Romanian chief of the general staff (CGS) to consider the transformation of Romanian SOF. From August 2016 to May 2017, USSOCOM design-thinking facilitators helped Romania develop a solution to transform their national SOF and create a joint command to lead and manage Romanian SOF from its different services. This distinction is important because of previous missteps in other nations that blindly mirrored the U.S. special operations structure without fully considering differences in missions, regional versus global responsibilities, resourcing, authorities, and national characters. The challenge was complex, characterized by longstanding organizational and cultural traditions; the anxiety of likely personnel, training, and resourcing turbulence; and conflicting polycentric security priorities (national, bilateral, NATO, and the European Union).

Over 9 months, the Romanians used the SDW to conduct seven 1- to 2-week iterations of reflection, research, and critique. In between each group session team members had specific exploration assignments that were then shared when the group got back together. Among the unexpected discoveries during appreciation was the team identifying the key stakeholders in the Romanian security structure. This led the team to intentionally engage these individuals, thus averting any potential institutional, and perhaps personal, apprehensions. The participants' iterative research contributions helped broaden and deepen the design-thinking

team's knowledge and appreciation of Romania's political, geographic, organizational, and security context—very much a comprehensive approach.

During each iteration of the design inquiry, as the participants sought understanding, they created new questions, as research often does, that when also researched ended up leading to a deeper appreciation of Romania's aspirations and challenges. At the CGS's insistence, the design-thinking team broke out of its comfort zone to develop a *joint* and a *Romanian* appreciation. The fruit of their efforts led to an approach that will not only transform Romanian SOF into a fully joint and strategic-level command prepared to deal with emerging hybrid threats, but also provide the headquarters functions of strategic direction, standardization and interoperability among assigned and supporting forces, doctrine development, resourcing, and budgeting. SDW encouraged and enabled the Romanian team to critically examine themselves and their familiar frames, be creative in their appreciation of acceptable future states, and offer Romania innovative options to address their unique circumstances.

Possible Futures

Many experienced military personnel note the rapid rise and demise of previous attempts at process improvement. Design-thinking, when considered from this perspective, could become just another management fad. While certainly a possibility, there is an important factor working in SDW's favor. The demand for the USSOCOM Design Way stems from its appeal to the commander down to the action officer. In other words, the SDW shows early signs of affecting the bureaucracy's organizational culture by demonstrating tangible improvements to how the command thinks about and addresses complex problems.

With a wide range of special operations missions requiring joint, international, and interagency coordination and collaboration, USSOCOM has an interest in proliferating the USSOCOM Design Way. It is already demonstrating positive results across the SOF enterprise and offers a simple and low-cost solution for overcoming seemingly intractable organizational complexity. By investing in common appreciations with joint, international, and interagency partners, the SOF enterprise can significantly amplify its impact against what promises to be a truly complex set of uncertain and ill-defined challenges in the coming decades. **JFQ**

Notes

[1] U.S. Government Accountability Office (GAO), *Special Operations Forces: Opportunities Exist to Improve Transparency of Funding and Assess Potential to Lessen Some Deployments*, GAO-15-571 (Washington, DC: GAO, July 16, 2015), 8–9, 11–12, available at <www.gao.gov/products/GAO-15-571>. The U.S. Special Operations Command (USSOCOM) bureaucracy experienced a 117 percent increase in personnel from 2004–2014, while special operations forces (SOF) increased by 47 percent from 2001–2014.

[2] *United States Special Operations Command History*, 6th ed. (MacDill Air Force Base, FL: USSOCOM, March 31, 2008), 15–16.

[3] Charles N. Black et al., "Design Thinking for the SOF Enterprise," USSOCOM White Paper, 2016.

[4] Ibid., Commander's Foreword.

[5] Major General J. Marcus Hicks, USAF, USSOCOM Chief of Staff, e-mail to authors, February 2, 2017.

[6] Joint Publication (JP) 5-0, *Joint Planning* (Washington, DC: The Joint Staff, June 16, 2017), III-4.

[7] GAO.

[8] Black et al., 1.

[9] Ibid., Commander's Foreword.

[10] The USSOCOM Design Way is a process developed principally for military application but is demonstrating utility in other areas of the public and private sectors. Other processes of design exist for the private sector, most notably exemplified by the Stanford D.School program, Stanford University, available at <https://dschool.stanford.edu>; and the Darden School of Business program, University of Virginia, available at <www.darden.virginia.edu>.

[11] JP 5-0, xxv.

[12] JP 5-0, III-4. Paragraph E notes the importance of embracing the contributions of interagency and multinational partners in order to build a "coherent operational approach." But in practice, military planners, even at USSOCOM with its mandate to include interagency and international partners, typically seize on the next sentence, "The commander must decide how and when to include other partners" as offering the rationale for excluding the contributions of outsiders until after the plan is complete.

[13] Ibid., III-4.

[14] Black et al., 4.

[15] In social sciences, open systems allow interactions between the internal functions of a system and the external environment. This enables a system to learn, adapt, and address opportunities and obstacles it may encounter. Closed systems, such as how military planners plan, on the other hand, are isolated from their environment and thus are unable (or unwilling) to learn and adapt when faced with operational, organizational, or cognitive challenges.

[16] Horst Rittel and Melvin M. Webber, "Dilemmas in a General Theory of Planning," *Policy Sciences* 4 (1973), 155–169.

[17] The concept of "Four Ways of Seeing" has been used to aid designers and planners to recognize their own biases. The shortcoming, though, is that unless others are involved in the analysis, the effort becomes an exercise of seeing all perspectives through a single lens.

[18] Black et al., 3.

[19] Rittel and Webber, 156–157.

[20] Black et al., 3–4.

[21] Ibid.

[22] Ibid., 4.

[23] Ibid., 2–3.

[24] Ibid., 4.

[25] Colonel Steve Allen, USA, interview with authors, October 11, 2016.

[26] The October 2017 ambush that resulted in the death of four U.S. Soldiers in Niger highlights the challenge of supporting small teams of SOF in remote and austere locations. *Time* magazine reported there were no U.S. military aircraft available to provide support before, during, or after the attack. W.J. Hennigan, "The New American Way of War," *Time*, November 30, 2017, available at <http://time.com/5042700/inside-new-american-way-of-war/?xid=homepage&pcd=hp-magmod>.

[27] Brigadier General Christopher M. Burns, USA, Special Operations Command–North, Command Vision, November 2016, available at <www.socom.mil/Pages/socnorth.aspx>.

[28] Ibid.

U.S. Marine Corps sniper with Task Force Southwest sights in with rifle combat optic on M4 carbine during security post for advising mission with 1st Brigade, Afghan National Army 215th Corps, as they conduct Operation *Maiwand* 12 at Camp Shorserack, Afghanistan, March 13, 2018 (U.S. Marine Corps/Conner Robbins)

Enhancing Global Security Through Security Force Assistance

By Keith D. Smith

We have consistently heard that the future joint force has to be postured to deal with an increasingly complex security environment. Today's adversaries continue to threaten our peace with rudimentary weapons that indiscriminately take civilian lives. They also attack our computer networks in ways that, while not impossible to defend against, present new challenges. Additionally, the ever-looming threats from near-peer state actors require our time, attention, and resources. In the midst of these challenges, our nation's security institutions are facing the reality that there is no panacea, no secret weapon, no magic wand to wave that would make all of our security challenges go away. However, Security Force Assistance (SFA) can help address these challenges by enabling U.S. partners and allies to carry larger portions of the burden. While the joint force has made tremendous strides in developing its capability to train, equip, and advise foreign security forces and build institutional capacity to sustain those efforts, there is still more work to be done.

SFA creates a framework for improved partnerships and stronger alliances, and our national security guidance is clear about its importance. Our nation's leaders have consistently echoed these sentiments in press conferences, speeches, and policy documents. While campaigning—and even since he has been in office—President Donald Trump has openly discussed his desire for our global

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partners to carry a greater share of the security burden. Additionally, due to the changes in the global security environment, both the Secretary of Defense and Chairman of the Joint Chiefs of Staff have had to place a higher priority on partner and ally contributions than their most recent predecessors.

As recently as October 5, 2017, Secretary James Mattis published a memorandum to all Department of Defense personnel focusing them on his top three priorities for the upcoming fiscal year. Among those, he highlights the importance of partners and allies by directing the following: "strengthen Alliances and attract new partners . . . [in order] to reinforce the safety and security that underpins the peace and economic prosperity for all nations." With these words, Secretary Mattis makes clear that partner nations' ability to contribute to global security is among his most urgent concerns.

Furthermore, since assuming his position as Chairman, General Joseph Dunford has repeatedly reminded the joint force of the importance of partners and allies to the future of continued peace and prosperity around the world. Recently, he conveyed this notion in a *Joint Force Quarterly* article titled "Allies and Partners Are Our Strategic Center of Gravity." In this article, General Dunford discussed the strategic legitimacy and operational access gained by our global partnerships since World War II. More importantly, he described the network of U.S. alliances and partnerships as the strategic source of power for the joint force to successfully execute the National Military Strategy. Finally, he ended his article by stating, "Given the nature of the threats we face today and the challenges we are likely to face in the future, I cannot imagine a scenario in which the United States would not be standing alongside allies and partners across the globe."

Like the United States, our partners, allies, and aspiring partners benefit from these relationships, too. More capable security forces enable national governments to repel attacks from outside their borders and quell insurgencies that might rise up from within. In many cases, the result would be a nation more fertile for economic development and less receptive to violent extremist ideologies. However, with smaller defense budgets and fewer defense experts available to solve these problems, some of our aspiring security partners stand in need of our help. SFA offers the United States the opportunity to export peace and security to such countries. For example, U.S. aid to Colombia during their fight against the Revolutionary Armed Forces of Colombia, National Liberation Army, and United Self-Defense Forces of Colombia helped reduce the harmful effects of their transnational drug and human-trafficking problems. As their security woes lessened, their economic prosperity grew. Today, while Colombia's internal security problems are far from over, they now have the expertise to make greater contributions to regional and global security. Lessons from Colombia and other places are being incorporated into doctrine to improve the joint force's ability to conduct these types of missions.

More specifically, joint doctrine was advanced in May 2017 when Joint Publication 3-20, *Security Cooperation*, was published. It contained a robust appendix on SFA. *SFA* is defined in JP 3-20 and the Department of Defense Dictionary as "activities that support the development of the capacity and capability of foreign security forces and their supporting institutions." A fair criticism levied by many over the past few years is that train and equip missions fall short of building any meaningful capability or capacity because the receiving nation rarely has the desire or know-how to maintain it. Our current doctrine in JP 3-20 addresses this problem with the executive, generating, and operating (EGO) construct as a way for planning and executing SFA missions to promote sustainability. Specifically, EGO highlights the essentialness of each function of a foreign security force: the executive function, generating function, and operating function are roughly analogous (in their U.S. equivalents) to the Office of the Secretary of Defense, military Services, and operating/tactical forces. While the operating function (training tactical-level forces) is where much of U.S. SFA current efforts lie, enduring capability and capacity require an executive function to provide policy guidance and funding as well as a generating function that recruits, organizes, and trains newly assessed personnel to a universal standard that can be depended on to produce an enduring military capability.

These updates to doctrine are important. They begin to create a path to building more enduring capacity and capability in our global security partners that is consistent with the previously mentioned national security guidance. Additionally, if the EGO construct is followed, it helps satisfy the 2017 National Defense Authorization Act (NDAA) requirement for "institutional capacity-building" in train and equip missions. According to the 2017 NDAA, the purpose of institutional capacity-building is "to enhance the capacity of such foreign country to organize, administer, employ, manage, maintain, sustain, or oversee the national security forces of such foreign country." Institutional capacity-building can also be likened to *defense institution-building*, which is the doctrinal term used in JP 3-20 to describe SFA at the executive and generating functions of a foreign security force.

In addition to these doctrinal updates, the Army and Marine Corps are making their own investments to the joint solution. In the fall of 2011, the Marine Corps merged two separate commands to create the Marine Corps Security Cooperation Group (MCSCG). Headquartered in Fort Story, Virginia, MCSCG has the mission of "executing and enabling Security Cooperation programs, training, planning, and activities in order to ensure unity of effort in support of USMC and Regional Marine Component Command objectives and in coordination with the operating forces and Marine Air-Ground Task Force(s)." Furthermore, MCSCG offers numerous courses that help prepare Servicemembers who will be working in training, advising, and assisting missions. Examples of MCSCG's offerings are the Marine Advisor Course, Security Cooperation Trainer's Course, and Basic Engagement Skills Course.

Soldiers assigned to 2nd Battalion, 14th Infantry Regiment, 2nd Brigade Combat Team, 10th Mountain Division Security Forces Assistance Brigade, pull security duty during patrol in Bermal district of Paktika Province, Afghanistan, April 27, 2013 (U.S. Army/Mark A. Moore II)

Similarly, the Army has made recent changes that will contribute to the joint force's ability to build capability and capacity in foreign security partners. Security Force Assistance Brigades (SFABs) are the Army's way of using existing force structure in a more effective and efficient way to contribute. The benefit to the Army and the joint force is twofold. First, SFABs relieve Brigade Combat Teams (BCTs) from SFA operations, increasing BCT readiness for more conventional missions. Second, SFABs will develop greater proficiency to conduct training, advising, and assistance missions in a small cadre of professionals who can focus exclusively on that mission. In an Army article from May 2017, C. Todd Lopez states that the "SFAB is designed to rapidly deploy into a theater of operations in support of a combatant commander . . . [and] begin to work with, train, advise, and assist those partner nation security forces on anything they need help with, be it logistics, be it communications, be it maneuver. Anything they need help with to improve their capacity and capability, that's what the SFAB is designed to do." In a subsequent article from December 2017, General Mark Milley, Army Chief of Staff, told defense reporters at the Association of the United States Army's 2017 annual meeting that "It is my assessment, and the assessment of the Secretary and the assessment of the Army staff, that we are likely to be involved in train, advise, and assist operations for many years to come."

While these Army and Marine Corps contributions are important, there is still work left for the joint force. Namely, we need better training for our senior-level advisors. In response to the need for ministerial-level advisor training, the Joint Center for International Security Force Assistance called together prominent members from the communities of interest to examine the problem of training for ministerial-level advisors. General John W. Nicholson, Jr., is concerned that most U.S. advisors deploying into Afghanistan in support of the North Atlantic Treaty Organization (NATO) *Resolute Support* mission are not properly trained to advise—the very job that they have been assigned to do. For example, many advisors coming from other contributing nations attend classes at the NATO Joint Forces Training Centre in Bydgoszcz, Poland. However, the United States has yet to develop a formal senior advisor training curriculum that would prepare ministerial advisors or require such advisors to attend classes at Bydgoszcz. The United States should not expect the highest return from its advisor investment until institutional processes for fielding and training personnel assigned to these missions are improved.

The United States must continue to find ways to enhance its SFA capabilities so that we are postured to build our partners and allies well into the future. The joint force has made recent improvements in this area with the Army's SFAB, Marine Corps' MCSCG, and improvements to joint doctrine, but there is still more that needs to be done. Improvements to interoperability between current and future coalition forces is a must. Also, the need for training of senior-level ministerial advisors has to be addressed.

The security challenges that we face in the future will only threaten our peace and prosperity if we allow it. With continued focus and determination, the United States can help build more capable global security partners through SFA, thereby facilitating more enduring peace, security, and stability throughout the world. **JFQ**

Multimission, supersonic bomber B-1B Lancer parked on flightline at Royal Air Force Fairford, United Kingdom, June 9, 2017, supports exercises Baltops 17 and Saber Strike 17 (U.S. Air Force/Curt Beach)

Cooking Shows, Corollas, and Innovation on a Budget

By Mike Jernigan and Jason Cooper

If we do not free ourselves from the ever-expanding, ever-tightening coils of bureaucracy, if we do not set the pace on adopting change, if we continue to think and do in the same ways we have for so long, then our days as the world's preeminent maritime force are sure numbered—and that number is small and shrinking.

—Former Secretary of the Navy Ray Mabus, April 15, 2015

In the television show *Cutthroat Kitchen*, chefs compete against one another on a fixed budget where they can buy advantages for themselves or disadvantages for their adversary. In the end, the winning chef shows more creativity and innovation in developing a recipe while under challenges and budgetary constraints. The Department of Defense (DOD) finds itself in a similar predicament—developing a recipe that ensures strategic and operational advantage in a time of rapid technological advancement and decreasing budgets.

The reality is that rapid advancements in military technology and the introduction of hybrid threat capabilities obscure the traditional categories of warfare and increase the difficulty of matching capabilities to meet complex 21st-century challenges. Scholars argue

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the long record of U.S. military success "masks major geopolitical and technological trends that are rapidly eroding the advantages the U.S. military has long enjoyed."[1] The geopolitical factors of globalization, a weakened U.S. economy, and $19 trillion of national debt lead many to question how the United States will maintain military superiority while balancing the promise of new technologies under current budget constraints.

Relatively inexpensive intangibles related to innovation exist and are critically important to resolving this dilemma. DOD can maintain strategic and operational advantages through innovation in the future but must avoid the misperception that success will come from a single game-changing technology. Rather, success in the future will come from following an innovative recipe that includes four critical ingredients: research and development across the science and technology spectrum, the military divorcing itself from a fixation on owning technology and hardware versus leasing it, key organizational changes, and creating adaptive leaders who can react to the pace of 21st-century change.

Investment in Science and Technology

It is appealing to believe superior technology wins wars and difficult to argue against the notion of game-changing technologies, such as the atomic weapon. However, an overreliance on technology is dangerous for two reasons. First, U.S. military excellence is not guaranteed as a birthright and the "sizeable margin of conventional technology superiority the United States has enjoyed for the last 25 years has eroded."[2] Second, it encourages tunnel vision and an ignorance of the value of smaller, incremental innovation. Too frequently, U.S. military innovation tends to focus on the "next big thing." *Transformation* and *innovation* are buzzwords frequently used in policy circles pointing to a specific technology or doctrinal change as the next revolution in military affairs (RMA) that will ensure future U.S. superiority. The problem with this silver bullet approach and imprudent view of innovation is that it presumes a distinct separation between the future and current plans "as if we could somehow separate the future from our current agendas" and only have a single future for which to prepare.[3] The reality is that the U.S. military will not maintain strategic advantage by focusing on a single technology, weapon, platform, or doctrine, as solitary ingredients do not complete the recipe for advantageous transformation. Just as a cake is not made solely from flour, no matter how fancy the flour is, "technology-driven RMAs are usually brought about by combinations of technologies," not a lone source or concept.[4] For example, Blitzkrieg was a product of innovation in three technologies: the tank, the two-way tactical radio, and the dive bomber, while the creation of intercontinental ballistic missiles was enabled by long-range ballistic missiles, lightweight fusion warheads, and highly accurate inertial guidance.[5] Stealth and precision munitions provide other examples derived from investment across a wide spectrum of technologies fused with adaptive operational doctrine and concepts.

In December 2015, then–Undersecretary of Defense Robert Work described the effects of precision-guided munitions as the Second Offset Strategy. Speaking at the Center for New American Security, Mr. Work explained that the United States has a history of strengthening "conventional deterrence by offsetting or pursuing a combination of superior technological capabilities and innovative operational and organizational constructs that offset the strengths of our potential adversaries."[6] He described the First Offset Strategy as the development of tactical nuclear capabilities and the Second Offset Strategy as the development and advancement of precision-targeting capabilities. He goes on to argue that the rapid advancements in antiaccess/area-denial tactics create the need for a Third Offset Strategy, which is required in order for the United States to maintain a strategic advantage in the future. Furthermore, this strategy is actually a combination of five components: "learning machines, human-machine collaboration, assisted human operations, human-machine combat teaming, and autonomous weapons."[7] Creating the ability and capacity to achieve this strategy requires multiple resources from various technology and science fields in order to provide the superior technology offset needed to maintain strategic dominance in the future. Thus, the first ingredient required to achieve 21st-century transformation is science and technology investment across the whole of the scientific and military enterprise.[8]

Silver bullet technologies such as nanotechnology, neurotechnology, robotics, or hypervelocity weapons predict a military advantage in the future because they have the potential to deliver game-changing results. This is true to the extent that a country can maintain a comparative advantage until a counter-technology or defense is created to mitigate it. Technology is expanding rapidly and can quickly become obsolete or countered. For example, rapid advancements have allowed countries like China to develop high-end asymmetric capabilities in order to employ area-denial tactics and restrict U.S. power projection and freedom of movement within the global commons.[9]

The U.S. Air Force further demonstrated the need for investment across the entire science and technology spectrum when it completed a 3-year study in 2010. In Blue Horizons II, researchers were "tasked to evaluate the effectiveness of 58 future weapons systems in 2030 and to examine the underlying 172 technologies necessary to bring those systems to fruition."[10] Over the course of their research, these scientists discovered it was impossible to prioritize one technology over the next because of the synergistic and congruous effect one had on the development and maturation of another. They learned "the effect of nanotechnology, computational power, biotechnology, chemistry, and physics were so interwoven that a lack of research in any one area would disable the fielding of a large number of future systems or concepts."[11] In other words, Blue Horizons II provided evidence that future investment cannot be focused on any

singular technology but must be invested "across the whole of the science and technology enterprise" if DOD wants innovative and transformative concepts in the future.[12]

If the first ingredient of the recipe of transformative innovation is investment across the whole of the science and technology spectrum, it would be remiss not to address how DOD can accomplish this effort within the context of a budget-constrained environment. Innovative technology investment can be accomplished in several ways. A recent example comes from former Secretary of Defense Ashton Carter, who directed the Pentagon to "team with Apple, Boeing, Harvard, and others to develop high-tech sensory gear."[13] The goal of this program is to "use high-end printing technologies to create stretchable electronics that could be embedded with sensors and worn by soldiers . . . and ultimately be used on ships or warplanes for real-time monitoring of their structural integrity."[14] While focused on expanding multiple emergent technologies, the brilliance of this program is found in the funding. The U.S. Government is contributing $75 million while "companies, managed by the U.S. Air Force Research Laboratory, will add $90 million with local governments chipping in more to take the total to $171 million."[15] The reality is that the government "is now a relatively small player in the science and technology world . . . [with] over 70 percent of U.S. investment in basic research . . . now in the hands of industry and academia."[16]

Leasing vs. Owning

This fact reveals the second ingredient of the innovation recipe: DOD must divorce itself from the notion that it must own and control enterprises, such as technology, which appear to be game-changing today but can become antiquated tomorrow. For example, a driver who leases a Lexus can get a new, improved car every few years, while the one driving a 1987 Corolla pays to keep it running with a limited ability to improve its function. Similarly, DOD must explore the idea of becoming more of a lessee of technology rather than an owner. By doing so, DOD will increase its relative flexibility to react to significant changes as rapid advancements occur. Contracts must be structured for the short term and leasing may provide a way for the Defense Department to ensure it is adaptable for future changes.

The lessee-versus-owner mentality can be applied across multiple aspects of DOD. One simple way that could create cost savings across all the Services would be leasing instead of buying baseline technical equipment, network platforms, desktop computers, and other "low level" technology types. There are several benefits to leasing low-tech equipment in the 21st century, where the computer purchased today can be outpaced by processing and software development in a matter of months. Leasing can keep the user's equipment up to date, and, in the long run, the financial burden of obsolescence is passed to the equipment leasing company.[17] In most situations with leasing equipment, the user pays little to nothing upfront and has an ability to maintain predictability in monthly costs.[18] Leasing provides stability that could prove valuable in the age of sequestration. Depending on how the lease is structured, downsides include losing flexibility regarding maintenance of a given system, and, in some cases, leasing can cost more in the long run. That said, the Defense Department could work with Congress to pass legislation to provide tax incentives to companies that work with DOD on programs to provide low-tech leased equipment, making it more palatable for companies to accept the short-term risk with the benefit that the leasing company can return fairly new equipment back to a large consumer market at a reduced price to recapture their profit dividend when the lease is up.

Another area worth evaluating the long-term cost benefit analysis of leasing versus owning is with aircraft. One of the largest issues facing the Air Force is recapitalization of a significantly aging aircraft fleet. This issue ranges from finding replacements for training aircraft to developing a new long-range bomber. The Air Force has been flying the T-38 as its advanced jet trainer since the early 1960s and continues to use an aging commercial fleet for distinguished visitor transportation, while the F-35 and Long Range Strike Bomber (LRS-B) programs are in response to the aged platforms in the fighter and bomber communities. Large and complex acquisition items, like the F-35 and LRS-B, which have secretive technologies with limited transferability to the civilian sector, most likely are not good fits for the lessee category due to the extreme technical specialization and little commercial application for advanced weapon systems.

In the training and commercial realms, however, leasing could be a viable possibility. Much like the Air Force, "airlines lack cash to finance their big plans for fleet renewal, and they cannot borrow cheaply" to make the recapitalization of their fleet cost-effective.[19] Thus, the airline industry is increasingly turning toward "operating leases, in which they really are renting the planes for a few years at a time with a leasing company bearing the risk of any slump in their secondhand values."[20] In order for leasing to be cost-effective for the leasing company, the secondary market for used aircraft must be viable enough to ensure a legitimate profit margin over time. Research suggests this is the case because "since the mid-1980s, trades in the secondary market for aircraft have grown steadily, and the number of transactions on used markets today is about three times the number of purchases of new aircraft."[21] Coupled with the fact that "over a third of the world's airline fleet is now rented and the proportion is likely to keep growing," leasing in the realm of training and commercial platforms across the military Services could be a way to negate large purchase costs up front, reduce operational and maintenance costs over time by operating relatively new aircraft, and rapidly recapitalize large portions of an increasingly aging fleet.[22]

That said, this shift in mentality and eventual execution is not without challenges, and the structuring of leasing contracts and nuances between operating and capital leases are beyond the scope of this discussion. However, with the rate at

Marine with 3rd Battalion, 4th Marines, Kilo Company, uses weapon that has capabilities to shoot down drones with net during Urban Advanced Naval Technology Exercise 2018, Camp Pendleton, California, March 20, 2018 (U.S. Marine Corps/Laiqa Hitt)

which technology is advancing, examining areas where leasing versus owning is a realistic possibility will become a necessary ingredient for innovation and transformation if the United States wants to stay ahead of its potential adversaries. At a minimum, the leasing-versus-owning mentality for certain aspects of the military inventory warrants further evaluations and may provide greater flexibility and options for DOD in the future.

Creating Flexible and Adaptive Organizations

The third ingredient necessary to achieve innovative transformation and maintain U.S. strategic and military advantage requires creating flexible and adaptive organizations. The effects of globalization and rapid advancements in technology, coupled with the speed at which information can travel around the globe, create new stressors and requirements for resiliency in order for organizations and leaders to be able to react to change. There exists today "more change to contend with than ever before" and its volume, momentum, and complexity are accelerating at increasing rates.[23] Organizations must adapt to this environment. Essentially, "organizations, like individuals, have a speed of change at which they operate best. This speed reflects the degree to which the organization can absorb major change while minimizing dysfunctional behavior."[24] While the U.S. military has proved its ability to remain tactically flexible, DOD is still organizationally challenged. The reality is the current institutional structure of the Services is archaic and will have difficulty facilitating the type of rapid flexibility and decisionmaking required to be effective. An examination of any military Service organizational diagram reveals a cumbersome institutional framework more closely resembling the architecture of a large organization in the 1950s, like General Motors, rather than the Microsoft, Amazon, or Starbucks of today.[25]

One way to structure an effective organization can be found in the Third Offset Strategy discussion from Robert Work. Two of the five components required to achieve the strategy relate to shrinking the decisionmaking timeline and, in some cases, developing systems capable of quickly making decisions for senior leaders. Before discussing these components, it is important to note that development of these core capabilities will not be possible without the application of the first ingredient of transformation: research and development across the whole of the science and technology spectrum. The first component is the creation of autonomous deep learning systems. In essence, these systems can rapidly analyze multiple data inputs, learning through an iterative process in order to enhance their

predictive capability and shorten the early warning indications for senior leaders. These deep learning systems are also applicable to the realm of cyber and missile defense where systems can be developed to react automatically in order to protect critical infrastructure—both cyber and real, as well as civilian populations—in the event of a massive attack that would overwhelm the human decisionmaking cycle.[26]

The second component is what Secretary Work describes as human-machine collaboration. As he states, "human-machine collaboration is using machines to help decisionmakers make better decisions."[27] One could argue that through the use of wargaming exercises, DOD has been executing human-machine collaboration for some time. The advantage of wargaming exercises is that they can be used to "explore a range of possible warfighting futures; generate innovative ideas; and consider how to integrate new technologies into doctrine, operations, and force structure," as well as test senior leader decisions in certain scenarios and their possible outcomes.[28] In the past, "wargames were an inexpensive tool during a period of suppressed defense spending to help planners cope with the high degree of contemporary technological and operational uncertainty."[29] This is the scenario and challenge DOD currently finds itself facing. In their plan to revitalize wargaming for DOD, Secretary Work and Vice Chairman of the Joint Chiefs of Staff General Paul Selva recommended another organizational change necessary for success in the future. In their research, they discovered

> *a lack of coordination within the wargaming community and the absence of any direct link between the insights gained from wargaming and the department's programmatic action. Wargame results are neither shared laterally across the defense enterprise nor up the chain to influence senior-level decisionmaking.*[30]

Thus, applying the first ingredient of wide technical research will allow the development of future systems to make the possibility of a Third Offset Strategy a reality, and developing an organization that facilitates this technology into the decisionmaking cycle is a step in the right direction. Furthermore, wargaming needs to become a collaborative effort where results are reported both vertically and horizontally in order to prevent the institutionalization of faddish assumptions and to better inform senior decisionmakers.

While it is impossible to guess what the future holds, it is safe to say rapid advancements in technology will change the character and nature of war. In the future, military expertise may reside in individuals who can manage multiple hypersonic reentry vehicles from a computer console as they strike an array of enemy targets. Furthermore, "new technologies will increasingly bring to the fore the expert in missile operations, the space general, and the electronic warfare wizard—none of them a combat specialist in the old sense."[31] The question then becomes: in the future will distinct branches of the military, which often force thinking into the pigeonholes of Soldiers, Marines, Sailors, and Airmen, be needed? Should the evolution of joint warfighting be taken to the next level, a true joint force of American warfighters? In a broader qualitative context, DOD must address the question as to whether the current organizational structure of the military Services provides incentives for sustaining organizational change. For this discussion, *sustaining organizational change* is defined as "the continuous, anticipative, and adaptive movement (thinking and actions) taken by organizational members to achieve a desired future."[32]

The first requirement to achieve the level of congruence and unity required by military members to achieve a desired endstate begins with senior leader messaging. Too often different Services stress competing messages because each branch is in competition with the others for valuable and limited resources. The second requirement is to develop continuous improvement processes Service-wide, which allow all to evolve and synchronize efforts with the senior leader messaging over time. Organizations often overcome obstacles purely based on the talent of the individuals present, finding short-term fixes but often no long-term solutions. In fact, "many organizations rely on a planned change, classical approach to organizations change" implemented through a linear methodology.[33] Unfortunately, these linear methods often leave the misperception that a single solution can be found that will permanently solve a given issue. The focus must be on continuous process improvement programs that are iterative and evolutionary, like the Define, Measure, Analyze, Improve, and Control (DMAIC) process. DMAIC is data-driven and requires organizations to define key value measures and key performance indicators that validate and verify the effectiveness of meeting organizational objectives and priorities. In turn, this allows organizations to identify and create processes that synchronize unity of effort and increase efficiency in achieving the strategic objectives of the organization. Methods, such as DMAIC, will be necessary in order to create efficiencies and the requisite organizational flexibility to adapt to the current pace of change.

At the macro level, the question becomes do U.S. military organizations provide latitude for risk-taking and, as a by-product of innovation, to flourish. While courage on the battlefield is rewarded, courage to take risk at the operational and strategic levels organizationally is widely unacceptable: "A large body of scholarship within strategic studies attributes innovation failure to the hierarchical, inflexible, and rigid nature of military organizations."[34] The military creates a linear environment with rules and structures that promote black-and-white thinking. Unfortunately, "people who adapt more slowly than the pace of the changes occurring around them do so partly because they have a low tolerance for ambiguity and therefore they generally perceive life in binary terms—yes or no, black or white."[35] It is time for the Services to take a hard look at organizational structure and determine if it provides the level of resiliency and flexibility that will be required for success in the future. Today's modern corporations have removed multiple layers of middle

management, promoted risk-taking and innovative thinking, and have "even eliminated many of the functional and social distinctions between management and labor that dominated industrial organizations."[36]

Secretary Carter took steps in the right direction to address this issue. He examined private industry and academia for ways to increase efficiencies as a military. Furthermore, he "[built] bridges with every sector in America from corporation to academia" in order to facilitate new thinking and innovative ways to solve institutional problems.[37] Secretary Carter doubled the Secretary of Defense Corporate Fellowship program and opened the program up to the noncommissioned officer ranks.[38] This program allows military members to work in private industry for a year at organizations such as Google, Intel, Amazon, and others.[39] Programs like this afford U.S. military members an exceptional opportunity to learn best practices from industry and an ability to view problems through varying lenses, especially from a change management perspective. Opening this program up to noncommissioned officer ranks is definitely a step in the right direction, as innovative thinking and newly learned processes can be applied across multiple echelons of the Services. As Secretary Carter deftly put it, "throughout this process, we've always been mindful that the military is a profession of arms . . . it's not a business. The key to doing this successfully is to leverage both tradition and change."[40]

Traditions are important but so is creating an organizational structure and climate that facilitate resiliency and flexibility. Change is essential for strategic and operational advantage in the future, and these programs are a step in the right direction. Otherwise, the U.S. military may find itself in a situation where the enemy is able to react to the pace of change faster than U.S. forces, thereby putting enemy actions inside the strategic- and operational-level decisionmaking cycle. "[S]hifting our perceptions toward change and how it is managed" requires a new vision for the organizational framework of the military Services, one that empowers action, encourages risk and—as a byproduct—innovative thinking and that maintains the requisite flexibility to maneuver with the speed of a rapidly changing environment.[41]

Overcoming Complacency and Fear of Risk

The final ingredient for effective innovation is people. Leaders at all levels need to be trained to support innovation and overcome its two nemeses: complacency and risk. Complacency is the antithesis of innovation: things are good now, why change? Agility is the antidote to complacency and must be applied to innovation to be effective. Unfortunately, the U.S. military operates "at a level of agility better suited for a less-demanding era."[42] To encourage innovation, DOD needs "agile leaders and a leadership culture [to] model and support agility across the enterprise."[43] Scientists have determined that several types of agility exist. One required for innovation is creative agility, which

> *transform*[s] *complex, novel problems and opportunities into desired results. As leaders increase their agility, they become more comfortable with novelty and uncertainty. Because they clearly understand the limitations of any single perspective, they encourage the expression of multiple viewpoints and the questioning of underlying assumptions.*[44]

This statement is exactly counter to the silver bullet technology approach that floods innovative thinking.

In addition to operating with greater agility, leaders who desire to encourage innovation must learn to be comfortable with risk. Innovation requires both a willingness to act and to create a safe environment that allows it to flourish. But to create this innovation safe space, risk must be overcome. People have three fears regarding risk: fear of failure, fear of success, and fear of what others think.[45] Since risk is foundational to doing new things or doing things in new ways, leaders need to understand which of these fears they are most vulnerable to and work to mitigate them. Risk tolerance can be managed in a variety of ways. One example is enabling leaders to make smaller, more frequent decisions rather than letting things build up to the point where single decisions have enormous consequences.[46] This technique makes risk more tolerable since only a little is risked with each decision.

DOD needs risk-tolerant leaders who are comfortable in chaos, are effective decisionmakers, have freedom to act and create, and, more importantly, allow their subordinates room to do the same. These facets of professional maturation can be inserted into curriculums at formal schools, enhanced by operational and joint experiences and modeled by leaders.

The recipe to ensure innovation and, as a byproduct, preserve strategic and operational advantages in the future does exist. Innovation can be created incrementally and relatively inexpensively by adhering to the following ingredients: a general investment over a wide field of technology and science by relinquishing an outdated requirement to own the technology or hardware, a reformation of organizational limitations, and a liberal salting of leaders prepared to innovate and accept new ideas. A winning recipe for innovation is not to take two cups of stealth, throw in a handful of nanobots, and mix with a giant robot dog. Ralph Peters warns against an over-fascination with technologic solutions at the risk of not investing in other aspects of innovation. He reminds strategists that potential enemies are innovating, while the United States "tends to fall in love with the means . . . and be seduced by what we do; our enemies focus on what they must do."[47] The effects of globalization and rapid advancements in technology have begun a shift in the geopolitical power balance. Maintaining U.S. preeminence in innovation will require changing perceptions, organizations, and leadership styles to a "magnitude that military people still do not completely grasp and political leaders do not fully imagine."[48] However, the recipe for innovation argued herein is definitely a step in the right direction and need not come with the drama of a celebrity cooking show. **JFQ**

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Airman prepares inert weapon for loading during annual weapons load competition in Hangar One at Spangdahlem Air Base, Germany, January 20, 2016 (U.S. Air Force/Preston Cherry)

Bombs, Not Broadcasts

U.S. Preference for Kinetic Strategy in Asymmetric Conflict

By Cole Livieratos

In 2016, the United States dropped 24,287 bombs in Iraq and Syria targeting so-called Islamic State (IS) fighters as part of Operation *Inherent Resolve* (OIR). The authority to release ordnance for a preplanned target in OIR has been delegated to brigadier generals and below (it is even lower for nonplanned targets in support of American or allied forces). If the U.S. military wishes to conduct an information operation, such as dropping leaflets or beginning a new series of radio broadcasts, the approval authority is higher—a major general. Any information operation conducted via the Internet or social media as part of OIR requires Pentagon-level approval. Despite mounting criticism of the use of American ordnance because of recent civilian casualties, the approval authority to release ordnance has not changed. In fact, President Donald Trump has signaled that he will delegate even greater authority for kinetic operations to military leaders, while the approval process for information operations remains the same.

The disparity in approval authorities between dropping bombs and dropping leaflets is puzzling for those who study foreign policy. Why is there less scrutiny

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over kinetic operations that have the potential to kill innocent civilians than over information operations that cannot physically harm anyone? This phenomenon is not unique to OIR in Iraq and Syria. The United States has regularly prioritized kinetic operations above information operations when fighting asymmetric conflicts. The hostilities in Vietnam, the second war in Iraq, and the operations in Afghanistan and Libya have all demonstrated heavy American reliance on kinetic operations (especially airpower) and a reluctance to focus on information operations at the strategic level. This article answers the question of why the United States consistently prefers kinetic strategies instead of information-centric strategies in asymmetric conflicts. Qualitative research, including examination of primary source materials, demonstrates that an "issue public coalition" highly scrutinizes military information operations, thereby raising the potential cost for military commanders to choose information-centric strategies. An existing military preference for kinetic operations—compared with a high level of scrutiny of information operations—makes it unlikely that military leaders will choose an information-centric strategy in asymmetric conflicts.

Issue Public Coalition, Military Culture, and Strategic Choice

An information-centric strategy can be conceived of as a military strategy that prioritizes informational tools, such as psychological operations, as a major component of the strategic approach. Strategies that are not information-centric rely on kinetic operations (including air strikes as well as raids and targeted strikes) and/or train and equip missions; these are referred to here as kinetic strategies. The term *information operations* refers to inform and influence activities and strategic communications more broadly. It is distinct from the military functional area of information operations (which includes psychological operations in addition to other components like electronic warfare, operations security, and military deception). Information operations can be conducted via the Internet, but in this article, the term is separate from cyber operations.

The military's use of information as a tool is fundamentally different than the use of any military hardware because the military has a monopoly over hardware like tanks and bomber aircraft, but no such monopoly exists over information. The military competes in the information marketplace, or the marketplace of ideas, with others who trade in information as a profession. Journalists, academics, public relations professionals, and certain policymakers are in the business of generating or sharing information. Thomas Risse-Kappen separates the public into three disparate groups: the "mass public," "attentive public" (which has a general interest in politics), and "issue public" attuned to specific policy issues.[1]

Members of the issue public from the marketplace of ideas represent a de facto coalition against the development and conduct of information operations by the military. This "issue public coalition" is not concerned with having to compete with the military over information, but it is concerned that military "weaponization" of information could undermine American credibility and negatively impact their professions.[2] Even though the mass public readily accepts information as an influence technique in terms of consumer marketing or political campaigns, the issue public coalition argues that inform and influence activities conducted by the executive branch are more problematic, even when directed at foreign audiences. The coalition frames military information operations in a manner that puts these activities at odds with American political culture, painting military information operations as undemocratic or contrary to the freedom of speech rights guaranteed in the First Amendment. The issue public coalition therefore acts in accordance with what Elizabeth Kier describes when she argues that civilian groups constrain military doctrinal development because of concerns about the military's power within the state.[3] As a result, the level of scrutiny placed on military information operations is high—disproportionately greater than other types of military operations.

Individual agencies of the U.S. Government may self-select into the issue public coalition depending on the nature of a specific conflict or proposed military information operation. At times, the public affairs and public diplomacy sections in the State Department, members of the Intelligence Community (IC), and even the military's own public affairs branch will join the issue public coalition seeking to limit the military's use of information operations. Other government agencies that selectively join the issue public coalition may do so because of concerns about the military's use of information undermining their credibility or infringing on their own operations. Though these turf battles may sometimes be made public, they often play out privately among organizations. The relationship between the Department of Defense (DOD) and IC fits this pattern. Tactical and operational coordination on information operations has traditionally been successful, but the IC is more likely to scrutinize strategic-level informational efforts by DOD. The nature of this scrutiny is different than public criticism from the media, but it pressures military commanders and raises the costs of conducting information operations nonetheless.

While the issue public coalition highly scrutinizes information operations, the military already has an organizational culture with a preference for kinetic operations. Commanders are not opposed to conducting information operations, but most commanders do not understand the process or understand the utility. If commanders do decide to use informational tools, they rarely integrate them throughout the entire operational planning process. As former Chairman of the Joint Chiefs of Staff Michael Mullen wrote in an article for *Joint Force Quarterly* in 2009, "We've come to believe that messages are something we can launch downrange like a rocket, something we can fire for effect."[4] The military's cultural preference for kinetic operations transcends its failure to comprehend information operations; its organizational structure, promotion system, professional military education, budget allocation, authorities, and even uniforms all

reinforce this underlying preference for kinetic action. Combatant commanders in asymmetric conflicts are almost always selected from the infantry or a combat arms branch. Even within special operations units, theater special operations commanders, special operations task force commanders, and country-level special operations team leaders are almost all from the Army's Special Forces or Navy SEALs, both of which prioritize kinetic activities, especially since 9/11. Few mechanisms prioritize or reward nonkinetic operations, even when those means appear to be better suited to achieve the conflict's political goals.

Asymmetric conflicts should necessitate high involvement from all parts of the U.S. Government, but the reliance on the military to plan and execute asymmetric warfare since 9/11 has substantially increased. When policymakers commit the United States to an asymmetric conflict, such as Libya in 2011 or fighting the IS in Iraq and Syria starting in 2014, the military is primarily responsible for planning and executing strategy. With an organizational culture predisposed toward conventional kinetic methods and an elevated level of scrutiny from the issue public coalition on information operations, the risks and potential costs for military leaders to adopt an information-centric strategy are far too high. Military leaders default to something more familiar and less risky: a kinetic strategy. Through this lens, even civilian casualties from an air strike will be seemingly less costly to a military commander than an errant tweet. Though civilian casualties are likely to receive attention in the media, the issue public coalition is unlikely to frame the tragedy as a threat to American democratic values.

Potential Counterarguments

Existing theories on asymmetric warfare, information operations, and state-society relations may offer counterarguments to the idea that decisions against information-centric strategies in asymmetric war result from an issue public coalition that scrutinizes military information operations and a military organizational culture predisposed toward kinetic action. The first of these counterarguments is that an information-centric strategy is a weapon of the weak and actors only choose this strategy to compensate for military strength. It is true that disparities in military capacity do result in belligerents selecting different strategies to maximize their strengths and attack their opponents' weaknesses. However, several strong actors like Russia and Israel employ information as a major component of their strategy in asymmetric conflict, while several weak actors like Iraq (in 2003), Libya, and Ukraine do not prominently feature information operations. Additionally, well-executed information operations consume a large amount of resources. Actors like Russia and the IS decide to invest heavily in those capabilities, while many actors with similar capacity do not invest in technologies like media production and social media. While relative capacity may partially explain whether an actor uses an information-centric strategy, this alone does not appear to be a sufficient explanation.

A second potential counterargument to explain why we do not use information-centric strategies in asymmetric conflict is that the United States is simply bad at conducting information operations. There is some evidence to support the notion that U.S. military information operations have been ineffective.[5] However, the evidence pointing to not prioritizing military information operations is insufficient for two reasons. First, even though the results of military information operations have been mixed, it has produced major successes along with its failures.[6] In recent asymmetric conflicts, the results of more kinetic approaches have resulted in failure rather than success. It is difficult to argue that the United States should maintain its unsuccessful strategy. Second, military capabilities reflect the prioritization and resources invested in those capabilities. When the budget for military information operations was near its peak in fiscal year 2011, the total budget for strategic communications, information operations, and psychological operations was roughly $525 million.[7] This amounted to only 0.07 percent of the total Defense Department budget of $708.2 billion that year.[8] If success of information operations were a priority, this budget would be much larger. Furthermore, previous studies on asymmetric conflict suggests that stronger actors *should* match weaker actors' strategies to prevail.[9] American professional military educators regularly warn against ceding battleground to the enemy. In asymmetric conflicts, the decisive battleground is often not geographic space but the information environment and public perception. From a strategic perspective, it therefore is not logical for a stronger actor to cede the information domain to a weaker one.

A final potential counterargument is normative, positing that the U.S. military already is too involved in information operations and should not be conducting such activities to begin with. This argument is consistent with the issue public coalition's criticism of military information operations. As previously noted by budgetary figures, the U.S. military is *not* too involved in information operations already. The argument that the military should not conduct information operations usually takes two forms: first, this activity should belong to other departments like the State Department or Central Intelligence Agency (CIA), and second, it is against democratic principles for the executive branch (and especially the military) to conduct information operations. In response to the first point, DOD is explicitly charged with conducting these operations in support of military objectives worldwide.[10] Properly conducted, information operations require close coordination between several agencies, but especially DOD, State, and the CIA. Each of these agencies should have a distinct role in information operations (or "public diplomacy" or "strategic communications" depending on the agency, target, and methods involved), but they should all mutually support one another. Second, the United States has a long history of the executive branch and the military conducting information operations, dating back to the Revolutionary War. The notion that this

USS *Harry S. Truman*'s support of Operation *Inherent Resolve* demonstrates capability and flexibility of Navy and its resolve to eliminate so-called Islamic State, Mediterranean Sea, May 21, 2018 (U.S. Navy/Thomas Gooley)

method of targeting foreign audiences is contrary to democratic principles or freedom of speech is mainly the result of framing from the issue public coalition.

The remainder of this article uses qualitative evidence since World War II to demonstrate how this framing progressed and became a regular fixture in foreign policy discourse.

Post—World War II and the Cold War

World War II and the early years of the Cold War reinforced the belief in information operations and the power of propaganda. To combat Soviet propaganda abroad, the United States created several agencies, institutions, and organizations in the early Cold War years. The United States Information Agency (USIA), the U.S. Agency for International Development, the political action component of the CIA, Radio Free Europe, Radio Liberty, the Peace Corps, and the National Endowment for Democracy were all established during this period. Psychological warfare units, which are still employed today, were originally established during World War II. President Harry S. Truman officially founded the Army Special Forces (an outgrowth of the Army's psychological warfare branch) in 1952.

Because of concerns over the use of information operations domestically, Congress passed the *U.S. Information and Educational Exchange Act of 1948*, also known as the Smith-Mundt Act. This act specifically charges the Department of State (executed through USIA) with the conduct of information operations abroad and strictly prohibits targeting domestic audiences with public diplomacy/information operations.[11] Even though Smith-Mundt placed public diplomacy within the purview of State, Presidents Truman through Ronald Reagan knew the importance of developing the capability for information operations within the CIA and DOD. In 1953, President Dwight D. Eisenhower commissioned the Committee on International Information Activities (also known as the Jackson Committee) stating, "It has long been my conviction that a unified and dynamic effort in this field [information operations] is essential to the security of the United States and of the peoples in the community of free nations."[12] The committee concluded that psychological warfare was inseparable from other aspects of foreign policy and that such activities needed to be better coordinated and centralized. The military would continue developing these functions, but the committee recommended they privatize most their operations.

From the beginning of the Cold War until the early 1960s, the conduct of information operations and public diplomacy abroad was a major priority of

the U.S. Government. The proliferation of agencies and organizations to conduct such activities, including growth of these organizations within the military, was understood and authorized by Congress to combat the Soviet threat.

Elite views and public discourse concerning information operations and the organizations that conducted these activities began to shift in the early 1960s. Many people in Congress and the media started to publicly object to military information programs around this time, but the formation of the issue public coalition can largely be attributed to Senator J. William Fulbright (D-AR). From 1960 through the end of his term as a Senator, Fulbright was the most vocal critic of Pentagon efforts to shape public opinion. He "investigated, exposed, and denounced as undemocratic many of the tactics and techniques that the Pentagon still uses today."[13] Fulbright believed that any attempt by the executive branch to "manufacture opinion" domestically or to foreign audiences was undemocratic, akin to "brainwashing."[14] Fulbright's personal feud with the military can be traced to 1959, his first year as Chair of the Senate Foreign Relations Committee. He believed that the military interfered with Senate investigations into U.S. military participation in the black market in Turkey and that they subsequently censored news about the scandal in *Stars and Stripes*.[15] Fulbright made it his personal mission to investigate and expose DOD information operations, which he increasingly thought were "trampling on democratic traditions and practices" by using "deceptive and coercive propaganda."[16] This battle culminated in his 1970 book *The Pentagon Propaganda Machine*.[17] Fulbright's immediate efforts to end all military information operations were unsuccessful, but his efforts spurred the rise in scholarly and media criticism of the government's participation in the marketplace of ideas.[18]

Toward the end of the Cold War, President Reagan reemphasized the use of information as a tool of foreign policy to defeat Soviet propaganda and ideology across the globe. Largely due to his background in film and radio, Reagan knew the important and unique influence of information activities. He passed three separate National Security Decision Directives (NSDD)—in 1982, 1983, and 1984—to reorganize elements of the executive branch responsible for information operations, including the National Security Council, USIA, and the Department of State's Office of Public Diplomacy.[19] By giving these agencies additional authorities and resources, as well as increasing funding for the military's psychological operations branch, Reagan placed public diplomacy and information operations at the center of his foreign policy agenda. Even though most scholars acknowledge the direct contribution of these efforts in bringing about the collapse of the Soviet Union, criticism from academics and the media over the actual or perceived covert nature of some informational programs (especially focused on Latin America) forced President Reagan to dismantle the NSDD-77 structure in 1987.[20] Throughout the end of the Cold War, the influence of the issue public coalition opposing executive use of information operations continued to grow. After the collapse of the Soviet Union, the issue public coalition worked with conservative lawmakers seeking to save money and limit the size of the Federal Government to dismantle the USIA. As Gil Merom and Elizabeth Kier argue, a small sector of civil society influenced government structure and policy by closing down an agency that they believed no longer had a foreign policy purpose.

The Saga of the Office of Strategic Influence

The growing influence of the issue public coalition over foreign policy became evident only a few short months after the 9/11 attacks. Quick to recognize that the coming conflict with global Islamic terrorism would largely be ideological in nature, President George W. Bush's administration created the Office of Strategic Influence (OSI) within DOD in October 2001. The official charter and responsibilities for OSI had not been fully developed when the office was created, but it would primarily be responsible for coordinating and executing military information operations.[21] Indications from the head of OSI, Douglas Feith; general officers; and Secretary of Defense Donald Rumsfeld were that OSI would mainly be used to plan and coordinate information operations by drawing on existing units and capabilities, like psychological operations and information operations units. Nonetheless, the *New York Times* published a story on February 19, 2002, indicating that OSI planned to conduct "black" (that is, covert) programs that would intentionally release disinformation to foreign media outlets.[22] A media firestorm ensued with daily stories about OSI's apparent intent to disinform foreign media appearing in all the major American media outlets such as the *Washington Post*, Fox News, and National Public Radio. After a week of sustained media coverage, Secretary Rumsfeld announced the decision to close OSI on February 26, 2002.

The case of OSI provides a clear example of how the issue public coalition engaged in what Gil Merom calls a "process of societal 'coercion.'"[23] As it turned out, the leak to the *New York Times* about potential black programs came from DOD's own Bureau of Public Affairs. Such a leak is consistent with the characterization of leaks in bureaucratic politics being used to undermine a rival group. Despite repeated assurances from Feith, military commanders, and Secretary Rumsfeld that OSI would not conduct any disinformation campaigns and would never disinform any audience, foreign or domestic, media coverage continued to allege that OSI would intentionally submit false information to foreign and domestic audiences.[24] Even after OSI was shut down, academic articles, media reports, and even congressional testimony continued to charge that OSI was an "attack on truth"[25] and a "profoundly undemocratic program devoted to spreading disinformation."[26]

The irony is that the original leak from DOD Public Affairs began a process of misinformation itself, as there was no substantiating evidence that OSI planned on conducting disinformation. Public

Pilots with 96th Expeditionary Bomber Squadron fly B-52 Stratofortress to execute air operations in support of Operation *Inherent Resolve*, February 13, 2017 (U.S. Air Force/Jordan Castelan)

statements from the highest levels of leadership as well as the training and approval process (which strictly forbid using false information) within military information operations suggest that the military would not be conducting disinformation operations. The issue public coalition of public affairs professionals, the press, scholars, and certain policymakers capitalized on a single report (later shown to be false) to force a policy change. There is no indication that the broader, mass public took issue with OSI; the only criticism on record came from members of the issue public coalition. Put another way, the case of OSI showed how "societal preferences *undercut and defeat* state preferences, not ameliorate them" . . . and that "a *minority* among the public can defeat state policy."[27]

The Situation Today

Since the end of the Cold War, high-ranking officials in successive administrations have lamented American inability to compete in the international market of ideas. In 2006, Secretary Rumsfeld stated, "If I were grading, I would say we probably deserve a D or D plus as a country as to how well we're doing in the battle of ideas . . . we have not found the formula as a country."[28] His successor, Robert Gates, admitted that it was a mistake to close USIA at the end of the Cold War. Gates stated, "We are miserable at communicating to the rest of the world what we are as a society and a culture, about freedom and democracy, about our policies and our goals."[29] Without the proper tools and resources, the U.S. Government will not be able to improve this deficiency. Remarkably, scrutiny from the issue public coalition has prevented the military from developing or employing these capabilities. Such a pattern is unique to military information operations and does not work in the same way for other military capabilities. For example, when the United States began to diminish its presence in Iraq and Afghanistan, it gave or sold several mine-resistant ambush protected (MRAP) vehicles to police forces in the United States, contributing to what has been called the "militarization" of the police. Many interest groups (including not only issue publics but also much of the mass public as well) began protesting this practice, asking that police forces no longer be equipped with these military vehicles. In this case, the public drew the line at the *domestic* use of a military capability; they did not protest the development of MRAPs and their use in other countries. When it comes to military information operations, however, the issue public coalition resists the existence or development of this very capability, even if it will exclusively be used on foreign audiences. The cost for military commanders, who already prefer kinetic operations, is too high to change this situation, resulting in kinetic strategies in asymmetric conflict.

In a December 2016 DOD report to Congress on the progress of Operation

Soldiers with 399th Tactical Psychological Operations Company ask permission of local school headmaster to post information outside school in Cristo Rey, Belize, April 24, 2017 (U.S. Army/Joshua E. Powell)

Inherent Resolve in Iraq and Syria, there is no mention of "information operations" or "psychological operations" in any of the 138 pages.[30] The report acknowledges the "psychological effects of ISIL's propaganda on Iraqi and Syrian populations," but proposes no American efforts to counter these or conduct our own information operations. Instead, the report examines the coalition's air campaign against the so-called Islamic State; humanitarian assistance; governance; and coalition efforts to train, advise, assist, and equip partners in Iraq and Syria. There is little indication that the United States will change its strategy in Iraq and Syria or prepare for future asymmetric conflicts by featuring information operations more prominently.

Policy Recommendations

There are tangible steps the U.S. Government and DOD can take to use information operations more effectively without eroding credibility or threatening American democratic values. The government needs to establish an independent organization to coordinate, monitor, and improve information operations across the government. The organization does not need to be an independent department or agency, but it would need some autonomy and authority to coordinate information operations among DOD, State, and the CIA and oversee their execution. Personnel working in information operations in all three agencies should have cross-training with the other agencies to maintain awareness of their procedures and practices. These suggestions would require an increase in budget and resources dedicated to information operations (to include public diplomacy) at the national level. Finally, Congress needs to continue its 2013 reforms to the Smith-Mundt Act to allow greater latitude for agencies (especially the military) to conduct information operations online.

Separate from an interagency organization to coordinate information operations across the government, DOD should enact an Information Operations Task Force to focus strictly on information operations and counterpropaganda rather than the advise and assist or man, train, and equip missions that information operations and psychological operations units are often tasked with. Such a task force would be one of the most direct ways to get more trained personnel working on information operations even when they are not deployed, thereby operationalizing a greater number of qualified Servicemembers. Forward deployed teams would continue their current inform and influence missions, but they would have more support and resources

for the operational portion of the mission from this task force.

If the military wishes to be more successful in asymmetric wars, which the United States will likely remain involved in for the foreseeable future, it needs to begin a dedicated effort to shift organizational culture to more fully embrace the role of information. One of the most direct ways to make commanders at all levels appreciate the importance of information operations is to push approval authorities for such programs below their current (general officer) levels, as was done during the surge in Iraq. Only by giving company and battalion commanders the authority to conduct information operations will they begin to understand their impact and seek to utilize them more often. Commanders of all combat units should be required to receive training in the process and purposes of information operations to move away from the mentality of treating messages like munitions.

The military should also increase funding for information operations, especially focusing on training. More civilian experts need to be incorporated into psychological operations and information operations courses with an emphasis on operational design and measures of effectiveness; there is simply not enough technical knowledge within the military to teach these topics successfully. Military information operations experts should be given greater latitude to conduct their operations, lowering approval authority at or below those required for kinetic operations. The increase in latitude to conduct information operations should be accompanied by an increase in accountability, especially for demonstrating program effectiveness. All military information operations programs must be able to demonstrate that they are based on truth (not disinformation) and never intentionally target American citizens as the primary audience. Only through greater program and message accountability can the military demonstrate to the issue public coalition that its programs both serve American interests and are in accordance with American values. **JFQ**

Notes

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[4] Michael Mullen, "Strategic Communication: Getting Back to Basics," *Joint Force Quarterly* 55 (4th Quarter 2009), 2–4.

[5] Peter Cary, *The Pentagon, Information Operations, and International Media Development* (Washington, DC: Center for International Media Assistance, 2010).

[6] Arturo Munoz, *U.S. Military Information Operations in Afghanistan: Effectiveness of Psychological Operations 2001–2010* (Santa Monica, CA: RAND, 2012).

[7] Cary.

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[11] *United States Information and Educational Exchange Act of 1948*, *U.S. Code* 22, Chap. 18, Pub. L. No. 80-402, § 6, available at <www.state.gov/documents/organization/177574.pdf>.

[12] Dwight D. Eisenhower, "Statement by the President on Establishing the President's Committee on International Information Activities," *Public Papers of the Presidents of the United States*, January 26, 1953, available at <https://quod.lib.umich.edu/p/ppotpus/4728380.1953.001/56?rgn=full+text;view=image;q1=dynamic+effort>.

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[15] Ibid., 28.

[16] Ibid., 25.

[17] J. William Fulbright, *The Pentagon Propaganda Machine* (New York: Liveright, 1970).

[18] Cone, 24.

[19] National Security Decision Directive (NSDD) 45, *United States International Broadcasting*, July 15, 1982, available at <https://fas.org/irp/offdocs/nsdd/nsdd-45.pdf>; NSDD-77, *Management of Public Diplomacy Relative to National Security*, January 14, 1983, available at <https://fas.org/irp/offdocs/nsdd/nsdd-077.htm>; and NSDD-130, *U.S. International Information Policy*, March 6, 1984, available at <https://fas.org/irp/offdocs/nsdd/nsdd-130.htm>.

[20] Ibid., NSDD-77.

[21] Under Secretary of Defense for Policy Douglas J. Feith, Breakfast with Defense Writers Group, transcript, Federation of American Scientists, February 20, 2002, available at <https://fas.org/sgp/news/2002/02/dod022002c.html>.

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[23] Gil Merom, *How Democracies Lose Small Wars: State, Society, and the Failures of France in Algeria, Israel in Lebanon, and the United States in Vietnam* (Cambridge, UK: Cambridge University Press, 2003), 16.

[24] Department of Defense (DOD) News Briefing, Secretary of Defense Donald H. Rumsfeld, February 21, 2002, available at <https://fas.org/sgp/news/2002/02/dod022102.html>; DOD News Briefing, Donald H. Rumsfeld, February 26, 2002, available at <https://fas.org/sgp/news/2002/02/dod022602.html>; see also Feith.

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[26] Cone, 24.

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[28] Quoted in Kathy Fitzpatrick, *The Future of U.S. Public Diplomacy an Uncertain Fate* (Boston: Brill, 2010).

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PHL-03 Multiple Launch Rocket Systems attached to army brigade with People's Liberation Army Eastern Theater Command fire salvo of 300mm surface-to-surface rockets at simulated ground targets during live-fire training exercise in Gobi Desert of Northwest China, August 8, 2017 (Courtesy China Military Online/Jiang Xiaoliang)

Reverse Engineering Goldwater-Nichols

China's Joint Force Reforms

By Shane A. Smith, Thomas Henderschedt, and Timothy D. Luedecking

It is no secret to observers of China's People's Liberation Army (PLA) that it closely observes the Department of Defense (DOD). While many focus on the PLA's incorporation of U.S.-like tactics, techniques, and procedures to blunt or defeat American efforts in the western Pacific, the PLA's incorporation of organizational changes likely influenced by studies of U.S. efforts under the Goldwater-Nichols Department of Defense Reorganization Act of 1986 are as important. In late 2015, the PLA instituted wide-ranging reforms, arguably the most far-reaching in its modern history. This agenda carried an ambitious completion date of 2020. Even though scholars have examined the reorganization, some even referring to it as "China's Goldwater-Nichols," none have yet examined the modifications as indicators of China's analysis of 30 years of U.S. joint force reform.[1]

Using the objectives of Goldwater-Nichols as a lens, this article examines the progress of PLA developments toward a more modern, joint military capable of significant operations within the People's Republic of China (PRC), as well as more in the direction of an expeditionary force. It demonstrates, too, that the PRC has already taken significant steps, particularly in the creation of new joint warfighting commands, reorganization of its department system, and creation of new military services. It also reveals, however,

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limitations such as a continued internal focus, entrenched bureaucratic interests, and the necessity for President Xi Jinping to use his positional power to enforce top-down reform without the benefit of lessons learned in combat operations or a senior military champion. Understanding this PLA effort is crucial for U.S. military and civilian leaders going forward both to provide a fresh look at our own joint developments and to see how they alter the threat picture for our planning development.

Goldwater-Nichols

In 1984, Samuel Huntington called "Servicism," or Service parochialism, "the central malady of the American military establishment."[2] To combat this, Goldwater-Nichols was born. Far from the first attempt at reform, the act sought to update a system with its origins in the makeshift actions of World War II.[3] The National Security Act of 1947 intended to repair many of the pre–World War II defects and incorporate lessons learned during that conflict but left most Service-centered inefficiencies in place.[4] Not unlike the situation during the war, the new order functioned as a system where the Joint Chiefs of Staff were essentially a committee of equals with the Chairman cast in the role of a consensus seeker. Unanimity was the watchword, not decisive decisionmaking focused on enhancing joint mission execution. Thus, Service interests dominated, resulting in diluted planning and advice to the National Command Authorities.[5]

Building on his experiences in World War II and seeking to overcome the compromises contained in the 1947 law, President Dwight D. Eisenhower secured passage of the Department of Defense Reorganization Act of 1958. His stated goals to Congress included a desire to unify strategic and tactical planning, create an efficient weapons acquisition process under the oversight of the Secretary of Defense, and organize forces into unified commands that fought as one unit, irrespective of Service. In this vein, the act removed the military Services from the operational chain of command, placing that authority in the hands of combatant commanders. The Services were to focus on organize, train, and equip functions. The Secretary received greater administrative control over DOD, while the Joint Chiefs were designated as that position's military staff. The staff of the Joint Chiefs was also enlarged, and the Chairman could now formally vote on matters.[6]

Even President Eisenhower later recognized that the 1958 act was only an interim step. Members of Congress had fought him vigorously over his attempt to unify the appropriations process. Additionally, Service interests continued to dominate joint considerations, which saw minimal real change.[7] As James Locher highlighted, the provisions of the 1958 legislation "were not effectively implemented. The military departments retained a de facto role in the operational chain of command and never complied with the provision strengthening the unified commanders."[8] This set the stage for future reform efforts.

General David Jones, USAF, was the first seated Chairman to speak out for reform. Testifying before the House Armed Services Committee on February 3, 1982, he stated, "The system is broken. I have tried to reform it from inside, but I cannot. Congress is going to have to mandate necessary reforms."[9] Almost 5 years of debate followed. Many issues led to this point in time. Subpar military advice, an inability to effectively operate together, and chain of command issues were cited as the core issues for negative events as far-reaching as the outcome of the Vietnam War, the Beirut barracks bombing, Operation *Eagle Claw* in Iran, problems during the invasion of Grenada, and the seizures of two U.S. ships by North Korea and Cambodia in 1968 and 1975, respectively.[10]

Officers viewed a joint assignment as career threatening. Service leaders tended to retain those viewed as their top talent for Service staffs. Promotion rates of Joint Staff officers trailed their counterparts on the Service side. Commentators also observed that the Joint Chiefs simply proved inadequate in the realm of strategic planning. Status quo–seeking behaviors became dominant in order to protect each Service's interests, and innovation suffered as a result. Budget plans were uncoupled from joint capability warfighting needs and the realistic level of pairing to resources available. Huntington observed that campaign planning efforts often appeared like the Services were preparing to fight different conflicts. Overall readiness suffered. Furthermore, the system undermined the combatant commanders' ability to lead with Service component commanders maintaining an inordinate amount of control through their Service chiefs, who maneuvered to ensure a "piece of the pie" for their organization. All in all, Service interests trumped strategic considerations.[11] As General Jones put it in a 1982 article, "We need more time on our warfighting capabilities and less on an intramural scramble for resources."[12]

Commencing in 1982 and 1985, respectively, the House and Senate Armed Services Committees advocated a pro-reform stance. After extensive resistance by the Services and Reagan administration, legislation named after its champions, Senator Barry Goldwater (R-AZ) and Representative William Nichols (D-AL), passed into law on October 1, 1986.[13] Public Law 99-433 explicitly identified eight objectives for building the joint force:

In enacting this Act, it is the intent of Congress, consistent with the congressional declaration of policy in section 2 of the National Security Act of 1947 (50 U.S.C. 401)—

(1) to reorganize the Department of Defense and strengthen civilian authority in the Department;

(2) to improve the military advice provided to the President, the National Security Council, and the Secretary of Defense;

(3) to place clear responsibility on the commanders of the unified and specified combatant commands for the accomplishment of missions assigned to those commands;

(4) to ensure that the authority of the commanders of the unified and specified

combatant commands is fully commensurate with the responsibility of those commanders for the accomplishment of missions assigned to their commands;

(5) to increase attention to the formulation of strategy and to contingency planning;

(6) to provide for more efficient use of defense resources;

(7) to improve joint officer management policies; and

(8) otherwise to enhance the effectiveness of military operations and improve the management and administration of the Department of Defense.[14]

Importantly, Goldwater-Nichols strengthened both the Secretary and Chairman. No actor in DOD possessed authority outside the control of the Secretary. The act further recognized the Chairman as the senior military officer and military advisor to the President, Secretary of Defense, and National Security Council. Consensus with other Joint Chiefs was no longer a necessity. Goldwater-Nichols subordinated the Joint Staff to only the Chairman. The authorities of the combatant commanders over forces assigned them was emphasized, and the direct chain of command relationship between these commanders and the Secretary and President was codified, excluding Service chiefs from operational roles. Perceived deficiencies in planning were addressed. The act required the President to submit a National Security Strategy upon which DOD would base budgeting decisions and campaign plan preparations. The Chairman was made the independent voice on the budget previously missing from military counsel. Finally, officer management was greatly altered with a new joint officer management system—a very controversial part of the legislation.[15]

In relation to this issue, Huntington cogently observed that "capable people are important, but it is also a mistake to downgrade the significance of formal organizational structure. Organizational structure both reflects and shapes an entity's priorities."[16] Goldwater-Nichols provided that organizational structure upon which DOD was to build its future. The PRC was watching and would eventually follow suit.

Through revisiting categories prescribed in Goldwater-Nichols legislation, we can evaluate China's progress. We first examine the PRC's approach to strengthening civilian authority. Second, we look at the organizational changes being implemented to enhance the military advice provided to senior party decisionmakers. Third, we scrutinize how the authority and responsibility of joint commanders to accomplish their tasked missions is being reinforced, with a particular focus on the new theater command structure. Fourth, we describe further organizational changes intended to improve the formulation of strategy and contingency planning. Fifth, new personnel management policies, seeking a more efficient use of defense resources and improvements in joint officer management, are explored. Sixth, a description of the PRC's steps toward enhancing the effectiveness of PLA military operations is reviewed. Finally, as we survey how the PRC is approaching its joint force future, this article investigates China's creation of new military services and its collaboration with industry.

PRC Reforms

We do not argue that the PLA is just learning lessons in jointness and military operations from the United States. Nonetheless, we do maintain that U.S. joint force reforms and experiences in its conflicts were both a catalyst and a focus for the PLA. As multiple authors highlight, the Gulf War in 1991 was an eye-opening episode for Chinese civilian and military leaders. Additionally, Russian experiences in both of the post-Soviet Chechen wars, as well as reforms after the Russia-Georgia conflict, provided insights for PLA efforts. The PLA studied the Falklands War between Argentina and the United Kingdom, given the situation's similarity to the Taiwan issue. Joel Wuthnow and Phillip Saunders highlight that besides the United States, United Kingdom, and Russia, the PLA focused on reform experiences in Japan, India, France, and Germany. The PLA analyzes its own history and filters its examinations of others through this lens; however, since the PRC has not fought an actual war since the Sino-Vietnamese conflict of 1979, it must look outside its own experience for how warfare in the information age has evolved.

Many of the ills previously described in the pre–Goldwater-Nichols system are applicable to the PLA. As such, China's joint reforms "hope both to tighten central political control over a force that was seen as increasingly corrupt and to build the PLA into a credible joint warfighting entity."[17] Almost three decades after Goldwater-Nichols passage, the PLA's organizational reforms commenced in late 2015 and early 2016. Perhaps heeding an observation by General Jones, "after nearly 2 years of studies, committee reports, and presidential interventions, the National Security Act of 1947 emerged as a compromise between those who favored full Service integration and those who feared centralization of military authority."[18] It remains to be seen, however, if the PLA reform process proves to be an aggressive Goldwater-Nichols legislation effort, or a weakened compromise like the National Security Act of 1947.

While much of the reform has been public, the PLA's opaqueness makes in-depth analysis somewhat challenging. However, enough is already understood to facilitate some assessment. Either independently or at President Xi's direction, it appears that the PLA arrived at many of the same conclusions as the Goldwater-Nichols framers. Although similar, each has characteristics specifically applicable to the PRC political system, current strategic context, and complicated cultural military history. The article now turns to the previously identified objectives of Goldwater-Nichols to evaluate their actions.

Strengthen Civilian Authority. As Wuthnow and Saunders state, "The main political driver of the reform was the desire to tighten political control and supervision of the PLA."[19] While Goldwater-Nichols attempted to strengthen civilian authority *in* DOD, recent PLA reforms appear to strengthen

Soldiers from People's Liberation Army listen to briefing in preparation for search and extraction exchange during 13th annual U.S.-China Disaster Management Exchange at Camp Rilea Armed Forces Training Center, Warrenton, Oregon, November 16, 2017 (U.S. Army/April Davis)

President Xi's authority *over* the PLA. In this vein and unlike the U.S. desire for an unpolitical military, the goal is a PLA that is a direct defender of the Chinese Communist Party that embodies enduring "revolutionary ideals." As head of the party, state, and Central Military Commission (CMC), Xi's civilian control of the PLA and its reforms is further solidified. Organizational changes like transforming the previous General Staff Department (GSD) into 15 offices working directly for the CMC, in addition to implementing Xi's "chairman responsibility system"—which raises day-to-day national defense decisionmaking to his level—help ensure that all major military-related decisions rest in his hands, and he possesses a number of levers to ensure compliance. For instance, PLA reforms take place in parallel to Xi's overall anti-corruption campaign, a tool he has used to consolidate power over and within the PLA, relieving two CMC vice chairmen and over 200 other officers.[20]

One alarm bell Richard Weitz sounded regarding enhanced civilian control in the Chinese system is that few senior civilian leaders have served in the military and that there is a dearth of opportunities to develop civilian strategic thinkers either inside or outside the government. The reforms likewise do not alter the civilian-military balance in the PLA; it remains a military-led organization without the types of civilian political appointees or senior civil servants who are seen across DOD. All CMC members except Xi are military officers. This is a weakness, as it highlights the continued lack of a real interagency perspective, while potentially providing more latitude for military leaders to formulate plans outside civilian interference. In effect, an organizational personnel mix that previously enabled periodic unresponsiveness to civilian direction was left in place. This leads some to conclude that achieving the goal of strengthening civilian authority and political control over the PLA will depend on Xi's personally assertive leadership style and his continued ability to dedicate significant time to military issues, along with the appointment of trusted officers to implement his initiatives.[21]

Improve Military Advice. The expansion of organizations directly subordinate to the CMC deepens the pool of advisors who can directly provide

PLA soldier participates in attack exercise observed by General Joseph F. Dunford, Jr., and General Song Puxuan, commander, Northern Theater Command, at base in Shenyang, China, August 16, 2017 (DOD/Dominique A. Pineiro)

counsel to party decisionmakers.[22] For example, interactions with foreign militaries, even during tensions such as the 2009 *Impeccable* incident, were managed by the Ministry of National Defense's Foreign Affairs Office (MND-FAO).[23] Reform efforts removed MND-FAO from the Ministry of National Defense, an organization largely devoid of real purpose, and moved it into the CMC as the Office of International Military Cooperation (OIMC). Even though OIMC still performs the same duties as MND-FAO, as a body directly subordinate to the CMC, it can provide advice more directly.

In another move, a GSD subdepartment for training was elevated to a separate entity, the Training and Administration Department, directly reporting to the CMC. Its portfolio includes working with theater commands and services to develop joint training standards and to monitor the implementation of those standards via its inspection function, measuring the effectiveness of exercises and training programs at the theater, service, and unit levels. The department also inherited a number of PLA academies previously supervised by GSD organizations, as well as oversight of the professional military education system, with a charge to improve joint education and to begin it earlier in careers. This move gives CMC leaders better visibility on the progress of joint training across the PLA and more opportunities to directly influence what is happening in the training realm.

Additionally, the Joint Staff Department, akin to a hybridization of U.S. J3 (Operations) and J5 (Strategic Plans and Policy) staff functions, was created on the basis of the former General Staff Department. In addition to focusing on joint training, operational planning, capability assessments, 24/7 situational awareness, and overall force readiness, its portfolio includes acting as a conduit between the CMC and theater commands. Moreover, the Joint Staff Department serves as the planning arm and command and control hub for global actions outside the established theaters, which will be described later. This organization and the 14 others formed were designed to improve training, political indoctrination, weapons system acquisition, mobilization of forces, and strategic planning. The staffs are to be manned in a joint fashion and are designed to provide joint military counsel to senior CMC leaders considered missing by many under the old system.[24]

Clarify Combatant Command Responsibilities. In a nod to U.S. unified

combatant command structure, the PLA departed from its previous seven military region construct (Beijing, Shenyang, Jinan, Nanjing, Guangzhou, Chengdu, and Lanzhou) to a five-theater command structure (Eastern, Southern, Western, Northern, and Central). Under this new paradigm, theater commanders are now joint force commanders. Breaking down a situation similar to that which existed previously in U.S. history where the Services maintained an operational role, these commands are now the main warfighting arm of the PRC. The theater commander will operationally control the forces of services assigned to his region. This directly stems from China's interpretation of its threat environment and the nature of modern war. They diligently observed U.S. joint warfighting and the evolution of information-dominant, precision-oriented combat since the Gulf War. The former system was peacetime oriented and put the PRC at a distinct disadvantage in case of unforeseen or rapidly developing events. The new structure seeks to remedy that shortfall by making the transition from peace to conflict faster and smoother. A cadre of joint officers will staff each theater headquarters. The individual services now carry out the man, train, and equip functions, providing the forces and systems the theater commanders will fight with. A major challenge in this area is the historic dominance of army interests in the PLA. All initial theater commanders were from that branch. However, the assignment of PLA Navy Vice Admiral Yuan Yubai as the Southern theater commander and PLA Air Force Lieutenant General Yi Xiaoguang as the Central theater commander may indicate a new joint approach to theater command leadership.[25]

Increase Attention to Strategy and Contingency Planning. A newly created office, the Strategic Planning Office, is directly subordinate to the CMC. It was formerly a component within the GSD known as the Strategic Planning Department, which had responsibilities for "long-term strategic analysis, resource allocation analysis, and organizational reform analysis."[26] A portion of these roles was spun off into other organizations, with the Strategic Planning Office retaining the responsibility to conduct long-range strategic analysis. This analysis is particularly focused on developing approaches to multidomain, information-dominant warfare, integrating China's ground, sea, air, space, and cyber forces in a truly joint fashion to address threats seen on the horizon. The combination of the Joint Staff Department, the theater-specific contingency planning conducted by the theater commands, and the Strategic Planning Office demonstrates a focus on current and future strategy formulation and operational planning in keeping with Goldwater-Nichols.[27]

Use Defense Resources More Efficiently. The PRC started the process of reform at a low-efficiency baseline with a number of opportunities to address. The most obvious was in manpower; much of the PLA structure has served as a "jobs program" historically. While previous downsizing simply trimmed overall numbers, this effort concentrates on a more efficient and effective use of resources. Against this backdrop, the PLA announced a reduction of 300,000 personnel. Most observers predict cuts will focus mainly on noncombat and low-skilled positions in the army, as well as those working with out-of-date weapon systems overall. Potentially demonstrating the rebalancing effect of these cuts, officially unverified reporting in March 2017 indicated that the PLA Navy may increase the force structure of the PLAN Marine Corps to support likely expeditionary deployments abroad, along with an increase in navy technical personnel. Additional winners in the move include rocket force, air force, cyber, and intelligence, surveillance, and reconnaissance (ISR) mission sets. Military accessions at PRC academies demonstrate this with a one-quarter cut in ground-focused students and commensurate increases in those other prioritized areas.[28]

Moreover, an examination of the multiple academies per service, duplicative bureaucracies constructed for the previous military region construct, reserve force structure, and overall militia numbers will be reviewed for cuts or reorganization. As part of overall budgetary reform, acquisition methods are under review to weed out the high degree of waste and to ensure that the PLA's rapid increase in systems translates to a true increase in overall joint combat capability. A further step toward efficiency, as well as to deal with corruption issues, includes a push to standardize what the U.S. system refers to as regulations and operating instructions.[29]

Improve Joint Officer Management. A significant impact in the joint officer management arena was the previously mentioned assignment of former North Sea Fleet commander, Vice Admiral Yuan Yubai, as the commander of the Southern theater command, a first for the PLA. While a data point of one, this was previously considered unthinkable and points in an overall positive direction for the creation of truly joint staffs at the CMC and theater command levels. As senior leaders like Yuan rise, they can be expected to bring co-service representatives with them.[30] Another indicator of joint intentions for the officer corps is the creation of "a new 'operational command track' in PLA National Defense University courses that train PLA officers for promotion to senior positions. Attendance in command track courses will likely become a requirement for future joint command assignments."[31] One measure of progress will be how many attendees originate from non-army services. Others include examining if joint courses become available for lower ranking officers, as well as how joint the staffs actually become and how assignments to the staffs translate into promotion opportunities. Challenges to this effort are not insignificant. Part of the need for reform is to curb rampant corruption in the ranks. As Saunders and Wuthnow point out, this even extends to the promotion system itself.[32]

Enhance Effectiveness of Military Operations. China's former military region structure did not effectively merge service forces into geographic or regional commands, with many operational controls maintained at service headquarters. Additionally, a regional commander would not have automatically served as the operational commander if conflict erupted. That was determined as the

USS *Bunker Hill* participates in maneuvering exercise with People's Liberation Army Navy frigates *Daqing* (FFG 576) and *Yancheng* (FFG 546) off coast of Southern California following routine port visit to San Diego, December 9, 2016 (U.S. Navy/Craig Z. Rodarte)

situation developed, causing a time lag in response. The previously described move to a theater command structure was an intended remedy for this and many operational concerns, streamlining command and control arrangements by cutting the services out and preordaining that the theater commander is the operational commander for whatever situation arises in the zone.[33]

As with joint officer management, challenges remain to effective implementation. While the United States promotes initiative by commanders, the PRC system continues to heavily centralize decisions, restricting freedom of action. In the vein of Vice Admiral Yuan's and Lieutenant General Yi's assignments, commanders will need to be selected from the service most appropriate for the mission to be executed in that theater, lessening army dominance. It also remains to be seen how the connection between theaters and services, as relating to weapons system acquisition, personnel training, and career field composition, will be formed at the CMC level in order to match requirements with actual budgetary decisions. Likewise, the PLA will need to move away from its single-service-oriented exercise regime to one that builds joint interoperability. Even beyond all these, the PLA simply does not have a historic joint operational culture to build on. This will have to be inculcated if reform is to lead to operational success.[34]

The Joint Force Future

Following 30 years of Goldwater-Nichols, the U.S. military continues to work at refining joint force capabilities and processes. Similarly, the PLA will continue to examine areas to improve due to institutional maturation, the changing threat environment, and developments to the methods of warfare. As General Martin Dempsey points out, "the diffusion of power in an era of hyper-connectivity is allowing destructive technologies to proliferate more quickly."[35] Dempsey argues that these technologies, particularly cyber capabilities, are expanding at a rapid rate, with a commensurate impact on the joint warfare environment. He further argues that the future U.S. joint force must operate across geographical boundaries, Service affiliations, and all domains. Dempsey calls for globally integrated operations that "assemble quickly and apply decisive force anywhere in the world with a wide array of partners."[36] The PLA appears to possess similar views and is taking steps accordingly.

Creating New Services

As part of the reform agenda, three major new military organizations were created. For the first time, a separate PLA Army ground service was stood up in January 2016. This break with the past serves to lessen army dominance of the entire PLA, while also providing a platform to more effectively concentrate on ground warfighting

tactics and service needs. Rather than function through the old GSD, the army now sits on par (at least in the organizational chart) with other service headquarters. Additionally, a separate PLA Rocket Force was constructed, replacing the Second Artillery Corps. Some, like Richard Weitz and Song Zhongping, conjecture that its ultimate portfolio will include not only conventional and nuclear missiles but also strategic People's Liberation Army Navy submarines and strategic People's Liberation Army Air Force bombers, should reports of the development of a new nuclear-capable platform bear fruit. No evidence currently exists that this will occur. Others, such as David Logan, maintain a more likely option is that a hybrid command and control structure will emerge reminiscent of U.S. Strategic Command with the other services maintaining tactical control of the platforms and the Rocket Force possessing operational control, furthering the PLA's stated objective of more joint approaches. Finally, while the elevation of U.S. Cyber Command to a separate unified command was finally announced in August 2017, the Chinese elevated cyber, electronic warfare, ISR, and space elements into the Strategic Support Force (SSF), which is directly subordinate to the CMC and provides forces to the theater commands, in late 2015. It is a sign of the committee's concerns over information dominance in multidomain warfighting.[37] The SSF design concept

is the idea of "integrated reconnaissance, attack, and defense," which requires that the intelligence, offensive, and defensive elements are integrated together to enable full-spectrum warfighting in a particular domain. This new organizational construct is also intended to enable previously impossible levels of unified planning, force construction, and operations.[38]

It appears the PRC is now potentially ahead in operationalizing command and control in the information domain.

When analyzed in conjunction with the geographic proximity of the most likely conflicts between the United States and China, the capabilities contained within the Rocket Force and SSF emphasize the systems designed to defeat the American concept of operations. Put in perspective, over 5,100 miles separate Honolulu, Hawaii, from Taiwan, while the Taiwan Strait is only 110 miles wide. In addition to the Taiwan scenario, as a RAND report highlights, the United States has three treaty allies (the Philippines, Japan, and the Republic of Korea) with territorial or maritime claims in conflict with the PRC. From that standpoint, the PRC can prepare for a fight in its "own backyard" with short logistics and supply chains. Its reorganization efforts play to PRC strengths in the antiaccess/area-denial realm. Its numerous, and increasingly more accurate, ballistic and cruise missile systems, along with counterspace, electronic warfare, information operations, and cyber warfare capabilities, already appear to put U.S. bases in the Republic of Korea, Japan, and Guam at risk and will present challenges to effective entry into the region in the event of a conflict.[39]

Improving Collaboration with Industry

An important development in building industry collaboration in the PRC was the establishment of the Central Commission for Integrated Military and Civilian Development. This organization is charged with civil-military integration in the technology spectrum. Its goal is to bring the military and industry together to collaboratively pursue the integration of dual-use technologies, while cutting costs and promoting the strength of China's defense industrial base.[40] Defense collaboration with industry like this is key going forward given the rapid advance of technology and its corresponding effects on the battlefield. While former U.S. Secretary of Defense Ash Carter's and House Armed Services Committee Chairman Mac Thornberry's similar efforts at industry collaboration and acquisition reform represent moves in the right direction, the United States lags the PRC in this area. Although it has significant challenges, the Chinese defense industry appears to have a faster acquisition cycle in recognizing requirements, acquiring information, and integrating technologies than does DOD. Even if one can readily argue that a significant advantage within the authoritarian Chinese system is the incorporation of cyber espionage and cyber theft—efforts likely to get even stronger under the PLA reform initiative—DOD must discover a method to replicate the results needed within its legal framework.

Conclusion

Nearly 30 years after the landmark Goldwater-Nichols legislation, the PRC has ushered in reforms pursuing a more efficient, capable joint force. Although a point of potential debate, it appears that Chinese decisionmakers learned some of the U.S. joint lessons without a similar level of trauma, cost, and frustration, which initially drove Goldwater-Nichols. These significant changes have been affected within a system that has a luxury of largely working toward a single benchmark, the United States.

The ultimate measure of PLA success in joint force reform will be its performance in combat. While Goldwater-Nichols was congressionally driven, previous operations and senior leader observations lent credibility and emphasized the need to reform. Even in the face of Service opposition, there existed pockets of "believers" and leaders who recognized civilian leadership in the American system and who enabled Goldwater-Nichols–based reforms. Unlike the United States in the 1980s, however, the PLA lacks combat experience on which to base its actions. It also lacks an obvious senior leader like General David Jones to champion it. Joint reforms in China appear to be top-down driven by President Xi without that military advocacy. In essence, the PLA is not learning its own lessons and modifying accordingly; rather, it is learning those of DOD. The one simplifying factor in their situation, nonetheless, is an authoritarian political system that can enforce change.[41]

Soldiers with People's Liberation Army prepare attack exercise for General Joseph F. Dunford, Jr., and General Song Puxuan, commander, Northern Theater Command, at base in Shenyang, China, August 16, 2017 (DOD/Dominique A. Pineiro)

PRC developments move the PLA away from its previous continentalist doctrine toward developing an expeditionary capability. The standup of a separate army service was a step in the right direction to break the army's historic domination of the country's military. The creation of theater commands to handle warfighting responsibilities was also a major positive change. Of note, while now joint, these commands remain insularly focused on China's geographic boundaries with global operations still being led at the CMC level. This is unlike the American combatant command structure. Moreover, PLA reforms do not include a unified command entity to address transregional issues like counterproliferation and counter–violent extremist organizations like U.S. Special Operations Command. These are issues worth watching as the PLA continues to evolve.

Also critical, particularly as PLA reforms develop, is a humility to examine PLA reform in the context of what changes, reforms, and adaptations may benefit the U.S. joint force, as well as a need to see how they alter the threat picture for planning, tactics, and acquisition purposes. Xi Jinping initiated the reforms by stating "our military has gone from small to big, from weak to strong, from victory to victory. On this road, reform and innovation steps have never stopped."[42] It is prudent, given the resolve demonstrated by Xi, that U.S. civilian and military leaders monitor these developments and evolve to further strengthen the force. This should be recognized as an important and critical undertaking. **JFQ**

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[2] Samuel P. Huntington, "Defense Organization and Military Strategy," *The Public Interest*, Spring 1982, 24.

[3] David C. Jones, "Why the Joint Chiefs of Staff Must Change," *Presidential Studies Quarterly* 12, no. 2 (Spring 1982), 140; James R. Locher III, "Has It Worked? The Goldwater-Nichols Reorganization Act," *Naval War College Review* 54, no. 4 (Autumn 2001), 96. As Locher notes, President Franklin D. Roosevelt unified command in Europe under General Dwight D. Eisenhower and created the Joint Chiefs of Staff, but he did not overcome Service rivalries in the Pacific theater. It was divided between commands led by General Douglas MacArthur and Admiral Chester Nimitz.

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[12] Jones, 144.

[13] Peter W. Chiarelli, *Goldwater-Nichols Revisited: A Proposal for Meaningful Defense Reorganization* (Washington, DC: National War College, April 26, 1993), 5; McInnis, 47–48; Locher, 102; James R. Locher III, "Taking Stock of Goldwater-Nichols," *Joint Force Quarterly* 13 (Autumn 1996), 34.

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[15] Ibid., § 151–155, 164, 661–665; Locher, "Has It Worked?" 106–108; Roman and Tarr, 100–101; McInnis, 7–8; Locher, "Taking Stock of Goldwater-Nichols," 35–39.

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[17] Saunders and Wuthnow, 1.

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[19] Joel Wuthnow and Phillip C. Saunders, *Chinese Military Reforms in the Age of Xi Jinping: Drivers, Challenges, and Implications*, China Strategic Perspectives 10 (Washington, DC: NDU Press, 2017), 32.

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[32] Ibid., 47; Saunders and Wuthnow, 5, 8.

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[34] Weitz, "PLA Military Reforms," 4, 6; Garafola, "People's Liberation Army Reforms and Their Ramifications," 5; Saunders and Chen, 47; Cliff, 56.

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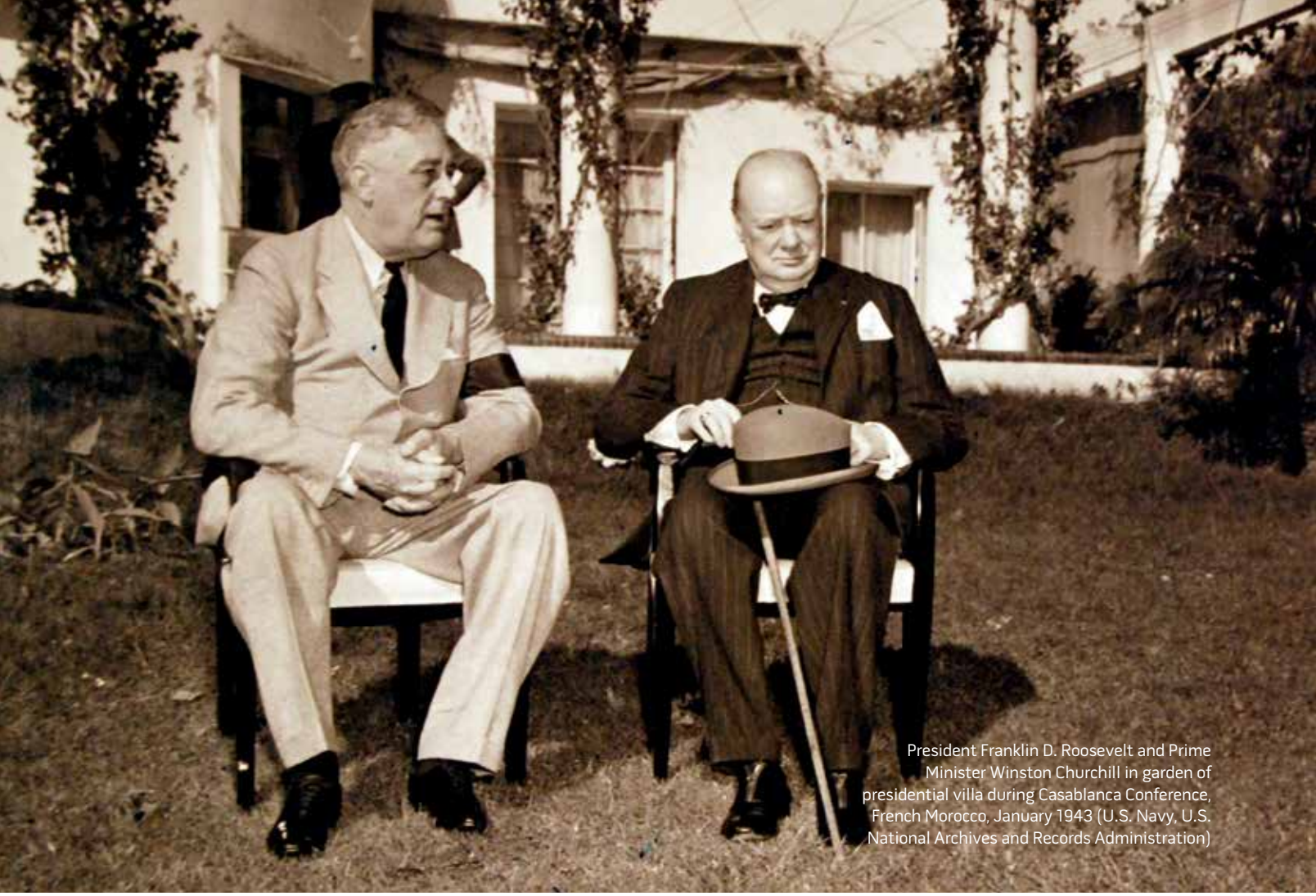

President Franklin D. Roosevelt and Prime Minister Winston Churchill in garden of presidential villa during Casablanca Conference, French Morocco, January 1943 (U.S. Navy, U.S. National Archives and Records Administration)

Don't Shoot the Messenger

Demosthenes, Churchill, and the Consensus Delusion

By Michael P. Ferguson

Every war is ironic because every war is worse than expected.

—Paul Fussell, *The Great War and Modern Memory*

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In 1937, as Adolf Hitler's infantry divisions skyrocketed in violation of the Versailles Treaty, a member of the House of Commons defended England's ongoing disarmament policy, claiming one does not need to be "heavily armed" to have an effective world system.[1] His colleagues echoed the notion, insisting "Hitler's dictatorship is gradually breaking down."[2] Such comments were not the result of ignorance, but rather a consensual

blindness. They were emblematic of years of political rhetoric that dismissed as warmongering the premonitions of Winston S. Churchill, despite overwhelming evidence to the contrary.[3] In the face of such resistance, Churchill at one time compared himself to Demosthenes of Athens (fourth-century BCE orator and statesman, 384–322 BCE) and Hitler to his Macedonian antagonist, King Philip II (382–336 BCE).[4] An overview of these two figures reveals how Demosthenes struggled with remarkably similar challenges that, much like Churchill, pushed him to the fringe of his nation's political paradigm.

Sadly, the stories of Demosthenes and Churchill (D&C) are the bookends to a long and ignoble history of marginalizing the bearer of bad news, or shooting the messenger, that endures into the 21st century. John Lewis Gaddis touched on this phenomenon regarding the history of surprise attacks on the United States in his 2003 Harvard Press piece, *Surprise, Security, and the American Experience*. In it, Gaddis offers a noteworthy maxim: "The means of confronting danger do not disqualify themselves from consideration solely on the basis of the uneasiness they produce."[5] Indeed, the clairvoyant yet disturbing insights of D&C understandably made many of their colleagues uneasy, and the expressions of this uneasiness were costly.

As the joint force continues to hone its strategies in an increasingly complex global security environment, contextualizing the legacies of D&C might assist decisionmakers in their effort to envision and offset threats evolving beyond the horizon of conventional wisdom. In pursuit of that end, it is necessary to first explore the oft misused term *warmonger* before delving into the common grievances of these two historic figures, and extracting lessons germane to more recent challenges, such as the threat posed by Iran.

Warmongers and Mischievous Demagogues

History has been kind to its prescient thinkers in defense. Their contemporaries, on the other hand, were not often so accommodating. D&C were spared no pejorative as they struggled for more than a decade to rouse their lethargic nations to arms, with none other than Aristotle branding Demosthenes a "mischievous demagogue" for the suspicious eye with which he viewed Philip II.[6] Churchill received similar treatment when, as early as 1924, he expressed concern over the political winds in postwar Germany.[7] While this article deals with these two figures specifically for their remarkable similarities and millennia of separation, they are not historical outliers. In fact, the practice of deriding those with farsightedness in defense matters is well established in the Western world, and can be observed, for instance, in the Seven Years' War, the American Revolution, throughout the Cold War, and even into the war on terror.[8]

These "blind spots" usually appear in the wake of protracted or debilitating wars, or during periods of economic instability when offensive military action—or the maintenance of a robust defense—are less palatable to populations beleaguered by war and economic depression. Athens and Great Britain met these conditions. What was it, though, that alarmed D&C to such an extent that their peers branded them warmongers? The accusation appears farcical considering the circumstances but was nevertheless a facet of conventional wisdom in both cases.

In the age of Demosthenes, Philip II developed a reputation for entering cities as a liberator, only to consume the government from the inside and eventually enslave its people.[9] For much of the mid-fourth century BCE, Philip conquered various city-states surrounding Athens, all the while assuring the Athenian popular assembly, or *ecclesia*, that his imperialistic designs excluded Athens itself. Demosthenes remained understandably skeptical, but his fellow statesmen invested heavily in Philip's empty promises. In the meantime, members of the ecclesia defunded the Athenian navy, employed unreliable mercenaries in ground wars, and disengaged from foreign investments to avoid military entanglements. Athens was a shining beacon of social progress in Greece, but Demosthenes' gripe was not with standards of living; it was with Athenian strategy and government finances.[10]

Churchill's doubts regarding Hitler's peaceful intentions were equally well founded. By 1938, only 5 years after Hitler assumed the chancellorship, the German army had swollen from 7 infantry divisions to a staggering 46, in contrast to England's 6.[11] Moreover, British and American agents in Germany had reported the widespread killing of Jews, communists, and social democrats, as well as the creation of concentration camps capable of housing up to 5,000 prisoners each.[12] Despite these reports, and Germany's flagrant violations of the Versailles Treaty, members of Parliament followed Prime Minister Neville Chamberlain's lead by ignoring Churchill's admonitions, doubling down on disarmament, and capitulating to Hitler's demands.[13]

An examination of the speeches and writings of D&C reveals a consistency in messaging that generally highlights three flaws: a systemic neglect of military readiness, a government consumed by domestic issues and hollow rhetoric, and distrust between allies resulting from a failure to meet mutual obligations. The crux of D&C's crusade was to develop lines of effort that addressed these three flaws that, in their eyes, would be catastrophic to national defense if not rectified.

An Archaic State of Disrepair

D&C understood well the horrors of war and the necessity of a strong defense. Both of them wore the uniform—Demosthenes as a young navy captain and Churchill as a cavalry officer who saw combat in the Boer Wars. But their experience was no match for a disarmament consensus. Neville Chamberlain's pre–World War II gutting of England's military capabilities is renowned. Having denied the air force requested aircraft and the navy much needed ships, he also left the army in an "archaic state" of disrepair.[14] Even after Hitler declared himself supreme ruler and cannibalized all German press agencies in 1935, England continued

its disarmament the following month, recommending an additional £340,000 reduction in air assets after the £700,000 reduction the previous year.[15] While Chamberlain's misadventures in government remain legendary, lesser known are the policies of his Athenian doppelganger, Eubulus, who gutted Athens' *stratiotic* (military) fund and endorsed isolationist policies at a time when Philip was expanding his influence rapidly in neighboring states.[16]

In the *History of the Peloponnesian War*, Thucydides describes how fifth- and fourth-century BCE Athens had come to place more emphasis on grand architecture and metropolitan development than military might.[17] He also notes that Athenians were the first of the Greek states to "lay down their arms and switch to a more relaxed and gracious way of life."[18] As a result, Athens grew overconfident in its naval prowess and reliant on mercenaries to achieve its military objectives. This illusion of security led to an obsession with domestic comforts and the willful neglect of military readiness.

Athens thus directed its annual surpluses into the *theoric* fund created by Eubulus, which subsidized theater performances and religious services for the underprivileged.[19] The religious and therefore sacred nature of this fund made it politically untouchable. Those who dared recommend moving surplus theoric funds into the stratiotic fund were prosecuted and found guilty of an illegal proposal.[20] Demosthenes often called attention to the inadequacies of Athenian defense and put forward reforms to correct these deficiencies, but they went unheeded.[21] As the combat effectiveness of Athens' military atrophied from stagnation, Philip waged constant battles, molding his tactical capabilities around his strategic vision.

In Churchill's England, the concept of disarmament eventually became so fashionable that Chamberlain would not even read disarmament proposals before vehemently supporting them.[22] While both Athens and England suffered from a systemic fantasy of security, it was domestic concerns and the accompanying political rhetoric that kept this fantasy alive.

Platitudes and Unrealities

Despite the charges leveled against them by their political opponents, D&C were advocates of de-escalation who supported diplomatic engagements whenever possible, so they could hardly be considered warmongers in the classical sense.[23] They simply pressed for a resurgence in military readiness and a reassurance of support for their allies, but even these measured proposals were too hawkish in the eyes of their colleagues. Churchill often vented his frustrations with this stubbornness, at one time proclaiming, "There is such a horror of war . . . that any declaration or public speech against armaments, although it consisted only of platitudes and unrealities, has always been applauded."[24]

One might excuse Churchill's abrasive character upon assuming the monumental task of righting these wrongs when, for more than a decade, his colleagues chided him as a madman for simply making perceptive observations. For instance, Anthony Eden, Secretary of State at the Foreign Office, remained adamant that France's disarmament was essential to the security of Europe, and labeled Churchill's fears a "fantastic absurdity."[25] Comments like this were slung frivolously because Chamberlain and his ilk remained largely beholden to social obligations such as unemployment, exports, and recovering from the 1931 economic collapse.[26]

Athens dealt with similar problems in the fourth century as it emerged from multiple wars (the Social War, 357–355 BCE, and the Third Sacred War, 356–346 BCE) and was no longer insulated fiscally by loans from the Persian Empire.[27] Both Philip and Hitler were notorious for capitalizing on these weaknesses by targeting states when they lacked the will to fight and were least likely to be ready militarily. As Demosthenes put it, "[Philip] attacks those who are sick from internal dissension, and no one is willing to go out to defend their territory on account of their mutual distrust."[28]

Recognizing this trend, Demosthenes believed Athens had engorged itself on privilege, well-wishes, and social programs that sedated the Athenian masses and in turn allowed Philip to accrue power.[29] In his Third Philippic speech in 341 BCE, Demosthenes described what is now recognized as the Gray Zone, which created the apparition of peace between Macedonia and Athens: "This is what Philip has bought with all his lavish expenditure: that he is at war with you, but you are not at war with him!"[30] Demosthenes understood that as Philip uttered words of peace between 344 and 342, he was in fact setting the conditions for war.[31] Both D&C came to the conclusion that only a grand alliance could rescue their nations from their current stupor.

Left to Face Their Fate Alone

Athens, Sparta, and Thebes, the leading Greek states at the time, were weakened by years of infighting and fragile alliances that forced Athenian generals to plunder allied territory to field their armies.[32] When barbarians attacked Athens and Sparta in the fifth century, Athenians abandoned their alliance with Sparta and fled to their ships, leaving Sparta to clean up the mess.[33] This pattern continued, as Demosthenes made clear during his First Philippic in 351 BCE: "[Athens'] great festivals were always on time, but military support to besieged allies was always too little too late!"[34] He concluded by underlining the mutual distrust between Greek states: "we all delay, and are weak, and cast suspicious glances at our neighbors, distrusting each other rather than the man who is wronging us all [Philip]."[35] Ironically, Athens had a history of sending ambassadors to criticize Sparta and its warlike culture.[36]

While Churchill was willing to align with the "insufferable" Bolsheviks if it meant defeating Hitler,[37] it was characteristic of Eubulus to cut ties with foreign commitments and reinforce entrenchment policies, particularly after the 355 war between allies.[38] When the city of Phocis surrendered to Philip in 346, Athens was unwilling to honor the oath of allegiance between the two states.[39] This abandonment came on the heels of Philip's capture and enslavement of Chalcidice in 349 and Olynthus in mid-348 BCE, which became a turning point

in Philip's war on Athens.[40] Demosthenes even sought but failed to achieve an alliance with Persia against Philip.[41]

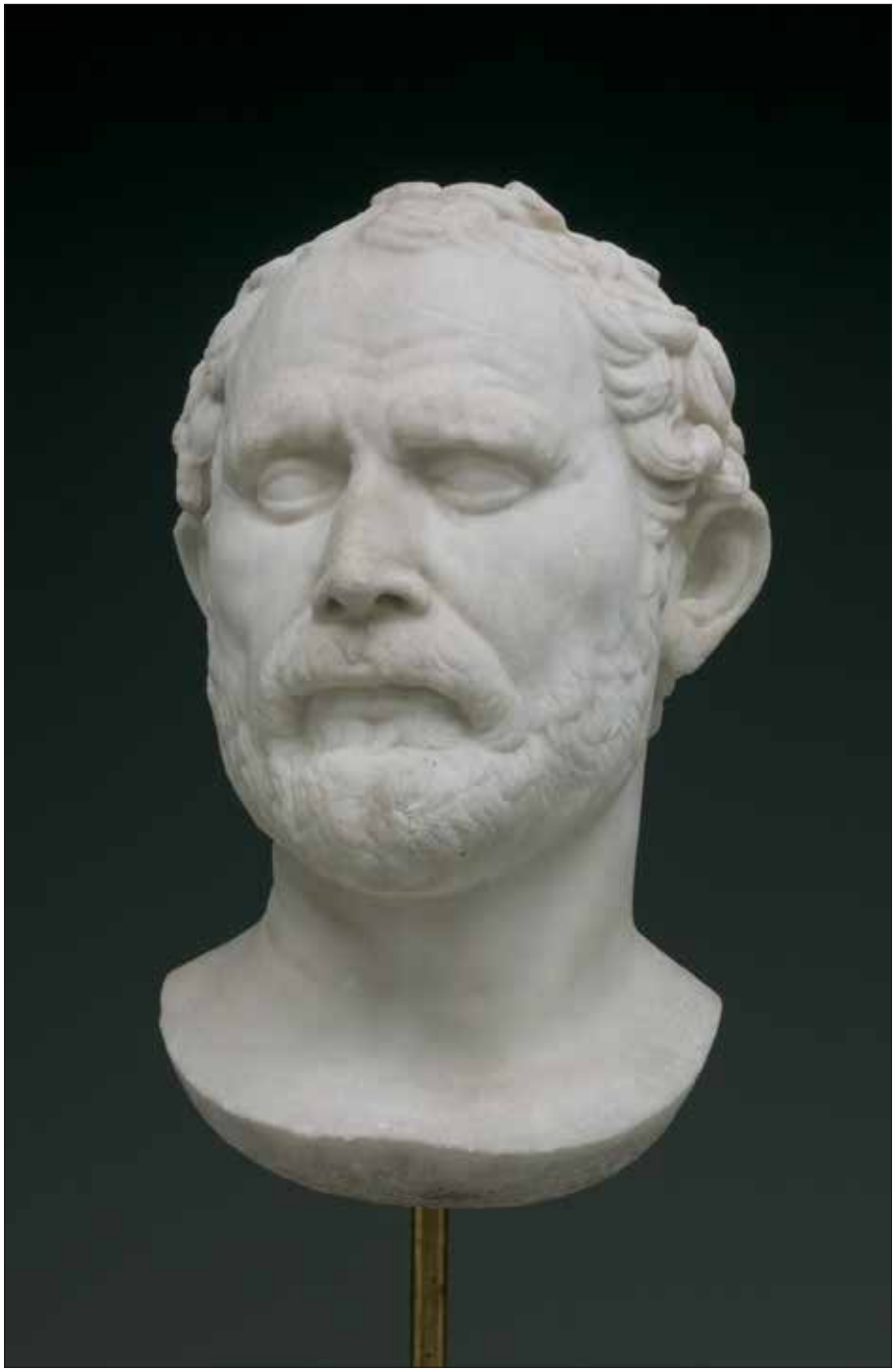
Similar to the oath of allegiance between Athens and Phocis, Churchill supported a diplomatic guarantee between England and Poland stipulating that, if attacked, England would support the Polish resistance. But when Hitler invaded Poland, Chamberlain was hesitant to honor the guarantee and sought conference with the German chancellor instead.[42] In a 1938 appeal to build a European alliance against Hitler, Churchill became less sanguine about the potential for peace:

If it were done in the year 1938—and believe me it may be the last chance there will be for doing it—then I say that you might even now arrest this approaching war. . . . Let those who wish to reject it ponder well and earnestly upon what will happen to us, if when all else has been thrown to the wolves, we are left to face our fate alone.[43]

The Outcome

D&C both made final pleas to their people: the Athenian in the form of his Third Philippic speech, and the Englishman with his 1939 publication of *Step by Step, 1936–1939*, a collection of articles and papers demonstrating the evolution of the Nazi menace. Like England's surging support for Churchill after Hitler invaded Austria in 1938, Athenian support for Demosthenes increased when Philip attacked Byzantium in 340, leading to a hasty alliance of Greek states.[44] Though promising, this measure proved insufficient to counter Philip's advances.[45] Athens lost its independence in 338 when Philip defeated a large force that included Athenians at the Battle of Chaeronea in Boeotia, and a warrant was issued for Demosthenes' arrest.[46] The sage of Athens fled, choosing to poison himself in isolation rather than face humiliation and death at the hands of a Macedonian council.[47]

In 1939 London, leading thinkers began to arise from their intellectual slumber and agree that "England owes [Churchill] many apologies."[48] Fortune smiled upon Churchill for numerous reasons, and although his tenacity was not enough to avoid war, it did save England from potential annexation. Historians still debate Hitler's ability to conquer all of Europe, much as they question the capacity for Athens to resist Philip even if it had adopted Demosthenes' policies in 351, but most agree Hitler came dangerously close to realizing his vision.[49] Even Joseph Kennedy, then U.S. Ambassador to London, believed as late as 1939 that England would come to the negotiating table if Hitler offered terms of surrender.[50] Others begged to differ, including one confidant who observed of Churchill in 1940: "His spirit is indomitable and



Marble portrait of Demosthenes, after Polyeuktos, Greek, active 280 BCE (Courtesy Yale University Art Gallery)

Front row, left to right, British Prime Minister (PM) Neville Chamberlain, French PM Édouard Daladier, German Chancellor Adolf Hitler, Italian PM Benito Mussolini, and Italian Foreign Minister Count Ciano as they prepare to sign Munich Agreement, September 29, 1938 (Courtesy German Federal Archive)

even if France and England should be lost, I feel he would carry on the crusade himself with a band of privateers."[51] Due in part to Churchill's unwavering resolve, skill at forming alliances, and unfiltered rhetoric, England succeeded where Athens failed.

What Now?

In an increasingly multinational operating environment, it is important to highlight that in the years leading up to World War II, the League of Nations encouraged the disarmament of Europe vociferously, thereby convincing France to succumb to Hitler's demands. Shortly after this appeasement, Hitler presented France with its terms of surrender.[52] More than ever, it is crucial to remember that international consensus is not always in the best interest of individual states, and at times these two interests may be in conflict with one another.

There is also the issue of foresight in defense. Demosthenes directed his grievances toward what he believed was an institutionally reactionary government that only responded to Philip's moves without forecasting them, thereby placing Athens "at his command."[53] The Western world still struggles with the same challenges of military readiness, the gap between rhetoric and reality, and the maintenance of alliances, such as the North Atlantic Treaty Organization.[54] Applying these observations in more recent context reveals several areas of interest.

Iran's consistent record of undermining Western coalitions, coupled with the simultaneous de-prioritization of military supremacy among major Western powers during the early 21st century, is of particular concern.[55] Across the breadth of nations deemed adversarial to the United States, Iran is unique in that it has gone further with its bellicosity than information operations and incendiary rhetoric. In addition to repeated public statements advocating the destruction of the United States, Iran played an objectively subversive role in arming insurgencies during Operation *Iraqi Freedom*, while also employing proxies against coalition forces in Iraq and elsewhere.[56] Iran also has its fingerprints on one of the deadliest weapons deployed against coalition forces in the last 17 years, the explosively formed projectile, which is responsible for the deaths of nearly 200 U.S. Servicemembers in Iraq.[57]

Despite such developments, many continue to downplay the significance of the threat posed by Iran, insisting that it can be pacified through the forging of amicable diplomatic treaties.[58] While the same optimistic notions drove reactions of senior officials to initial threat assessments of the so-called Islamic State,[59]

the potentialities of a nuclear Iran, the number of fighters it may bring to bear in future conflicts, and the ideology by which its clerical gentry are motivated make Iran a more existential threat to global security.[60] In his most recent work, Eliot Cohen suggests the now defunct 2015 nuclear deal struck between the United States and the Islamic Republic does little to prevent Iran from acquiring an arsenal that would eventually trigger a nuclear arms race in the Middle East.[61]

Like the United States and Iran, the dynamics of the Athenian-Macedonian relationship were complex, and for many years they engaged in a precarious game of impotent peace deals and political chess that ultimately empowered Philip and charmed much of the Athenian citizenry into apathy. The dangers of an increasingly influential Iran are amplified by recent developments concerning the authorization of Iranian militias operating in Iraq, and the potential for Iranian naval bases to appear in Yemen and Syria.[62] According to Iranian major general Mohammad Bagheri, such bases are far more valuable than even nuclear technology.[63]

Western military and intelligence leaders have echoed concerns associated with a budding Iranian regional power, but such caveats have gone largely unheeded and failed to trigger any tangible strategic adjustments.[64] Even after Iran seized U.S. Navy boats and used the crewmembers to create propaganda videos, the United States pursued amicable relations with Iran, much as Athens did with Philip after he captured Olynthus in 348 and used Athenian prisoners as bargaining chips.[65] This relationship between Iran and the West, and its analogues to the situations of Demosthenes and Churchill, is ripe for additional study focused on the tradition of pragmatic defense in complex environments.

These problems are not limited, however, to the potential of an Iranian-led power bloc in the Middle East. In the span of 3 years, the thought of Russia as a major geopolitical threat went from a laughing matter in 2012 to the gravest existential threat to the United States since the height of the Cold War.[66] Considering Russia's foreign policy interests and its means of pursuing them did not change (Russia has been violating borders and waging information warfare for decades), this is another glaring example of an either passive or active inability to recognize threats in a political climate shackled by war fatigue and economic recovery efforts.[67]

Having observed the misery of war firsthand, neither Demosthenes nor Churchill had a thirst for conflict. Rather, they sought to deter war by fashioning alliances and military capabilities that would make it imprudent for an adversarial state to consider war a viable option in the pursuit of its political objectives. Judicious assessments of security threats backed by military might as a deterrent to conflict—not a precursor to it—are the most reliable methods of identifying, preparing for, and preventing legitimate challenges to national security.

Conclusion

History's great social and political upheavals are often precipitated by a collective ambivalence to existential threats. Alistair Horne referred to this obliviousness as a form of strategic hubris that often follows victory, but it may be even more pervasive than that.[68] Both D&C described a persistent illusion of security that incubated their nations into indifference. This illusion remains a constant in the human condition, not bound by time or societal progress, and particularly dominant in leading postwar states or those experiencing downward trends in economic prosperity.

The fall of Athens despite Demosthenes' exemplary case for its defense was primarily the result of a false sense of security that led to poor prioritization of government resources, the erosion of alliances, and a distracted populace that awoke too late to unite Greece and repel Philip's armies. Churchill's success is largely credited to the superior momentum of his narrative achieved through unwavering resolve, strategic timing, and a pragmatic approach to building alliances. The position of power held by Churchill offered additional benefits not afforded Demosthenes, as did advances in communication technology that enabled Churchill to reach a larger audience more rapidly than was possible in Athens. But the reluctance to acknowledge the threat posed by Nazi Germany and Macedonia was much more of a cultural problem than a technological or political one. Despite the overwhelming evidence at hand, the public and their representatives did not *want* King Philip II or the Nazis to be threats. In turn, these very real threats were deemed nonthreatening by simply labeling as warmongers those stating otherwise.

The legacies of Demosthenes and Churchill reflect the primitive and enduring nature of armed conflict. Although the tools used to wage war will change, at times even drastically, the operators of those tools will remain subject to the same flawed judgment that plagued the Athenian assembly 2,300 years ago. Instead of reflexively shooting messengers on account of the uneasiness their words produce, perhaps unconventional strategic assessments deserve a wider audience. If only on occasion, what looks like warmongering might in fact be the ideas that save a continent. **JFQ**

Notes

[1] John Keegan, *Winston Churchill* (New York: Penguin Group, 2002), 118.

[2] Ibid.

[3] Martin Gilbert, *Winston S. Churchill: The Prophet of Truth, 1922–1939,* vol. 5 (Boston: Houghton Mifflin Co., 1976), 445, 494.

[4] Ian Worthington, *Demosthenes of Athens and the Fall of Classical Greece* (New York: Oxford University Press, 2013), 343–344.

[5] John Lewis Gaddis, *Surprise, Security, and the American Experience* (Cambridge: Harvard University Press, 2003), 33.

[6] Charles Darwin Adams, *Demosthenes and His Influence: Our Debt to Greece and Rome* (New York: Cooper Square Publishers, Inc., 1963), 98. Aristotle was friend to King Philip II and advisor to his successor and son, Alexander. For Demosthenes referred to as a warmonger, see Jeremy Trevett, ed., *The Oratory of Classical Greece: Demosthenes, Speeches 1–17* (Austin: University of Texas Press, 2011), 53–55.

[7] John Lukacs, *Churchill: Visionary, Statesman, Historian* (New Haven: Yale University Press, 2002), 5. Churchill also explained how any speech that "set forth blunt truths" was

Monument of Philip II of Macedon in Thessaloniki, Greece (Courtesy Tilemahos Efthimiadis)

met with the accusation of "warmongering." See Gilbert, 445.

[8] For instance, critics of Napoleon Bonaparte were often branded "alarmists" in the period following 18th-century British "adventurism" in the North American colonies. See Roger Knight, *Britain Against Napoleon: The Organization of Victory, 1793–1815* (New York: Penguin Press, 2013), 70. More recently, Federal Bureau of Investigation agent John O'Neill was dismissed as an alarmist for his focus on al Qaeda and Osama bin Laden long before the 2001 attacks. See Lawrence Wright, *The Looming Tower: Al-Qaeda and the Road to 9/11* (New York: Random House, 2006), 296–297, 350.

[9] Ian Worthington, *Demosthenes: Statesman and Orator* (London: Routledge, 2000), 75–76; Worthington, *Demosthenes of Athens and the Fall of Classical Greece*, 113–114.

[10] Trevett, 8.

[11] Keegan, 116–117.

[12] Gilbert, 446–447, 485.

[13] For Versailles Treaty violations, such as building aircraft, see ibid., 488. England also allowed Germany to amend the Versailles Treaty to build submarines and conscript forces. See Keegan, 116.

[14] Ibid., 115.

[15] Gilbert, 457.

[16] Ian Worthington, *By the Spear: Philip II, Alexander the Great, and the Rise and Fall of the Macedonian Empire* (New York: Oxford University Press, 2014), 58.

[17] Thucydides, *The Peloponnesian War*, ed. Walter Blanco and Jennifer Tolbert Roberts and trans. Walter Blanco (New York: W.W. Norton & Company, Inc., 1998), 7.

[18] Ibid., 5.

[19] Trevett, 9; Worthington, *Demosthenes of Athens and the Fall of Classical Greece*, 89–90.

[20] Appollodorus of Acharnae received such a conviction in 348 BCE. See Worthington, *Demosthenes*, 56.

[21] Worthington, *Demosthenes of Athens and the Fall of Classical Greece*, 87; Worthington, *Demosthenes*, 47.

[22] Gilbert, 463.

[23] Demosthenes supported all peace deals with Philip II. See Worthington, *Demosthenes*, 58–71. Churchill similarly sought counsel with Hitler until 1939, even meeting with him numerous times. See Keegan, 124.

[24] Gilbert, 445.

[25] Ibid., 461.

[26] Keegan, 113.

[27] John Buckler and Hans Beck, *Central Greece and the Politics of Power in the Fourth Century BC* (Cambridge, UK: Cambridge University Press, 2008), 222–223; Trevett, 9; Adams, 8.

[28] Trevett, 170.

[29] Buckler and Beck, 220.

[30] Trevett, 158. This is from the Third Philippic presented to the *eclessia*.

[31] For example, Philip sent ambassadors to Athens to discuss a peace treaty in 346 BCE while he headed to Thrace to wage war. See Worthington, *By the Spear*, 63; Worthington, *Demosthenes*, 75.

[32] Trevett, 8–9.

[33] Thucydides, 10–11. It is worth noting that, in fleeing Athens, the Athenian navy was able to win the sea battle of Salamis (480 BCE) and the land battle at Marathon (490 BCE), which proved critical to Greek victory in the Persian Wars. Ibid., 29.

[34] Worthington, *Demosthenes*, 51.

[35] Trevett, 166–167.

[36] Thucydides, 29–30.

[37] Keegan, 96.

[38] Worthington, *Demosthenes*, 47.

[39] Ibid., 58.

[40] Ibid., 53–55.

[41] Worthington, *By the Spear*, 77.

[42] Keegan, 116.

[43] Ibid., 123.

[44] Worthington, *Demosthenes*, 82.

[45] The infighting and intra-Greek issues that distracted Demosthenes and all of Athens for decades leading up to its demise may have been the true death knell of Athenian independence. See Worthington, *Demosthenes of Athens and the Fall of Classical Greece*, 97.

[46] Trevett, 13.

[47] Worthington, *Demosthenes of Athens and the Fall of Classical Greece*, 335–337. Demosthenes died in 322 BCE. By this time,

Philip had been assassinated and his successor, Alexander, had died only the year prior. Ibid., 261–271, 328.

[48] This comment came from Lord Wolmer on July 7, 1939; see Gilbert, 1079.

[49] Lukacs, 2.

[50] Gilbert, 1074.

[51] The words of John "Jock" Colville, Secretary to Prime Ministers Chamberlain and Churchill. See William Manchester and Paul Reid, *The Last Lion: Winston Spencer Churchill, Defender of the Realm, 1940–1965* (New York: Little, Brown, and Company, 2012), 9.

[52] Keegan, 118.

[53] Worthington, *Demosthenes of Athens and the Fall of Classical Greece*, 120.

[54] Mike Benitez, "Air Force in Crisis, Part III: Dear Boss, It's All About the Culture," *War on the Rocks*, March 15, 2018, available at <https://warontherocks.com/2018/03/air-force-in-crisis-part-iii-dear-boss-its-all-about-the-culture/>; Mikheil Saakashvili, "Exaggerating Vladimir Putin's Impact in the U.S. Only Makes Him Stronger in Our Region," *Washington Examiner*, March 14, 2018, available at <www.washingtonexaminer.com/opinion/mikheil-saakashvili-exaggerating-vladimir-putins-impact-in-the-us-only-makes-him-stronger-in-our-region>; Dominic Evans, "Syrian Frontline Town Divides NATO Allies Turkey and U.S.," Reuters, February 12, 2018.

[55] While the U.S. defense budget has increased during 2015–2017, some leaders, for example, General Joseph Dunford, argue it is not enough to overcome the multiple dilemmas currently facing the West. Army Chief of Staff General Mark Milley has warned against "rolling the dice" by failing to prepare for a "great-power war with Russia, China, Iran or North Korea." See Vikram Mansharamani, "Is the Military's Unpredictable Budget Leading to a Readiness Crisis?" PBS, November 4, 2016, available at <www.pbs.org/newshour/making-sense/column-militarys-unpredictable-budget-leading-readiness-crisis/>.

[56] Michael Knights, "The Evolution of Iran's Special Groups in Iraq," *Combating Terrorism Center Sentinel* 3, no. 11–12 (November 2010), 12–16.

[57] Rowan Scarborough, "Iran Responsible for Deaths of 500 American Service Members in Iraq," *Washington Times,* September 13, 2015, available at <www.washingtontimes.com/news/2015/sep/13/iran-responsible-for-deaths-of-500-us-service-memb/>; Bill Roggio, "Evidence of Iran Supplying Weapons, Expertise to Iraqi Insurgents," *FDD's Long War Journal*, February 11, 2007, available at <www.longwarjournal.org/archives/2007/02/evidence_of_iran_sup.php>.

[58] Thomas L. Friedman, "Iran and the Obama Doctrine," *New York Times*, April 5, 2015, available at <www.nytimes.com/2015/04/06/opinion.thomas-friedman-the-obama-doctrine-and-iran-interview>.

[59] Peter Baker and Eric Schmitt, "Many Missteps in Assessment of ISIS Threat," *New York Times*, September 29, 2014, available at <www.nytimes.com/2014/09/30/world/middleeast/obama-fault-is-shared-in-misjudging-of-isis-threat>; Jonathan Karl, "3 Times Obama Administration Was Warned About ISIS Threat," ABC News, video, 6:55, September 29, 2014, available at <www.abcnews.go.com/Politics/times-obama-administration-warned-isis-threat/story?id=25843517>.

[60] Afshon Ostovar, *Vanguard of the Imam: Religion, Politics, and Iran's Revolutionary Guards* (New York: Oxford University Press, 2016), 25–38, 125.

[61] Eliot Cohen, *The Big Stick: The Limits of Soft Power and the Necessity of Military Force* (New York: Basic Books, 2016), 156–160.

[62] Gilad Shiloach, "Iran-Backed Militias Legalized by Iraqi Parliament," *Vocativ*, November 27, 2016, available at <www.vocativ.com/378895/iranian-backed-militias-legalized-by-iraqi-parliament/>.

[63] "Iran May Seek Naval Bases in Yemen or Syria: Chief of Staff," Reuters, November 27, 2016, available at <www.reuters.com/article/us-iran-navy-yemen-syria-idUSKBN13M08M>.

[64] Joint Foreign Affairs and House Armed Services Subcommittees, Michael T. Flynn, "Testimony on Iran," June 10, 2015, available at <http://docs.house.gov/meetings/FA/FA13/20150610/103582/HHRG-114-FA13-Wstate-FlynnM-20150610.pdf>.

[65] Fred Barbash, Missy Ryan, and Thomas Gibbons-Neff, "Iran Releases Captured U.S. Navy Crew Members," with 3 videos, 1:44, 1:14, and 1:47, *Washington Post*, January 13, 2016, available at <www.washingtonpost.com/news/morning-mix/wp/2016/01/13/iran-sends-mixed-message-on-quick-release-of-u-s-navy-crews/?utm_term=.7571537c7d32>. Philip takes Athenian prisoners in Olynthus; see Trevett, 11.

[66] Glenn Kessler, "Flashback: Obama's Debate Zinger on Romney's '1980s' Foreign Policy," with video, 1:17, *Washington Post*, March 20, 2014, available at <www.washingtonpost.com/news/fact-checker/wp/2014/03/20/flashback-obamas-debate-zinger-on-romneys-1980s-foreign-policy/?utm_term=.d9869de88cbf>. See also Phil Stewart and David Alexander, "Russia Is Top U.S. National Security Threat: Gen. Dunford," Reuters, video, 11:33, July 9, 2015, available at <www.reuters.com/article/us-usa-defense-generaldunsmore/russia-is-top-u-s-national-security-threat-gen-dunford-idUSKCN0PJ28S20150709>.

[67] R. Reed Anderson et al., "The Information Environment: A Critical Element Often Neglected," in *Strategic Landpower and a Resurgent Russia: An Operational Approach to Deterrence* (Carlisle Barracks, PA: U.S. Army War College Press, May 2016), 143–158.

[68] Alistair Horne, *Hubris: The Tragedy of War in the Twentieth Century* (New York: HarperCollins, 2015), 343–344.

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Strategic Forum 298

Cross-Functional Teams in Defense Reform: Help or Hindrance?

By Christopher J. Lamb

There is strong bipartisan support for Section 941 of the Senate's version of the National Defense Authorization Act for 2017, which requires the Pentagon to use cross-functional teams (CFTs). CFTs are a popular organizational construct with a reputation for delivering better and faster solutions for complex and rapidly evolving problems. The Department of Defense reaction to the bill has been strongly negative. Senior officials argue that Section 941 would "undermine the authority of the Secretary, add bureaucracy, and confuse lines of responsibility." The Senate's and Pentagon's diametrically opposed positions on the value of CFTs can be partially reconciled with a better understanding of what CFTs are, how cross-functional groups have performed to date in the Pentagon, and their prerequisites for success. This paper argues there is strong evidence that CFTs could provide impressive benefits if the teams were conceived and employed correctly.

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"The Ships," American Expeditionary Forces, Second Air Instructional Center, Tours Aerodrome, France, late 1918 (Lester F. Kirchner Collection, U.S. Army Air Service)

Defending the AEF

Combat Adaptation and Jointness in the Skies over France

By Bryon Greenwald

As Americans commemorate the centennial of World War I, we should note that one of the most unusual battles of the war occurred in the skies over Western Europe. Not surprisingly, given the newness of the airplane, every combatant had difficulty exploiting the opportunities offered by airpower. The warring powers, however, found it even harder to devise schemes to defend against air attack, particularly later in the war as airplanes became more technologically viable and numerous. By 1917, 3 years into the war, the French, British, and Germans had begun to figure it out. Unfortunately, in 1917 the American Expeditionary Forces (AEF) was a brand new organization, and, like every other aspect of its transition to large-scale warfare on a foreign shore, it faced a steep learning curve uninformed by early trial and error. Still, by the Armistice on November 11, 1918, the AEF Antiaircraft Service had acquitted itself in this new dimension of combat. It had learned quickly from its British and French counterparts, demonstrated a significant amount of combat adaptation, shot down 58 German aircraft in a short time at the front, and began a century's worth of joint integration between air and antiair forces that continues today.

This article details how an untrained cadre of men modified existing French

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equipment and doctrine to build a small but effective antiaircraft force and initiate joint air-antiair integration 100 years ago. It also highlights how the U.S. military responded to a threat that did not exist a mere decade earlier, one that it failed to anticipate despite obvious indicators. In many respects, this type of challenge is timeless. It is certainly familiar to contemporary observers who have watched the American military and others struggle with counterinsurgency over the last 15 years and points to a number of larger, more important questions. How does a military organization learn and modify its practices in the face of a new challenge, particularly one it should have recognized earlier? What changes in organization, doctrine, training, or equipment are necessary to address the challenge? Where does change emerge—is it top-down leadership, bottom-up reform, or middle-out problem-solving, or a combination of all three?[1] These are a few of the larger questions considered in this brief discussion of the origin, structure, and achievements of the American Antiaircraft Service during World War I.

Failure to Anticipate the Problem

Of all the advances in modern warfare present at the turn of the 19th century, nothing awed the public more than the airplane. Described both as a "mechanical messiah whose coming would transform life and society" and as a "bird of hell" whose fiery power would turn New York City into "a furnace of crimson flames," the technological potential of the airplane seemed boundless and ominous.[2] Although the airplane was invented in the United States in 1903, a country protected by vast oceans and aloof to Europe's turmoil, the Nation spent only $430,000 on its air force between 1908 and 1914. During that same period, both France and Germany spent close to $22 million each, Russia about $12 million, and tiny Belgium almost $2 million on military aviation.[3]

When war broke out in Europe on July 28, 1914, the Aeronautical Division of the U.S. Army Signal Corps owned six airplanes,[4] 532 3-inch field artillery guns, and absolutely no antiaircraft weaponry.[5] By April 6, 1917, when America entered World War I, not much had changed. Brigadier General Benjamin Foulois, Chief of the AEF Air Service (1917–1918), pointedly complained that only 6 of the 65 officers and none of the 1,100 enlisted men assigned to him had any experience in the organization of large numbers of men and materiel or the tactical use of aircraft.[6]

If the U.S. Army had no doctrine, trained manpower, or equipment with which to build an Air Service, it certainly had not considered how to defend ground troops from air attack. While individual officers published articles that highlighted the airplane's military potential and suggested ways to shoot it down, the institutional force was slow to react. In 1909, when Major General William P. Duvall, Commander of the Philippines Division, perhaps influenced by one of these articles, wrote to the War Department with concerns of an airship attack on Manila, the Chief of Ordnance responded that he saw no future in "balloon artillery" and suggested that 500 shotguns would relieve Duvall's worries.[7] By 1913, the idea of antiaircraft artillery advanced slightly when Congressman James Hay (D-VA) of the House Committee on Military Affairs raised it during a discussion of the Panama Canal defenses. The Army's witness, Brigadier General George Scriven, Chief of the Signal Corps, dismissed the need for a gun to shoot at airplanes, preferring instead to champion the use of airplanes, for which he was responsible at the time, to defeat any attack. When Hay asked about a gun capable of shooting at airplanes, Scriven responded that the "Ordnance Department had been experimenting, but I do not know that they have yet devised a gun."[8] Indeed, both the Ordnance Department, which would build the guns, and the Coast Artillery Corps (CAC), which would man them, were unimpressed with the airplane as a weapon of war and focused their efforts instead on shooting down much slower and less maneuverable balloons and powered dirigibles. In early 1917, a board of officers, led by artilleryman Colonel Charles Treat, convened to study the problem and, on April 2, 1917, the same day that President Woodrow Wilson asked Congress for a declaration of war, recommended creating 168 total antiaircraft batteries, enough to protect 15 infantry corps, 4 cavalry divisions, and rear area supply depots.[9] This study, however, was highly conceptual. It did not write doctrine, provide equipment, or train gunners. Those tasks required time, a coherent production capacity, and tactical know-how, none of which the Army had in abundance.

The Army Looks for Solutions

Shortly after the United States declared war on Germany, the Allies initiated a series of liaison missions designed to exchange information and speed the Nation's mobilization and active participation in the fighting. Unfortunately, information provided by the French and British missions contradicted each other and succeeded in confusing an already disorganized mobilization effort. Indeed, the animus between the two missions was such that on more than one occasion the Chief of Staff's office would telephone the War College faculty located at present day Fort Lesley J. McNair, where the preponderance of war planning occurred, and urge them to hasten the departure of one mission as members of the other mission were on their way over to discuss the war.[10]

To obtain a clear view of conditions, Secretary of War Newton Baker, in an example of top-down problem-solving, dispatched groups of officers to Europe to observe operations for themselves. One group, led by the recently commissioned corporate lawyer and civil aeronautics expert Major Raynal Bolling, reported that "fighting airplanes and bombers" held significant military potential but that great numbers of antiaircraft artillery could reduce the effectiveness of bombing operations.[11] Another group, led by Quartermaster Colonel Chauncey Baker, concluded that airpower played an important role on the

battlefield and, in response to the threat the airplane posed to ground forces, recommended that the Army establish antiaircraft schools and training facilities in the United States and France.[12]

Starting from Scratch

Acting on the Baker Board's recommendation, General John J. Pershing directed his staff to incorporate antiaircraft defense into the AEF's organizational scheme. Drafted by Major Hugh Drum of the Operations Section, the plan assigned one antiaircraft gun battalion with four batteries of three 3-inch guns each as well as one machine gun battalion of 48 guns to each corps, the equivalent of one 3-gun battery and 12 antiaircraft machine guns to each combat division.[13] This parsimonious distribution of forces reflected both the density of combat formations and the appreciation that the AEF was building this portion of its force from scratch. By comparison, during World War II each division had *at least* one antiaircraft *battalion* to defend it from air attack. To protect installations in the rear area, Drum added an additional 20 antiaircraft gun platoons. The total force of 100 guns was much smaller and, as it would turn out, more realistic than the 336 recommended by the Treat Board. But as the Army would soon find out, it was still far beyond the Ordnance Department's capacity to deliver.[14]

To implement these plans for an antiaircraft service, Pershing summoned three Coast Artillery Corps officers—Brigadier General James A. Shipton, Captain Glenn P. Anderson, and Captain George F. Humbert—to Europe in late July 1917. The assignment of Shipton, Anderson, and Humbert is an example of the Army's effort to apply the most appropriate expertise and experience to create an antiaircraft artillery organization where none had existed previously. Shipton was a seasoned artilleryman and combat commander in the Philippines with a decade of experience in the CAC. Anderson and Humbert were experts in artillery gunnery and the mathematics underpinning that discipline. Their background predisposed them to a more scientific approach to antiaircraft artillery as opposed to the point-and-shoot style of some Allies.

When the Army decided in spring 1917 to assign the antiaircraft mission to the CAC, Shipton, Humbert, and Anderson, as well as a number of underutilized seacoast artillerymen, became available to man Pershing's fledgling Antiaircraft Service. With the British naval blockade confining the German High Seas Fleet to European waters, the CAC released men from its traditional seacoast and harbor defense mission and trained them in railway and tractor artillery and trench mortars and the emerging task of antiaircraft defense. Further reinforcing the Army's decision to assign the antiaircraft mission to the CAC was the acknowledged ability of seacoast artillerymen to fire at ships moving in two dimensions. By logical extension, this ability made them the most appropriate candidates to attempt to fire at airplanes moving in three dimensions.[15]

While en route to Pershing's headquarters, Shipton, Anderson, and Humbert stopped in England to investigate British antiaircraft methods, visited the French Antiaircraft School at Arnouville-lès-Gonesse, north of Paris, and went to the frontlines to observe French methods. With the American and French forces occupying adjacent combat zones, Shipton decided to leverage the opportunity to train his men in French antiaircraft techniques and accepted the offer of a château at Arnouville as the location for the AEF antiaircraft school. On September 26, 1917, two semi-English-speaking French officers began an awkward effort to teach antiaircraft theory to a platoon of American officers. Shortly thereafter, on October 10, 1917, the AEF General Headquarters established the Antiaircraft and Trench Mortar Schools at Langres, France, and placed Shipton in charge of both. On November 1, the Antiaircraft Headquarters and School moved from Arnouville to Langres. These actions laid the foundation for the future development of the AEF antiaircraft artillery organization.[16]

Shipton quickly realized he had to establish an antiaircraft school and training center for the troops scheduled to arrive in December 1917. He had no men or equipment, and only 25 officers trained—a generous classification—in the antiaircraft theory and technique. To organize the command, Shipton, Humbert, and Anderson drafted plans for an Antiaircraft Service consisting of seven sections, three of which—the Artillery, Machine Gun, and Searchlight and Balloon sections—formed the nucleus of the Antiaircraft School and mirrored the composite nature of the Antiaircraft Service.

Shipton's initial desire was that all training would occur at the Antiaircraft School, but equipment shortage and limits on training areas forced him to separate the artillery and machine gunnery courses, in particular, sending some units back to Arnouville and the Paris defenses to share French artillery pieces. Colonel Jay P. Hopkins, who replaced Shipton as Chief of the Antiaircraft Service in October 1918, noted that this move gave the American antiaircraft artillery gunners training at the school the opportunity to practice with actual guns instead of relying on purely theoretical instruction. Moreover, it provided the French, who experienced constant manpower shortages, with personnel to man the guns defending their capital. As more trained units became available, Shipton and Hopkins continued the policy and sent more units into the frontlines to augment critically short French units. Hopkins later wrote that the men "invariably displayed such aptitude that they were given equal opportunity with the French for firing." He also noted that sometimes French units were so shorthanded that they surrendered total control to the Americans.[17]

Antiaircraft Gunnery

Shipton's secondary motive for collocating with the French was that American officers could keep abreast of the latest developments in antiaircraft techniques and therefore be better qualified to instruct their men. His attitude toward "technical shooting" further reinforced this preference, as he believed that the French had taken the lead in antiaircraft gunnery, while the British seemed content to rely on the unscientific and

inconsistent technique of visually adjusting the round on target.[18]

This reliance on French "technical shooting" demanded a high degree of scientific skill and mathematical ability. First, it required an accurate, rapid measurement of the airplane's speed, altitude, and course in order to calculate the lateral and vertical deflection to the target. When computed correctly, this information yielded a predicted target flight path. Second, crews had to factor in the known trajectory and velocity of the artillery round as well as the fuse setting. If everything worked properly the round exploded near the target. Typically, the round crossed behind the aircraft because crews could not make the proper adjustments fast enough to lead the target. The greatest flaw in the French process, however, was the assumption that the pilot would maintain a steady course in order to preserve his altitude as a means of escape in the event of malfunction or attack. In reality, when under fire most pilots adopted what the British called the "wobble her about a bit" method, making dramatic changes in altitude and direction or "zig-zagging."[19]

Before an American antiaircraft crew could fire a shell from the 75mm gun,[20] they had to prepare the gun-pit and ready the gun—a process that could take all day. Laboring more like gravediggers than antiaircraft men, they slung picks and shovels for hours to excavate a hole that measured 12 feet across and 3 feet deep, with a 7-foot conical depression sunk in the center to a depth of 4 feet, all while avoiding observation by the Germans a few miles away. Next, they placed the foundation for the semi-fixed French 75mm by laying a circular running board around the outer rim of the inner conical depression and leveling it. Then they dropped a "receiving standard" in the bottom of the cone and bolted the slanting struts from the running board to the receiving standard. With the assistance of ropes and pulleys, the crew wheeled the gun in front of the hole, lowered its rear into the receiving standard, and bolted it down. They then rearranged the camouflage and excavated spots for cases of ammunition and tool boxes. While not a fast process, it mirrored the way the French fought the war, with spades and artillery in a slow and methodical fashion.[21]

U.S. Army Air Service Second Lieutenant Erwin R. Bleckley, 50th Aero Squadron, in observer's seat of DH-4, circa 1918 (U.S. Air Force)

What made the French 75mm such an excellent weapon was its hydropneumatic recoil mechanism, a first of its kind, which returned the gun to its original position after firing. In this way, the crew could fire the gun rapidly without re-aiming it after each shot. The recoil process took about 2 seconds, meaning that a well-trained crew could fire the gun up to 30 times a minute. Despite these advances, it still took about 25 men—vertical and lateral spotters, telemetry men, fuse setters, telephone operators, loaders, and gun crew—moving in orchestrated chaos to operate the gun and its associated equipment.

Occasionally, training and luck combined to catch a German pilot unaware.

U.S. Marines attaching bomb to DH-4 (de Havilland) "Liberty Plane," circa 1918 (Zimmer/Naval History and Heritage Command)

In one instance in late September 1918, the crewmen in Battery B, 2nd Battalion Antiaircraft Artillery, spotted a flight of six Fokkers flying along the front at "an altitude of 2,000 meters, some 7,400 meters away." The two-gun battery performed well enough to fire 10 rounds in quick succession into the formation. As crewman Ernest Stone of Los Angeles, California, noted, the airplane "dived northwards then after an abnormal curve, fell." It was one of two German aircraft downed by his battery; its sister unit, Battery A, accounted for another three.[22]

Machine Gunnery

The second course taught by the Antiaircraft School was machine gunnery. In a process similar to what occurred with the artillery course, the school chose an officer familiar with the equipment to lead the instruction, in this case, Major William Simpson of the Infantry. Unfortunately, Simpson died from appendicitis in January 1918. His replacement was another Infantryman, Marine Major Andrew Drum, an innovative officer who founded the Marine Corps' first Armored Car Squadron in 1916. Drum, a cousin of Major Hugh Drum, previously commanded an infantry company with the 5th Marine Regiment. From May to November, Drum achieved great success in training over 4,500 personnel, partly because, unlike the antiaircraft artillery gun course, the units attending machine gun instruction had plenty of machine guns and did not have to collocate with another unit in order to train. Equally important, however, was Drum's innovative ability to create a realistic training environment for his Soldiers.[23]

One of the first tasks thrust upon Drum and the staff of the Machine Gun Section was to select a machine gun. While an adequate number of the French-made Hotchkiss M1914 and St. Etienne M1907 machine guns existed, the section discovered that the St. Etienne was more delicate, would foul in muddy conditions, and could not fire at all angles of elevation. As a result, the section adopted the Hotchkiss machine gun. It also experimented with various antiaircraft machine gun sights and found a French sight known appropriately as the "Infantry Corrector," which offset the normal ground sight and provided for super-elevation, the most effective.[24]

Concerned about the quality of the troop training, Drum moved his School Detachment about 8 kilometers away from Langres to take advantage of an area known as the Courcelles-en-Montagne Antiaircraft Firing Ground. Through ingenuity and zeal, Drum turned the 25-square-mile ravine into an excellent range. He conducted ground firing against the ravine walls. To simulate fast, realistic aerial targets, Drum ordered a motorcycle driver to tow an airplane-shaped target along the ridge above the ravine. With the driver protected by a stone wall, the Soldiers below saw only the target and could practice live-fire traverse and elevation without endangering the rider. This type of middle-out

adaptive training paid large dividends once units reached the frontlines as the two Antiaircraft Artillery Machine Gun Battalions fielded during the war downed a total of 41 German planes. Equally important, they drove away hundreds more, including 117 during the Battle of Saint-Mihiel.[25]

Searchlights and Barrage Balloons

The final element in the Antiaircraft Service triad of weapons was the searchlight. Early on, the Army discovered that the strength of the beam did not outrange enemy artillery but possessed enough candlepower to illuminate incoming aircraft. As a result, the Antiaircraft Service incorporated searchlight training into its curriculum in June 1918. As it had with the other two legs of the triad, the Antiaircraft School asked the Army organization responsible for searchlights—the 56th Engineer Regiment (Searchlights)—to teach the course. Not only did it make sense for experts to teach the course, but it also made for good combat coordination as the 56th Regiment supported the other elements of the Antiaircraft Service once they reached the field.[26]

The use of searchlights remained the one area uninfluenced by the French, who did not use searchlights at night, but instead relied on sound detectors to find aircraft and provide gunners with a firing azimuth. Unimpressed with the French method, the Americans followed the British example and employed both sound locators and searchlights to find the target. A precursor to the highly effective radar of World War II, sound locators were a large and complex collection of megaphone-shaped tubes that—like an enlarged gramophone operating in reverse—picked up and amplified aircraft noise so that an operator could determine its general direction and provide the searchlights with a rough initial azimuth. Once the searchlights illuminated the target, the gunners set their aiming mechanisms and fired. Given the difficulty of supply over muddy roads, this procedure saved ammunition by enabling the gunners to calculate trajectory more accurately than the French, who literally fired blind. More importantly, searchlights had "a great moral effect on the enemy aviator."[27] Blinded by the light and waiting an upcoming barrage, most pilots lost either their resolve or their way to the target.

Interestingly, although the French, British, Germans, and Italians used protective or barrage balloons, the Antiaircraft Service did not. The balloons, tethered to the ground by long wires and often lashed together with horizontal connectors dangling more wires, were ideal for blocking specific aerial approaches. Fearful of crashing into a wire, pilots spotting the balloons would fly around them only to find themselves illuminated by searchlights and targeted by antiaircraft fire. Shipton wanted to use them, but a shortage of both manpower and balloons as well as bureaucratic infighting with the Air Service killed the idea. Initially, the Air Service, which used balloons to observe artillery fire and enemy movements, wanted them to protect airfields until it learned that Air Service personnel would handle the balloons, but antiaircraft officers would command them. With this revelation, the threat to airfields declined and the Air Service ended its request for barrage balloons. Of the four proposed barrage balloon battalions, none was created.[28] In fairness, the Air Service experienced a marked shortage of observation balloons and could not spare any for antiaircraft barrage balloon protection, even of its own airfields. The issue of barrage balloons lay fallow until the early 1920s when both the Army Air Service and CAC fought for bureaucratic control over air defense assets.[29]

This issue aside, the Air and Antiaircraft Services worked well together in combat. The Air Service Assistant Chief of Staff, Colonel Edgar Gorrell, commended the Antiaircraft Service for its units' excellent liaison with Air Service elements, commenting that the batteries "acted as sentinels for pursuit aviation." To do so, antiaircraft units maintained direct telephone contact with air control centers and flashed the type and number of German aircraft, their heading, and altitude to Air Service group operations offices. This arrangement was critical to airdrome defense as these sites routinely had no other defense except some machine guns operated by mechanics. An example of this rapid alert occurred on April 14, 1918, when an antiaircraft battery reported sighting two single-seater German aircraft headed south in the Toul Sector (in the vicinity of Saint-Mihiel). In less than 4 minutes, two pilots from the 94th Aero Squadron, on its first day of operations in France, took off and intercepted the Germans 4 minutes later.[30] Interestingly, this well-developed liaison function seemed confined to the American forces as some observers noted that the French batteries did not keep up with Allied attacks and British antiaircraft batteries did not cooperate with the Royal Air Force.[31]

Another example of joint action between the Air and Antiaircraft Services occurred in defense of Air Service balloonists. Air Service pilots aloft in either French or American balloons made tempting targets for German aircraft, which attacked them 89 times and burned 35 balloons out of the sky.[32] One reason these attacks were relatively unsuccessful was that American antiaircraft gunners worked closely with balloonists to defeat the German air threat. For example, after German fighters had shot down 19 observation balloons in 1 day during the Meuse-Argonne Offensive, the First U.S. Army Corps Commander, Lieutenant General Hunter Liggett, ordered that it was "absolutely essential that antiaircraft artillery protection be furnished at once."[33] Responding to this directive, Battery A, 2nd Antiaircraft Battalion, using two borrowed French 75mm autocannons, deployed around two balloons about 1.5 kilometers behind the front. The battery stayed there for 13 days withstanding gas and artillery attacks before firing on a flight of German Fokkers, downing 2 in 10 minutes and another later that day.[34]

Fratricide

Close coordination with the Air Service notwithstanding, antiaircraft personnel and other Soldiers across the AEF

Curtiss JN-4H, nicknamed "Jenny," at U.S. Marine Flying Field, Miami, Florida, circa 1918 (Naval History and Heritage Command)

occasionally shot at friendly aircraft. The Antiaircraft School trained all officers to identify friendly and enemy aircraft and published aircraft recognition charts, but the training of the enlisted men may have been lacking. That said, the two antiaircraft machine gun battalions sent to the front controlled just 96 of the 1,500 antiaircraft machine guns available throughout the American Expeditionary Forces, suggesting that while not blameless, the problem did not come primarily from antiaircraft units. Indeed, the rest of the force often operated on the belief that there was no such thing as a "friendly" aircraft and practiced poor fire discipline. Fearful of strafing by German aircraft, other units (for example, infantry, artillery, and air) not only manned their antiaircraft machine guns continuously, but they also often mounted whatever machine guns they could find on sunken poles or upended wagon or vehicle axles in a bottom-up adaptive effort to fire at attacking aircraft.[35] Greater liaison between antiaircraft batteries and other units might have reduced these incidents of mistaken identity.

Often blamed for these "blue-on-blue" engagements, antiaircraft units investigated them both to correct mistakes and to protect their reputation. In one instance, a sergeant sent to inform a nearby artillery battery that it had fired on several friendly planes was told that the commander had ordered the unit to shoot at all planes in its vicinity.[36] Another time, an American pilot completed his flight without spotting a German plane but found a bullet hole near his seat. Investigation revealed that the 21st Machine Gun Battalion, not one of the two antiaircraft machine gun battalions, had shot at the plane at long distance without identifying it. The problem became severe enough that the First Army Chief of Artillery ordered all men trained in aircraft recognition.[37]

Antiaircraft units, however, were not blameless. After the war, one antiaircraft battery commander admitted that his men fired at planes flying over his position even if they could not positively identify them as German. Another haughtily dismissed criticism that his unit fired on friendly aircraft over Is-sur-Tille, home to a huge American supply base, by claiming that no one could prove the aircraft were friendly.[38] After this incident, the sector commander suggested the creation of a restricted zone over the area that friendly planes would not enter at night and fly no higher than 2,000 meters during the day. Despite the value of the idea, the Air Service was extremely critical of the suggestion, perhaps concerned over the ability of its pilots to navigate precisely at night, and the AEF G3 (Operations) eventually disapproved the idea.[39] Sadly, the problem of fratricide would continue for the rest of the war and reemerge in World War II. In that war, the U.S. Army would eventually create restricted zones and, by mid-1944, mark friendly aircraft with invasion stripes—five alternating black and white bands—to aid recognition.

Conclusion

Despite the early problems of organization and training and the nagging worries over supply, the leaders of the Antiaircraft Service adjusted to newfound conditions and performed admirably. In less than 3 months at the front, both the machine gun units

and the amalgamated artillery forces proved the value of solid technical training and good organization. The antiaircraft gunners using French 75mm guns shot down 17 aircraft with just 10,275 rounds of ammunition, an average of 605 rounds per airplane. By comparison, British antiaircraft gunners expended 10,000 rounds, improving to 4,000 per aircraft in 1918, and the French used 4,500 rounds for every airplane they downed. The machine gunners achieved even more impressive results. With just 225,115 rounds, the two battalions downed 41 German aircraft, about 5,500 rounds per plane. While the stated mission of the Antiaircraft Service involved preventing enemy aircraft from obtaining air superiority and endangering friendly ground troops, "comparative results in actual planes brought down give a very fair measure of the accuracy of the shooting."[40]

Regarding combat adaptation, the AEF antiaircraft experience offers a few general conclusions. First, innovation and adaptation succeed more often when there is an urgent need to solve a specific problem—how to shoot down airplanes—that focuses effort and removes most intra-Service parochialism and confusion about the objective. Second, the willingness to learn from others and adopt the best approaches avoids the "not invented here" syndrome, saves time, and increases eventual effectiveness. Third, despite inevitable shortages, the creative use of available resources improves the odds of success. Finally, as the story of the World War I Antiaircraft Service demonstrates, adaptation and learning occur at many levels—top-down, middle-out, and bottom-up—often simultaneously. Accordingly, leaders should avoid emphasizing single sources of change, particularly top-down driven change, and encourage innovation and adaptation at all levels.

These conclusions about the causes of adaptation and change are just as applicable today. Understanding the specific problem at hand is key, be it regime change, killing insurgents, or creating stable governance and popular support. Heeding the lessons of history and borrowing successful ideas from others, as commanders did from military theorists T.E. Lawrence and David Galula, are dramatically helpful. Perhaps appreciating that value and insight can come from every direction is most important. Top-down change brought counterinsurgency doctrine and Mine-Resistant Ambush Protected vehicles to Iraq and Afghanistan, but middle-out recognition of the emerging situation and bottom-up execution created the Sunni Awakening. Similarly, bottom-up blogs like "Company Commander" and others helped take the "single-loop" learning that occurred by trial and error in isolated units and spread it across the force, some of which found its way into the Army–Marine Corps counterinsurgency doctrine, a sign of "double-loop," or institutionalized learning. Better digital and onsite coordination between rotating units also helped ensure that not all progress was lost when units transferred into theater and replaced one another.

As for jointness, the Interwar Period (1919–1941) saw increased fighting at the bureaucratic level between the Army, Coast Artillery, Air Service (after 1926, the Air Corps), and antiaircraft artillery, especially as the economy sank into the Great Depression. Some of this internecine bickering about the value of airpower and how best to defend against it continued into the early stages of World War II, but quickly faded as the Nation rapidly expanded the military to fight a global conflict. To a certain degree, as money flowed to the bureaucracies and men died in tactical battles, arguments stopped and cooperation started. By the end of that war, airmen and antiaircraft artillerymen combined to shoot down over 21,000 Axis aircraft, clearing the skies and pointing the way for a joint and combined victory.[41]

Perhaps expectedly, this trend of peacetime inter-Service carping and wartime cooperation reemerged at the political and institutional levels after the Korean War and generally correlates with the level of interwar fiscal support available to the Services. It improved slightly after the Goldwater-Nichols Department of Defense Reorganization Act of 1986, but is ever present in the Pentagon, where jointness is often the last item added to a Service program when money exists and the first item cut when budgets are tight. This ebb and flow of institutional and programmatic support for joint systems, particularly command, control, communication, computers, intelligence, surveillance, and reconnaissance systems, creates gaps in the Nation's ability to fight as effectively as possible. Thankfully, when bullets are flying, Soldiers, Marines, Sailors, and Airmen focus on the task at hand and, as demonstrated a century ago in World War I and every conflict hence, cooperate and adapt at the operational and tactical levels, fighting jointly, side by side, as brothers in arms. **JFQ**

Notes

[1] There is a rich literature on military innovation and adaptation. For a quick overview, read the excellent literature review by Adam Grissom, "The Future of Military Innovation Studies," *Journal of Strategic Studies* 29, no. 5 (October 2006), 905–934. Although there are many new additions, Barry R. Posen's *The Sources of Military Doctrine: France, Britain, and Germany Between the World Wars* (Ithaca, NY: Cornell University Press, 1984) best represents the top-down school of military innovation, otherwise known as the civil-military model. This model posits that top-down innovation occurs when civilian leaders partner with mavericks from within a Service to gain insight on necessary changes. The inter-Service model suggests that innovation occurs as the Services compete against each other for more budget authority. The intra-Service model holds that the Services are not monolithic and that competition among branches (for example, infantry, armor) spurs innovation. An early pacesetter in this school was Stephen Peter Rosen's *Winning the Next War: Innovation and the Modern Military* (Ithaca, NY: Cornell University Press, 1991). Rosen is partially responsible for the "middle-out" school of innovation, as senior leaders provide political and professional security for mid-grade reformers to change their institution from the inside. Paul Kennedy, *Engineers of Victory: The Problem Solvers Who Turned the Tide in the Second World War* (New York: Random House, 2013), is a superb example of middle-out adaptation during wartime. The bottom-up school is less well defined in the existing literature, but no less apparent when one takes a wide view of military history. Still, it seems that bottom-up adaptation cannot succeed

without some combination of top-down and/or middle-out support. Moreover, organizational learning is necessary to help those across an organization realize that problems exist as do potential solutions to those problems. For a good start at understanding bottom-up innovation and organizational learning, see Francis G. Hoffman, *Mars Adapting: Learning During Wartime* (Annapolis: U.S. Naval Institute Press, forthcoming). For a more historical look at innovation, see Williamson Murray and Allan R. Millett, eds., *Military Innovation in the Interwar Period* (Cambridge: Cambridge University Press, 1998), which analyzes the seven major innovations between World War I and World War II.

[2] All characterizations taken from Michael Sherry, *The Rise of American Air Power: The Creation of Armageddon* (New Haven: Yale University Press, 1987), 4–9.

[3] Edgar S. Gorrell, *The Measure of America's World War Aeronautical Effort* (Norwich, VT: Norwich University, 1940), 3.

[4] Juliette A. Hennessy, *The United States Army Air Arm: April 1861 to April 1917* (Washington, DC: Office of Air Force History, 1985), 120.

[5] Airplane statistics from the U.S. Air Force Museum and Joe Baugher, "1908–1921 USASC-USAAS Serial Numbers," June 24, 2017, available at <www.joebaugher.com/usaf_serials/1908-1920.html>; artillery figures as of July 10, 1915, from Harvey A. DeWeerd, "Production Lag in the American Ordnance Program, 1917–1918" (Ph.D. diss., University of Michigan, 1936), 40–42.

[6] "Memorandum, Brig. Gen. Benjamin D. Foulois, to Chief of the Air Service, AEF [American Expeditionary Forces], 29 January 1919," series A, volume 1, 82, in Edgar S. Gorrell, *History of the American Expeditionary Forces Air Service, 1917–1919*, U.S. National Archives and Records Administration (hereafter NARA), record group (RG) 120, microfilm publication M990, roll 4.

[7] "William P. Duvall [Commanding General Philippines Division] to AG [Adjutant General], Sub: Defense of Manila and Manila Bay, 19 October 1909," Adjutant General's Office document number (AGO) 1592073, entry 25, box 1, RG 94, NARA; and "LTC John T. Thompson to AG, 9 December 1909," AGO 1592073, entry 25, box 1, RG 94, NARA.

[8] See Mauer Mauer, ed., *The U.S. Air Service in World War I, vol. 2, Early Concepts of Military Aviation* (Washington, DC: Office of Air Force History, 1978), 3; the Ordnance Department was not working on a new gun, but merely designing an antiaircraft mount to fire the 3-inch artillery piece at a higher angle.

[9] Colonel Charles Gould Treat, USA, a former artillery instructor and commandant of cadets at West Point, led a previous board (1915) that recommended significant changes in the Army's artillery force structure and warned of the time needed to prepare American industry for wartime production. See DeWeerd, 40–42; Ordnance Department, *Army Ordnance 1917–1919, Estimates and Requirements Division*, pamphlet no. 85 (Washington, DC: Government Printing Office [GPO], 1919), 38.

[10] Frederick Palmer, *Newton D. Baker: America at War* (New York: Dodd, Mead & Company, 1931), 168.

[11] "Letter, Major R.C. Bolling to Chief Signal Officer of the Army, 15 August 1917," series A, volume 1, 46 and 52, in Gorrell, *History.*

[12] "Letter, Colonel Chauncey B. Baker, 'Report of the Baker Board,' 26 July 1917," Historical Division, Headquarters Department of the Army, in *United States Army in the World War, 1917–1919*, 17 vols. (Washington, DC: GPO, 1948) (hereafter, *USA/WW*), vol. 1, 55–89.

[13] At this point, each Army corps contained four combat and two replacement divisions.

[14] "Major H.A. Drum, Headquarters AEF, Office of the Chief of Staff, Operations Section, 'Report on Organization,' 10 July 1917," *USA/WW*, vol. 1, 93–101. The 75mm artillery piece used by U.S. antiaircraft batteries was made by the French. Poor industrial management decisions led the AEF to rely on the British and French for almost all equipment. This management fiasco, on the heels of the disastrous 1898 mobilization for the Spanish-American War, led to the creation of the Industrial College of the Armed Forces, now the Dwight D. Eisenhower School for National Security and Resource Strategy, at the National Defense University.

[15] Robert Arthur, *The Coast Artillery School, 1824–1927* (Fort Monroe, VA: Coast Artillery School Press, 1928), 62; Charles E. Kirkpatrick, *Archie in the AEF: The Creation of the Antiaircraft Service of the United States Army, 1917–1918* (Fort Bliss, TX: U.S. Army Air Defense Artillery School, 1984), 1.

[16] Colonel Jay P. Hopkins, "Final Report of the Chief of the Antiaircraft Service, 28 December 1918," *USA/WW*, vol. 15, 209; Kirkpatrick, 8–17.

[17] Hopkins, "Final Report," 209–215.

[18] Ibid., 210; Kirkpatrick, 22. For a concurring British opinion, see comments by the commander of the London Air Defense Area, Major General Edward Bailey Ashmore, in Ashmore, *Air Defence* (London: Longmans, Green and Co., 1929), 97–99.

[19] Jay P. Hopkins, "Antiaircraft Artillery," lecture, U.S. Army Center of Artillery Studies, Treves, Germany, May 21, 1919, 666/M, box 139, entry 9, RG 177, NARA, 2–3; Major Elmer J. Wallace, "Anti-aircraft Weapons," *Journal of the United States Artillery* 47 (May–June 1917), 309.

[20] The French autocannon was a 75mm artillery piece mounted on the back of a truck. Its official French designation was Matériel de 75mm Mle 1897. It was also known as the Canon de 75 modèle 1897.

[21] Ernest Stone, *Battery B: Thru the Fires of France* (Los Angeles: Wayside Press, 1919), 152.

[22] "Technical Report on an Aeroplane Brought Down, HQ, 2nd Army Antiaircraft Artillery Service, September 1918, AAS Records, Reel 8," cited in Kirkpatrick, 84; Stone, 152.

[23] The 5th Marine Regiment operated under the Army's 1st and 2nd Infantry Divisions. Information about Andrew B. Drum is from *New York Times*, January 24, 1955, obituaries, 23. For number of men trained, see Hopkins, "Final Report," 211–212.

[24] Super-elevation is the creation of additional elevation of the barrel of the weapon so as to offset the effects of gravity on the trajectory or flight of the round. The faster the muzzle velocity of the round, the flatter the trajectory. Weapons with faster muzzle velocities required less super-elevation.

[25] Hopkins, "Final Report," 212; Kirkpatrick, 27 and 112.

[26] Hopkins, "Final Report," 213–214; Kirkpatrick, 28–30.

[27] Hopkins, "Final Report," 214; Hopkins, "Lecture," 4–8.

[28] Kirkpatrick, 74.

[29] U.S. Army Air Forces, *Barrage Balloon Development in the United States Army Air Corps, 1923–1942* (Washington, DC: Assistant Chief of the Air Staff, Intelligence Section, Historical Division, 1943), 3.

[30] Maurer Maurer, ed., *The U.S. Air Service in World War I*, vol. 1, *The Final Report, and A Tactical History* (Washington, DC: Office of Air Force History, 1978), 175, 222, 284.

[31] Ibid., 308, 336.

[32] Ibid., 138. All pilots parachuted to the ground safely. One pilot died after his burning balloon and basket landed on him.

[33] "Telegram, Hunter Liggett to GHQ AEF, 8 July 1918, AAS Records, Reel 11," cited in Kirkpatrick, 106.

[34] Ibid., 112–113.

[35] Enlisted training schedules did not show time for aircraft recognition. Hopkins, "Final Report," 216–217; Kirkpatrick, 114.

[36] Kirkpatrick, 119.

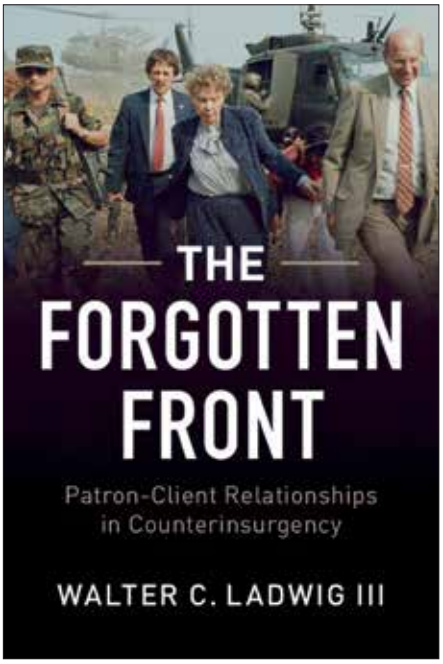
[37] Ibid., 120.

[38] Antonin Guillot, *Le Camp Américain d'Allerey (1918–1919)*, Groupe d'Etudes Historiques de Verdun-sur-le-Doubs, 1999, available in English at <http://net.lib.byu.edu/~rdh7/wwi/comment/Allerey/Allerey02e.html>.

[39] Kirkpatrick, 93–95.

[40] Hopkins, "Final Report," 217; Hopkins, "Lecture," 4; Kirkpatrick, 57; Ashmore, 98.

[41] See Bryon Greenwald, *Clear the Skies: American Antiaircraft Artillery and the Battle for Legitimacy, 1917–1945* (Norman: University of Oklahoma Press, forthcoming).



The Forgotten Front: Patron-Client Relationships in Counterinsurgency
By Walter C. Ladwig III
Cambridge University Press, 2017
$34.99 360 pp.
ISBN: 978-1316621804

Reviewed by Andrew Byers

This is an important book for theorists and practitioners of counterinsurgency alike. Ladwig, who teaches at King's College London, begins by pointing out that most U.S. counterinsurgency thinking errs in assuming that the United States will share common goals, interests, and priorities with the local government that it is supporting. As recent experiences in Iraq, Afghanistan, and Pakistan indicate, that assumption should not be taken for granted. In fact, many U.S. elements of strategy applied in counterinsurgency—ending political and military corruption, bolstering political legitimacy by addressing the public's concerns, engaging in economic reform—may appear just as threatening to the local government's interests as the insurgency itself. Some local governments' political and other interests simply do not coincide with those of the United States, and that can lead to tremendous difficulty in convincing them to adopt U.S.-backed reforms. Indeed, Ladwig's central argument is that the "forgotten front" in these conflicts—the relationship between the United States and local government it is trying to aid—is just as important.

The Forgotten Front is structured with three theoretical chapters and three case studies—the Philippines during the Hukbalahap (Huk) Rebellion, 1946–1954; South Vietnam under Ngo Dinh Diem, 1955–1963; and El Salvador during its civil war, 1979–1991. Ladwig concludes with a final chapter with policy prescriptions and implications. The three case studies vary widely in outcome: the Philippines is considered a success; Vietnam, a clear failure; and El Salvador's results are much more mixed. So what explains the differing results?

According to Ladwig's analysis, outcomes were primarily determined by the amount of influence the United States was able to exert over its ally to reform itself and adopt desired U.S. policies. In the Philippines, where the United States was able to exert the most influence, a successful outcome was achieved. In South Vietnam, where the United States was never able to induce internal reform, failure resulted. In El Salvador, where the United States was able to exert a moderate and fluctuating amount of influence, a much more mixed outcome resulted.

In each case study, Ladwig examines discrete "influence events" in which the host nation began by opposing U.S. calls for reform or policy change and the United States then attempted to exert influence over its recalcitrant client. Influence is, of course, difficult to measure, but Ladwig uses agency theory—concerned with how one party attempts to motivate another to act on its behalf—to assess the patron-client dynamics in each case study. The United States had two chief strategies for influencing its clients: *inducement* (a client will comply with the patron's preferred policies if aid is unilaterally provided and strong statements of support are made) and *conditionality* (polices that attempt to shape a client's behavior by making assistance contingent on prior compliance with the desired policy). One of Ladwig's key findings—a point that should shape future U.S. policy choices—is that client governments almost universally complied with U.S. desires for policy change when it attached conditions on its aid, but never when it simply provided inducements. Open-ended inducements, Ladwig found, simply do not work.

Ladwig argues that significant credit for the successful counterinsurgency in the Philippines must go to the United States because of its sustained, active intervention that relied heavily on the use of conditional aid. This pushed the Filipino government to adopt the necessary military, political, and economic reforms to implement and execute a successful counterinsurgency campaign. The U.S. dominant influence approach was one of conditional aid and constant pressure, always tying aid to reform, and it worked.

In the case of Diem's South Vietnam, the United States primarily employed inducements, with little success; significant pressure was seldom brought to bear to force Diem to adopt the reforms that would have led to long-term stability of his government, and he was never held accountable for his failures. The United States only tried conditioned aid twice during this period and appeared to gain greater influence as a result, but these efforts were not sustained. Inducements without conditioned aid failed dramatically in the early years of the Vietnam War.

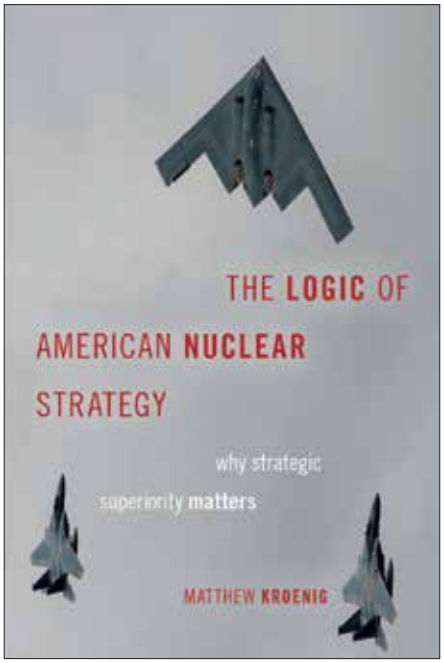
In El Salvador, U.S. influence varied over time and from issue to issue. The United States alternated use of inducements and conditionality across three different administrations, but important reforms and policy changes only occurred when strict conditions were attached to aid.

There are, of course, obvious policy implications and lessons learned here for the United States well beyond these three historical case studies. For example, as the United States revisits its relationship with Pakistan and considers how it might best support its goals in places

like Afghanistan and Iraq, it should think hard before offering unrestricted aid, which has an exceedingly poor track record in forcing clients to make the kinds of internal changes needed to compete successfully against an insurgency. More explication and analysis on why governments often choose inducements over conditionality is needed, since open-ended inducements with no specific actions required in exchange for the aid are so common. Deeper analysis is also needed of the complexities and difficulties of adopting a policy conditionality.

Because of its central theme and extensive supporting evidence, *The Forgotten Front* is one of the most significant recent books on counterinsurgency, with major policy implications for the United States and its allies. **JFQ**

Andrew Byers is a former Visiting Assistant Professor of History at Duke University and is Co-Founder of the Counter Extremism Network.



The Logic of American Nuclear Strategy: Why Strategic Superiority Matters

By Matthew Kroenig
Oxford University Press, 2018
$29.95 280 pp.
ISBN: 978-0190849184

Reviewed by Michael Fitzsimmons

Famously, Henry Kissinger once wondered out loud, "What in the name of God is strategic superiority? . . . What do you do with it?" Over 40 years later, the questions still resonate, and Georgetown University professor Matthew Kroenig aims to tackle Kissinger's quandary. *The Logic of American Nuclear Strategy* begins with a puzzle: if the basic premise of U.S. nuclear deterrence strategy is supposed to be that the United States can survive a massive nuclear attack and retaliate with great force (so-called assured destruction), why have successive Presidents maintained nuclear capabilities that go well beyond what is required for this goal?

Robert Jervis asked this same question back in 1984 in a book titled *The Illogic of American Nuclear Strategy* (Cornell University Press, 1984). His answer was—more or less—that policymakers do not understand what they are doing. Kroenig's book serves, in part, as a rebuttal to Jervis's argument.

Of course, the issues here are far from just a rehash of Cold War debates. To the contrary, nuclear strategy is back at the forefront of national security policy thanks to nuclear modernization efforts by Russia, China, and North Korea. These developments have been duly noted in the Defense Department's new National Defense Strategy and Nuclear Posture Review, which have effectively put efforts toward long-term nuclear disarmament initiated by President Barack Obama (with the support of such stalwart Cold Warriors as Henry Kissinger, George Shultz, Sam Nunn, and Bill Perry) on the back shelf.

So Kroenig's book arrives at an auspicious time for new analysis on nuclear strategy. The centerpiece of his argument is the "superiority-brinksmanship synthesis theory": that nuclear superiority—a larger or otherwise more capable nuclear posture than a rival—increases a state's power in crisis bargaining by means of increasing its resolve. This builds directly on the premise first established by Thomas Schelling that nuclear crises are "competitions in risk taking," where the party most willing to run risks (that is, engage in brinksmanship) will prevail.

To make his case, Kroenig organizes the book in two parts, subtly tilting the analytic playing field in his direction with the subtitles "The advantages of nuclear advantages" and "The disadvantages of nuclear advantages?" He identifies four interrelated advantages: reducing the cost of nuclear war, increasing resolve in crisis, providing coercive bargaining leverage, and enhancing deterrence. He then critiques arguments about four ostensible disadvantages of U.S. nuclear superiority: increasing the likelihood of nuclear war, sparking arms races, exacerbating proliferation, and costing too much.

The book is the first in Oxford University Press's "Bridging the Gap" series, aimed at improving the worthy but perennially difficult goal of better linking academic and policy experts in areas of international relations. In this context,

the book is exemplary in several respects. First, it tackles a complex policy problem involving several related but competing objectives (such as deterrence, assurance, military effectiveness, stability, nonproliferation) without limiting its analysis to only one relevant policy variable. Second, it employs a variety of methods to interrogate its subjects, including statistical analysis, case studies, simulation, deductive reasoning, and reviews of the rich existing literature on nuclear strategy. Third, Kroenig gives substantial space and analytic attention to alternative theories that compete with his own. Fourth, as noted, he does not limit his case to explaining the benefits of nuclear superiority but devotes the second half of the book to rebutting arguments about the disadvantages of nuclear superiority. Together, these features make for a thorough, clear, and transparent analysis.

At the same time, Kroenig's framing of his argument sets up what many policy analysts may view as a strawman. The notion that assured destruction should be the essence of U.S. nuclear strategy may be "a widespread and long-standing academic conventional wisdom," as Kroenig argues. However, as he points out himself, this has seldom—if ever—been the sole rationale given among policymakers, who have touted substantial consideration for decades to counterforce strategies, damage limitation, and options for limited nuclear operations that diverge from an assured destruction strategy. Kroenig's description of the conventional wisdom is a bit of a caricature: "Scholars argue that nuclear capabilities above and beyond a second-strike capability do not matter." Some do, but many others cited in Kroenig's bibliography (such as Richard Betts, Paul Bracken, Frank Gavin, Brendan Green, Keir Leiber, Austin Long, Daryl Press, and Philip Zelikow) do not.

But what about the overall case for pursuing strategic superiority? Kroenig builds a formidable argument that should capture the attention of both academic and policy specialists in the field. But caution is warranted, as the evidence presented is rather more ambiguous than his confident claims suggest.

One of the pillars of the analysis is the notion that nuclear superiority lowers a state's expected costs in a catastrophic nuclear war. Key to this is Kroenig's assessment that U.S. policymakers in a crisis would see a meaningful difference between war outcomes of, say, 50 million and 70 million American dead. While no one would argue that the 20 million difference is irrelevant, there are three major problems with this argument.

First, the nuclear war scenarios he simulates are only all-out, arsenal-emptying exchanges on the combatants' homelands. Most would agree that these are the least likely of nuclear war scenarios today, and even during much of the Cold War. Instead, scenarios that have preoccupied strategists recently are limited regional conflicts and inadvertent escalation in contexts of U.S. extended deterrence, perhaps even without any targeting of the combatants' homelands. Kroenig acknowledges this point in the final pages of the book but essentially argues that his logic extends to limited nuclear war since the risk of wider escalation is always present.

Second, the most relevant question with respect to how leaders would think about costs and benefits of nuclear war is not whether they are indifferent to between 50 and 70 million casualties. Leaving aside the fact that such estimates are wildly uncertain in any case, the key question is whether leaders might see the stakes in a plausible political conflict with another nuclear rival as being worth enduring 50 million casualties, but *not* 70 million. It is this logic that would link strategic superiority to greater risk propensity in a crisis, but this logic is harder to believe.

Of course, whether leaders think this way is an empirical question. Kroenig's case would have been bolstered by even a single example of a U.S. leader articulating this kind of logic, but none is presented. In his case studies of nuclear crises (chapter 3), he does offer useful examples of leaders identifying nuclear superiority as a consideration in their behavior during crises. But this falls well short of demonstrating that the cost-benefit logic he lays out is actually relevant to decisionmaking in nuclear states.

The book presents several statistical analyses on the value of nuclear weapons for coercion. These questions are especially important to policy debates, since the locus of current concern over nuclear war risks is in regional conflicts between nuclear powers or their proxies in places like Korea, Taiwan, and Eastern Europe. In such scenarios, revisionist powers may hope that their nuclear weapons could serve as a shield for limited conventional aggression. So the book's statistical analysis on coercion is welcome and valuable. However, Kroenig claims more power for it than is warranted. He translates 20 "nuclear crises" where "victories" were evenly split between states with and without nuclear superiority into 52 observations for regression analysis. That analysis shows nuclear superiority as the most important determinant of crisis victory. Kroenig clearly explains the methodology that enables such a counterintuitive result, but his interpretation of the results as a "powerful relationship" between superiority and crisis outcomes and as "strong empirical support" for his arguments is a stretch. Readers interested in this should review the rival arguments of scholars Todd Sechser and Matthew Fuhrmann, who come to different conclusions in their book *Nuclear Weapons and Coercive Diplomacy* (Cambridge University Press, 2017).

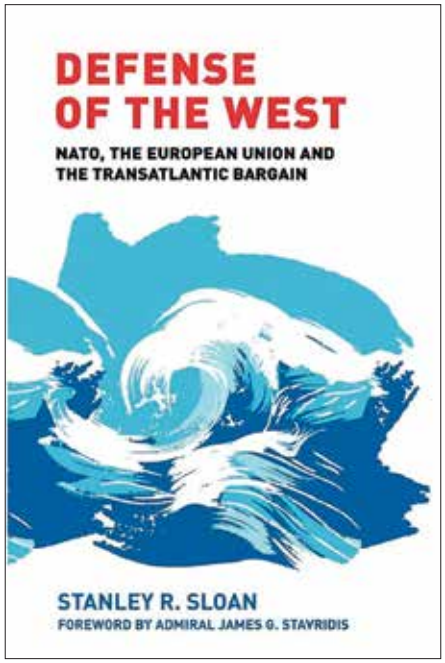
Importantly, Kroenig rejects traditional arguments that strategic superiority can be destabilizing by generating incentives for preemptive first strikes. This ultimately leads him to conclude that an "ideal nuclear posture" is one that would render the United States "as invulnerable as possible to nuclear attack from its three nuclear-armed rivals . . . while simultaneously maximizing adversary vulnerability to nuclear war." He leaves unsaid that such a policy applied to current U.S.-Russia relations would be a major departure not only from the arguments of the academics he criticizes, but also from decades of U.S. strategy whose logic he purports to explain (not to mention from U.S. obligations under current arms control regimes).

Perhaps the most significant issue with deriving policy implications from the analysis is Kroenig's definition of superiority itself. In the book's foundational quantitative analysis, superiority is defined by the difference between two nuclear states' numbers of warheads. Kroenig acknowledges that this is an imperfect measure but downplays the limitation's importance. A true accounting of superiority would address not only warhead counts but also a wide variety of capabilities such as command and control, delivery vehicles, readiness posture, defenses, and the like. In a nuclear peer relationship, as between the United States and Russia, policymakers will never really think about superiority in the way that Kroenig measures it. And in other key relationships, like between the United States and China, capability disparities are so large that superiority as a policy choice is remote from the most important drivers of nuclear strategy.

By the same token, the rationales underpinning the expansion or modernization priorities of today's major nuclear powers are not tied to the aggregate nuclear balance among countries. Instead, they are efforts to enhance deterrence and resilience under specific, stressful scenarios where nuclear attack could conceivably be contemplated.

In this sense, the book's title works better as a riposte to Jervis than as a policy guide. The "logic of American nuclear strategy," after all, has been shaped by many considerations, with "superiority" being just one among them. And readers should be particularly hesitant to accept Kroenig's implication that a U.S. arsenal far larger than Russia's would be an unambiguous and unvarnished benefit to U.S. national security. Nevertheless, Kroenig certainly succeeds in showing how and why strategic superiority can matter, and his analysis will undoubtedly earn a prominent place in both academic and policy debates in the years ahead. **JFQ**

Michael Fitzsimmons is a Visiting Research Professor in the Strategic Studies Institute at the U.S. Army War College.



Defense of the West: NATO, the European Union and the Transatlantic Bargain

By Stanley R. Sloan
Manchester University Press, 2016
$34.95 400 pp.
ISBN: 978-1526105752

Reviewed by Sten Rynning

In this timely book, one of the most seasoned observers of Atlantic security affairs, Stanley Sloan, offers insights about the future of the North Atlantic Treaty Organization (NATO). These insights are linked to a detailed examination of the Alliance's origins and development. Sloan pinpoints three key alliance drivers—national interests, common values, and political leadership—and offers a carefully circumscribed optimistic conclusion: common national interests and values are strong, but political leadership is volatile and in need of constructive and effective management.

Sloan's circumscribed optimism turns out to be quite justified. Shortly after the publication of the book, Great Britain decided to exit from the European Union and Donald Trump was elected President of the United States. Trump had been initially hostile toward the Alliance, labeling it "obsolete," then declaring that it no longer was. He disappointed Allies at his visit to NATO headquarters on May 25, 2017, when he refused to explicitly back the Article 5 clause. Trump's speech reflected the inward looking and dark "American carnage" view of his inaugural speech, which is at odds with the reassurances of traditional U.S. policy and the speeches of Secretary of Defense James Mattis.

Sloan is to the point when he writes that if the Allies want NATO, they can have it but they should consider putting some actions behind their words. Put differently, they can wreck the Alliance by not investing in it. There is probably sufficient commonality of values and interests to justify and prolong NATO as it currently exists, but new nationalist values are entering the arena, and the political leaders promoting these new values have no real appreciation for the Alliance, past or future. This goes not only for President Trump, but also the Brexit movement, which pretends to be pro-NATO but is openly disdainful of its European Allies.

The book offers a framework for appreciating this challenging situation. Like this reviewer and other observers, Sloan did not foresee that the disruptive power of nationalism would come from the United States and instead zooms in on European developments. Naturally, we should not discard the possibility that by holding back on his NATO commitment, President Trump was simply seeking better burdensharing. There is widespread agreement, also in Europe, that European defense budgets must increase to correct the trans-Atlantic bargain. However, by reducing NATO to a transactional money exchange—a type of U.S. welfare project for European Allies—and by being silent on collective geopolitical interests, President Trump is effectively jeopardizing the political foundation of the Alliance. Sloan's book is an ideal gateway to appreciate this challenge and its serious implications.

The buildup to the book's concluding section on NATO's potential for change is built on a thorough historical review.

The initial section explores Cold War NATO, and a second section investigates post–Cold War NATO adaptation. It is manifestly clear in this investigation that NATO walks on two legs: one military and one political. Both are needed to keep NATO standing. The most explicit statement to this effect was the so-called Harmel Doctrine. This doctrine, formulated by then–Belgian Minister of Foreign Affairs Pierre Harmel, was adopted by the Alliance in December 1967. The doctrine advocated a strong defense combined with good diplomatic relations with the Warsaw Pact states. It reverberated through the making of all European consultation and disarmament mechanisms (the Conference on Security and Cooperation in Europe) and the post–Cold War era where NATO became the prime motor of continental order. The Alliance's extension eastward thus followed. The U.S. congressional decision to back NATO enlargement defines one of the most illuminating sections and most personal moments for the author.

As the book makes amply clear, continental order in Europe is based on a mix of allied military strength and political commitment to principle. *Defense of the West* effectively communicates that if Allies allow collective principles to erode, they are tempting adverse political change of continental consequences. The same can be said for the global order, which is American-inspired and American-led. The book mentions, but does not delve into, this global dimension, which is evident in NATO's global network of partners that was dramatically extended and solidified by the Afghan campaign of the last decade. For Sloan, political principle both in Europe and globally amount to the same thing: a liberal-democratic reservoir of energy supportive of the U.S.-led international order. However, it is a potential for support that will be realized only by steady political leadership and continued engagement. Secretary Mattis's new defense strategy contains an entire line of effort that appears to recognize that.

Sloan has, over the course of decades, tracked the trans-Atlantic bargain and probed the potential for a fully fledged Atlantic community. Today, the bargain remains, while the community is a vision struggling against nationalist values.

Defense of the West reads exceptionally well. More importantly, its clear argument that NATO has endured on account of interests, values, and leadership make it ideal for personal reflection or classroom education. Anyone who takes an interest in the future of the Alliance, Europe, and global security will find this book simultaneously thought-provoking and indispensable. **JFQ**

Sten Rynning is Professor of International Relations in the Department of Political Science at the University of Southern Denmark, where he also heads the Center for War Studies. Dr. Rynning was a Visiting Professor at American University when he wrote this review.

New from NDU Press

for the Center for Complex Operations

Like, Comment, Retweet: The State of the Military's Nonpartisan Ethic in the World of Social Media

by Heidi A. Urben

Past research contends that with the exception of voting in Presidential elections, military officers' political participation is fairly muted. Through a survey of more than 500 military elites attending the United States Military Academy and National Defense University, this case study seeks to establish the nature and extent of political expression throughout social media and whether such expression is in keeping with the norm of nonpartisanship.

Findings suggest that while most military elites continue to identify as conservative and Republican, fewer appear to do so today than at any other time over the past 30 years. Military elites who identify as liberals and Democrats are more likely to have more politically diverse military friends on social media, but are also more likely to report feeling uncomfortable by their friends' politics. This study concludes by considering the implications these findings carry for the norms of an apolitical, nonpartisan military.

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U.S. Coastguardsman offloads cocaine at Coast Guard Station Miami Beach, Florida, September 18, 2014 (U.S. Coast Guard/Jon-Paul Rios)

The U.S. Government's Approach to Economic Security

Focus on Campaign Activities

By George E. Katsos

Threats to economic security and their potential effects often disrupt or fracture societies. For nations, economic security perpetuates stability and underpins national institutions that provide and maintain it. For populations, economic security involves consistent access to employment opportunities, personal assets, and assured income. While human ambitions can inflame pressures on economic security, oppressive government practices can lead to job loss, unemployment, persistent poverty, and lack of access to income. Moreover, living conditions worsened by instability and political uncertainty can elevate fears and hopelessness. These circumstances can engender civilians to consider desperate measures, which frequently include uprooting from their established communities in search of a better standard of living. As these issues overwhelm institutional capacities and disturb regional norms, the demand for intervention from security provider nations such as the United States is expected to not only continue but also increase.

To compare present day distinctions of economic security, descriptions and definitions are presented from both U.S.

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Government (USG) and non-USG organizational documentation. In 2017, the National Security Strategy described economic security as an element of national security and stated that economic vitality, growth, and prosperity are absolutely necessary for American power and influence.[1] The Department of Homeland Security (DHS) economic security perspective is based on the increasing dependence on the flow of goods, services, people, capital, information, and technology across borders.[2] The Department of Defense (DOD) defines *economic security* as the ability to protect or advance U.S. economic interests, shape international interests to American liking, and possess material resources to fend off non-economic challenges.[3] The United Nations (UN) focuses on an assured basic income, while the International Committee of the Red Cross defines economic security as the ability of individuals, households, or communities to cover their essential needs sustainably and with dignity.[4] For purposes here, economic security includes the aforementioned but focuses on USG commitments and stabilization efforts. This analysis is based on research and informal discussions and is categorized into the following sections: legislation, international engagement, executive branch strategy and activities, and military campaign activities in support of economic security efforts.

Legislation

Per the Constitution, Congress has authority over Federal financial and budgetary matters. Its exclusive power to appropriate funds and regulate commerce allows it to pass revenue and related crisis-mitigation legislation when the country is under considerable economic pressure. The Constitution also provided Congress with authority to establish a monetary system of paper currency that at the time was based on precious metals (gold and silver). Today, the U.S. Government practices stabilization abroad in many areas and protects American citizens from economic shocks stateside. From American independence to World War I, Congress generated revenue through taxes, tariffs, and customs duties.[5] Between world wars, Congress created the Federal Reserve System to supervise, regulate, maintain, and stabilize the financial system; produced reforms to recover from an economic depression; and enacted trade restrictions on Japan in response to its aggressive expansion in Asia. Postwar, Congress established an economic advisory council, foreign assistance and financial assistance organizations (for example, the U.S. Trade and Development Agency and Overseas Private Investment Corporation), and a special trade representative to conduct U.S. trade negotiations.[6] Between 1963 and 1971, the United States lifted itself off the gold standard and from silver certificates.[7] Further legislation attempts were to eliminate poverty, expand educational opportunities, increase the safety net for the poor and unemployed, and tend to the health and financial needs of the elderly.[8]

International Engagement

The U.S. Government works within established international economic agreements developed by political entities of similar interest. From one end of the economic security spectrum, the United States identifies and cooperates with some countries on a "most favored nation" or "permanent normal economic relation" status. Toward the opposite end, activities within a cooperative environment can become more competitive with tariffs, financial/import/export restrictions, organized boycotts, asset freezing, economic sanctions, trade/technology/travel bans, embargoes, no-fly/no-drive zones, and blockades and can deteriorate into conflict. After World War I, the League of Nations was created to assist in mitigating future conflict, but by the end of World War II, the League was replaced by the UN, which also supported economic development efforts, job creation, and poverty elimination. The UN Monetary and Financial Conference, also known as the Bretton Woods Agreement, subsequently established an international monetary system tied to gold that provided international economic stability.[9] Organizations created by the end of post–World War II included the International Monetary Fund, International Bank for Reconstruction and Development (IBRD), World Bank Group (the IBRD and International Development Association are better known as the World Bank), and General Agreement on Tariffs and Trade that later transitioned into the World Trade Organization.[10] Furthermore, global summits (for example, the G-8) were created to resolve differences between wealthy nations regarding economic decisionmaking. The UN also created the UN Development Programme to help manage organizational economic development efforts and established exclusive economic zones (EEZ) at sea where nations can explore and use marine resources for economic purposes.[11]

The Executive Branch

Economic security underpins national security and is the foundation for national power capabilities. The President signs the National Security Strategy, which articulates overarching strategic policy goals and national power direction on matters related to economic security. Subsequently, executive branch departments produce organizational strategies and plans in support of the strategy. The President can also issue policy direction through executive orders. Such orders included a response to the pre–World War II economic depression and the creation of the National Economic Council to coordinate and advise the President on economic policymaking.[12] Executive orders issued specifically for national security purposes are called Presidential directives. To better review a breakdown of USG economic security efforts, the following overview captures them in three cascading categories: significant, additional, and remaining.

Significant Efforts. Two organizations that lead USG efforts in foreign policy and economic assistance are the Department of State and U.S. Agency for International Development (USAID). While State manages foreign affairs

Visit, board, search, and seizure team from USS *Halsey* approaches two Yemeni dhows intercepted during routine maritime security operations, Gulf of Aden, February 5, 2012 (U.S. Navy/Krishna M. Jackson)

for the President, USAID integrates economic development and disaster assistance expertise to implement abroad. Both organizations are structured under the Secretary of State and follow guidance outlined in strategic documents that include economic reforms, combating corruption, building markets for U.S. goods and services, and assisting other nations in crisis, including those disrupted by natural disasters. Through diplomacy and assistance, both State and USAID provide a competitive forward-deployed political capability that can achieve national economic security objectives.[13] State also implements diplomatic pressure through its Defense Trade Controls Directorate.

Two other departments that play significant roles in achieving USG economic security objectives are the Department of the Treasury and Department of Commerce. Treasury activities are meant to preserve confidence in the U.S. economic system. Informed by its own in-house intelligence expertise and its Office of Foreign Assets Control, Treasury cuts the lines of terrorist financial support, fights financial crime, enforces economic sanctions against rogue nations, and combats financial support tied to weapons of mass destruction (WMD) proliferation.[14] Abroad, Treasury assists multilateral development banks, strengthens relationships with trading partners, and negotiates trade agreements that benefit the United States. At home, Treasury identifies social safety programs to help protect American citizens from negative economic shocks as well as manages government revenues, produces currency and coinage, collects taxes, pays government bills, and supervises banks.[15]

Commerce strengthens the Nation's digital economy and promotes job creation and improved living standards by creating a domestic infrastructure that encourages economic growth, technological competitiveness, and sustainable development. As the coordinating agency for the National Disaster Recovery Framework's Economic Recovery Support Function, Commerce leads efforts that support the return of economic and business activities (including agricultural) to health and develops economic opportunities that are sustainable and economically viable.[16] Furthermore, Commerce's Census Bureau captures and releases poverty statistics in the United States, the International Trade Administration promotes U.S. exports of nonagricultural services and goods, and the Economic Development Administration provides grants and technical assistance to economically distressed communities.[17]

Additional Efforts. Other departments make substantial contributions to USG economic security efforts. The Department of Homeland Security identifies vulnerabilities to U.S. economic security, collaborates to secure global systems, collects customs revenue, enforces U.S. law, and provides domestic economic security and stability through coordination mechanisms managed by its Federal Emergency Management Agency (FEMA).[18] Furthermore, Homeland Security administers the Coast Guard and U.S. Customs and Border Protection,

which facilitate the legitimate use of waterways subject to U.S. jurisdiction—including the EEZ—and monitor border crossings, respectively.[19] The Department of Justice and its Federal Bureau of Investigation (FBI) promote economic security by upholding and reinforcing legal paradigms that support growth and recovery by investigating and prosecuting economic crimes.[20] DOD supports USG economic security efforts primarily through its military workforce.[21] Besides providing physical security, DOD assists to disrupt and prevent predatory economic practices, provides assistance in all kinds of environments, and rebuilds and sustains economic infrastructure disrupted by instability and conflict.

Remaining Efforts. Remaining efforts include the Department of Energy's support of technologies to create jobs and growth of the national economy, the Department of Housing and Urban Development's Promise Zones initiative to drive the revitalization of high-poverty communities, and the Departments of Education and Agriculture's focus on helping find solutions to alleviate conditions that reinforce the prevalence of high-poverty neighborhoods and persistent poverty.[22] Additionally, the Department of Transportation assures the accessibility and health of Federal thoroughfares on land and water (roads, bridges, rail).

As USG entities continue to develop plans that include support of national economic security policy objectives, the government is uncertain how it will react to international economic system disruption, complete collapse, or aggressive competitor measures within the global economy. Free of concerns from Western democracies, some foreign governments and entities take aggressive stances in defining themselves and pursuing their own political dominance. In 1948, the Soviet Union conducted a yearlong land blockade of Berlin that prevented food, commerce, and other resources from flowing into the city in an effort to disrupt and deter U.S. and Allied influence in the region. In 1973, the Organization of Petroleum Exporting Countries established an oil embargo in response to policies in support of Israel during the Arab-Israeli conflict, significantly impacting economies dependent on the natural resource. In 2006 and 2009, the Russian Federation shut off natural gas support to Ukraine to coerce higher payments and influence behavior of others dependent on its Cold War–era prepositioned pipeline systems.[23] In Asia in 2016, China tried to establish an air defense identification zone (no-fly zone) over the South China Sea to protect its economic benefits by controlling the region.[24] Last year the Russian Federation published its first economic security strategy in over 20 years to monitor and assess its domestic economic security and provide a warning to other nations that it will neutralize both internal and external threats related to the competitive advantages of developed countries.[25] Most recently, the U.S. and Chinese governments elevated threats and actions against each other on trade tariffs, taxes and duties, and investment restrictions. Issues similar to and such as these can ignite concerted USG diplomatic action and even DOD workforce employment.

Military Campaign Activities

Threats that national economies encounter may likely involve a response from security institutions such as DOD. In support of USG activities, combatant commanders and their staffs integrate economic considerations into plans, preparation, training, and missions to influence adversarial behavior, maintain order, prepare for relief, or attempt to mitigate issues impacting local and regional stability, such as poverty and unemployment. However, economic considerations may not always be feasible during implementation due to competing operational interests that a commander must assess, such as the inherent right of self-defense and combat. To socialize the DOD economic security role, discussions and implications appear in joint doctrine.[26] While many terms can be used to describe DOD economic security efforts (investments, deployments, operations), this discussion refers to them as *campaign activities.*

DOD campaign activities support USG contributions to international, regional, and national approaches that can create secure operational areas where economic activity can thrive and adversarial behavior can be influenced to be more in harmony with local population needs and U.S. vital interests. At the international level, DOD supports USG peacekeeping efforts to stabilize nations and their economies through force contributions and individual expertise. These efforts involve cooperation with other nations and entities. At the regional level, DOD supports USG cooperation efforts with entities such as the North Atlantic Treaty Organization (NATO) with force contributions and individual expertise. In support of domestic efforts, combatant commanders conduct homeland defense missions, offer defense support (as well as training and exercises) to civil authorities, and participate in special events and public engagement that can generate confidence in the U.S. economic structure. The following two sections articulate some of the ways that combatant commanders can support USG efforts to apply and relieve economic pressure in potential operational areas.

Enforcement. DOD campaign activities can apply pressure on physical and virtual freedom of movement (divert, disrupt, delay, destroy) through land, sea, air, space, and cyberspace in order to assist in upholding international, regional, or USG economic restrictions into or out of a nation or specified area. Combatant commanders enforce diplomatic policies and political decisions to control access to areas of interest defined by the President. This includes enforcing strong diplomatic measures such as embargoes (banning or blocking the flow of trade or personnel), economic sanctions (specific economic penalties), no-fly/no-drive zones, and other control methods (freezing of assets).[27] For example, a blockade at sea monitors, intercepts, and enforces the stop of flow of commerce or opposition force movement. In support of plans, mandates, or orders, a geographic combatant commander's maritime interception capability can establish a barrier that authorizes armed boarding parties

to visit merchant ships, examine documents and cargo, search for evidence of contraband including WMDs, divert vessels failing to comply with guidelines set forth by a sanctioning body or nation, seize suspect vessels and their cargo that refuse to divert, and destroy vessels and cargo if necessary.[28] Historical examples include the 1862 Union unilateral naval blockade of Confederate territory during the American Civil War to deter foreign assistance and trade, the 1962 unilateral U.S. naval blockade (politically labeled a "quarantine") established to deter Russia from delivering offensive weapons to Cuba, the 1990 U.S. contribution to a coalition naval blockade (politically labeled an "interdiction") to enforce a UN international embargo against Iraq, and the 1992 U.S.-supported NATO naval blockade authorized by the United Nations to deter international water shipments to the former Yugoslavia.

On land, similar campaign activities involve blocking movements or checkpoints. In 1990, U.S. troops under U.S. Central Command (USCENTCOM), in support of an allied coalition, created a land defense of Saudi Arabia to deter Iraqi ground expansion from occupied Kuwait. Other campaign activities support no-fly/no-drive zones and block or control the flow of traffic on the ground and in the air. In 1990, USCENTCOM supported UN-mandated no-fly/no-drive zones to protect civilian populations in Iraq.[29] In 2011, U.S. Africa Command (USAFRICOM) supported a UN-authorized no-fly zone over Libya to prevent government forces from approaching rebel strongholds and transitioned it to NATO management.[30]

Other campaign activities conducted with interagency personnel develop evidentiary records against terrorist and criminal networks through their finances. For example, combatant commanders cooperate with agencies like Homeland Security and the FBI to share threat information on corruption and malicious cyber activities.[31] Recently, DOD cooperation with Justice and Treasury led to freezing assets of one Iranian entity and 10 Iranian individuals for significant malicious cyber-enabled activities.[32] In U.S. Pacific Command, DOD personnel partnered with Treasury analysts to identify terrorist support networks and their finances in Southeast Asia. In USAFRICOM, DOD personnel worked with Treasury analysts in efforts to counter terrorism, drug activities, and threat networks and their financial support.[33] Combatant commands also conduct campaign activities in defense of the homeland and USG interests, to include illegal WMD acquisition and cyber attacks of significant consequence that can produce serious economic impact on the United States.[34]

Assistance. DOD campaign activities can relieve pressure on unstable economies and host-nation governments, their populations, and uprooted civilians. Civilian-military cooperation can increase the role of economic development in advancing national security priorities along with defense and diplomacy.[35] Civilian entities such as State or USAID normally have the USG lead responsibility, but combatant commands may render support to efforts, such as the restoration of functioning economic production and distribution (restoring employment opportunities, initiating market reform, mobilizing domestic and foreign investment, supervising monetary reform, and rebuilding public structures). Assisting USAID in conflict prevention, combatant commanders support USG stabilization and reconstruction efforts, development and cooperation efforts, and hazard response and relief to break cycles of violence abroad caused by unemployment and poverty. Campaign activities in support of USG stabilization and reconstruction efforts are small-scale and short-term projects designed to promote stability on the ground. Through the provisions of special operations forces training, civil-military interaction, and Provincial Reconstruction Team oversight like those conducted in Afghanistan and Iraq, combatant command personnel monitor and partake in economic stability tasks as well as identify the most effective transition of military activities into civilian economic efforts.[36]

Campaign activities can include establishing secure economic zones where civilians are able to conduct commerce and business activity as well as be available as local labor for quick impact projects. In Afghanistan and Haiti, the United States participated in economic reconstruction efforts where DOD provided funding that focused on local production, consumption, and export of goods.[37] For assistance, combatant commanders can coordinate early with partners and stakeholders to request flexible and immediate funding for work initiatives similar to the USCENTCOM Commander's Emergency Response Program utilized in Afghanistan and Iraq that quickly implemented postconflict stabilization and reconstruction programs.

Combatant commanders and their forces also address underlying economic drivers of conflict by assisting in assuring access to basic income and employment and, when necessary, providing government-financed social safety nets, agriculture and economy diversification, and reconstruction protection of critical economic infrastructure. Furthermore, combatant commands assist in critical infrastructure program implementation via the Army Corps of Engineers and naval construction battalions to bolster economic stabilization and rebuild facilities such as sea and airport dual-use infrastructure. Combatant commands also support USG restoration programs of revenue-earning thoroughfares (land, water) and enterprises (for example, Iraq oil and Guinea aluminum ore mining) to accelerate economic recovery as well as provide assistance to develop monetary policy and a central bank system.[38]

Larger scale and longer term projects are designed to promote strategic objectives and partnerships.[39] Combatant commanders support these development and cooperation efforts to build partner capacity and host-nation economic security. Normally, these activities are conducted by USAID; however, campaign activities socialized with Chief of Mission and other country managers may be necessary when conditions restrict civilian movement or when civilian agencies have not yet arrived in the area. USAFRICOM personnel presently engage with partners and organizations through security

cooperation to develop self-sustaining capabilities for their own EEZ maintenance. Through civil affairs teams (and even coordination agencies such as USAID and FEMA), U.S. Special Operations Command provides on-the-ground observations of economic security threats in real time and mitigates issues that can exacerbate unemployment, poverty, and prolonged periods of recovery.[40]

Economic security can stabilize nations and regions and lead to building and improving community relationships, lessening criminal influences on vulnerable populations, and decreasing diplomatic problems that question the legitimacy of good governance. But it can also converge or conflict with other nations in pursuit of their own economic or vital national interests. As such, U.S. policies and presence abroad may in the future generate the very challenges that the U.S. Government and combatant commanders need to alleviate. Regardless, the application and relief of USG pressure on national economies and organization finances will continue to perpetuate DOD involvement in the years to come. JFQ

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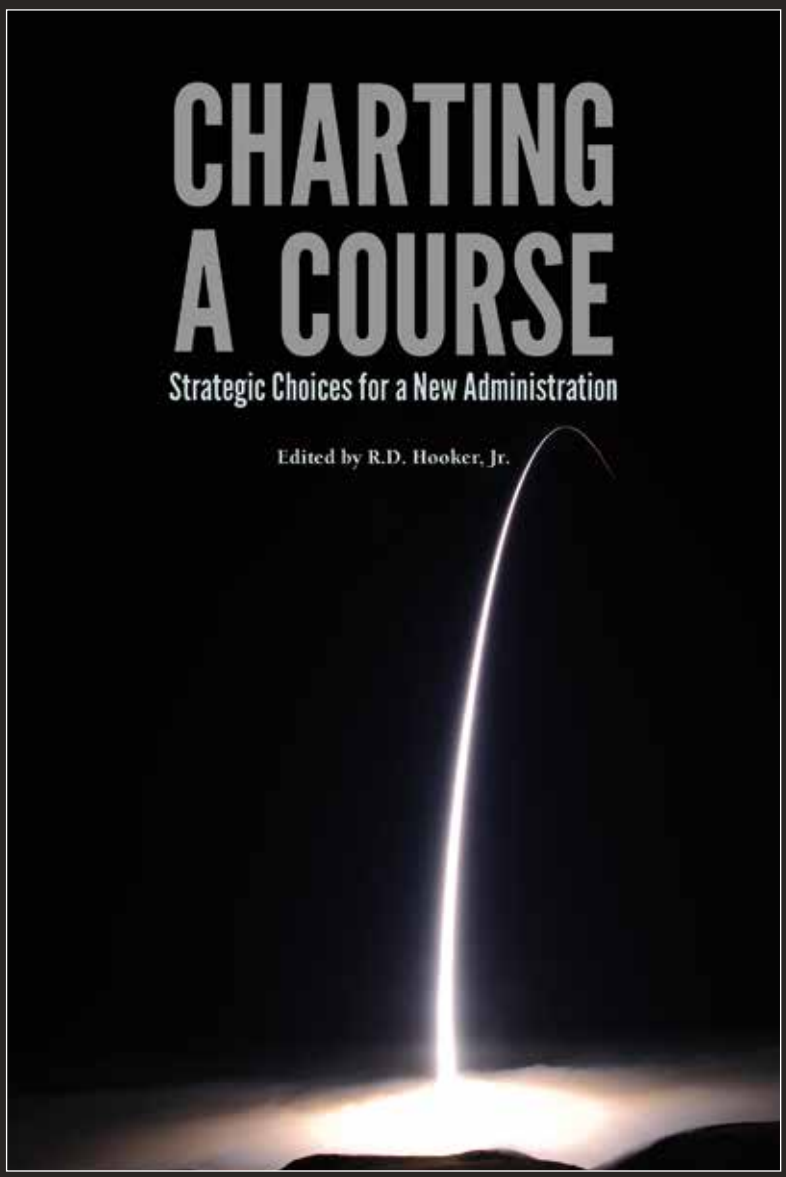

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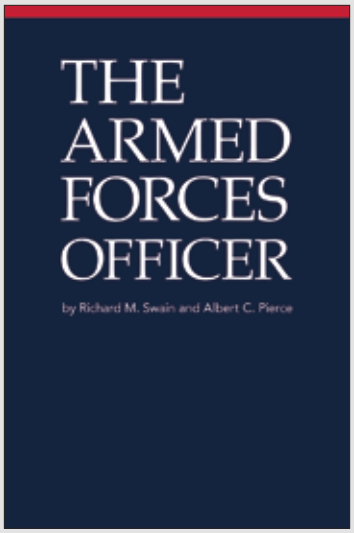

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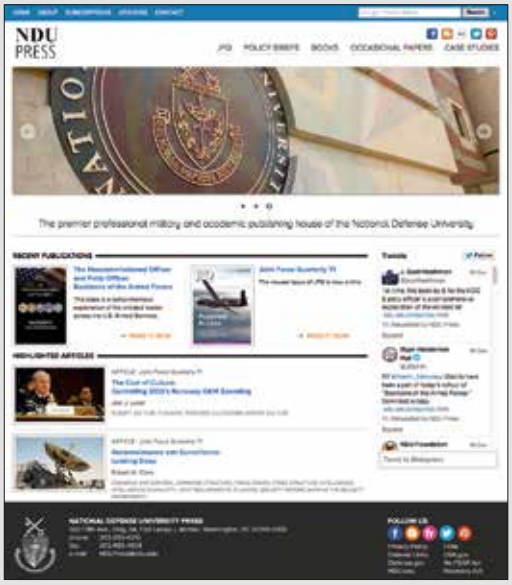

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