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Marine Corps University Press (MCUP) offers a variety of scholarly publishing opportunities for faculty, staff, and graduate-level students. In addition to a full catalog of monographs covering Marine Corps history and national security/international relations topics, MCUP also publishes three journals.

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JAMS

The *Journal of Advanced Military Studies* (JAMS) focuses on topics of concern to the Marine Corps and the Department of Defense through the lens of various disciplines, including international relations, political science, security studies, and political economics. Articles may discuss topics from a historical, contemporary, or forward-looking perspective. The Fall 2020 journal focuses on naval integration and the future of warfare. Submissions due by 31 July 2020. The Spring 2021 journal focuses on political warfare and propaganda in the digital age. Submissions due by 31 December 2020.

Article submissions for all three journals should be between 4,000 and 10,000 words, footnoted, and formatted according to the *Chicago Manual of Style* (17th edition). For submission guidelines or to submit an article idea, please visit our website or contact MCU_Press@usmcu.edu.

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From the Editors

In 2010, MCU Press published the first issue of this journal, formerly known as *Marine Corps University Journal*, to serve as the bridge between the military Services and the professional military educators, strategists, and historians within the greater Department of Defense community. During the ensuing years, the press and the journal have evolved to offer innovative and active content that continues to serve as a forum for interdisciplinary discussion of national security and international relations issues and how they impact the Department of Defense, the Department of the Navy, and the U.S. Marine Corps. Now, 10 years later, we see the need to evolve and offer a wider base for those conversations to take place. To celebrate this 10-year anniversary and to reflect the journal's change in focus over time, the journal has been renamed the *Journal of Advanced Military Studies* (JAMS) to honor the constant innovation of our content, our authors, and the topics we present to our readers. JAMS will continue to offer readers thematic, biannual issues that encourage and continue the debates happening across Marine Corps University, the Services, and the Department of Defense.

It is no coincidence then that this issue of JAMS focuses on innovation and the future of warfare. Each of the articles presented offers the readers a deep dive into a historical, current, or forward-looking perspective on innovation and the military Services. As with any discussion of the military and abstract concepts such as innovation, we must first set the parameters of our discussion. For many readers, the term *innovation* evokes thoughts of technology, shiny gadgets, and artificial intelligence. While innovation is not necessarily synonymous with technology, it is certainly a challenge to say what in fact it is—a thing, a concept, an action, the people involved, or all of the above. The experts may not agree on what innovation *is*, but they can agree that it requires change or transformation to be successful.

Sun Tzu's *The Art of War* compares the nature of warfare to that of water for "just as water retains no constant shape, so in warfare there are no constant conditions."[1] More contemporary agents of innovation include military theo-

rists such as Earl H. Ellis, John R. Boyd, Michael D. Wyly, and John F. Schmitt. Lieutenant Colonel Earl Ellis's work on *Advanced Base Operations in Micronesia* (Operation Plan 712) in 1921 clearly demonstrated his ability to forecast the future needs for amphibious warfare in the Pacific two decades prior to World War II.[2] Though most readers will recognize former Air Force colonel John R. Boyd for his observe-orient-decide-act (OODA) decision-making loop, his more innovative work may well be seen in the energy maneuverability (E-M) theory, a mathematical study of fighter aviation. Then-major Wyly was tasked with reforming the Marine Corps concept of maneuver warfare in the wake of the Vietnam War. The work of Wyly, Boyd, and William S. Lind would serve as the foundation for *Warfighting*, Marine Corp Doctrinal Publication (MCDP) 1, that was later formally written by then-captain John Schmitt, along with several other doctrinal publications, including *Ground Combat Operations*, *Campaigning*, *Command and Control*, *Planning*, *Expeditionary Operations*, and a revision of *Warfighting*.[3]

The articles in this issue of JAMS continue the discussion fostered by these innovative pathfinders. Our introductory section from the Brute Krulak Center for Innovation and Creativity discusses the conception and creation of the center and some of its most innovative programs, including the award-winning *Destination Unknown* graphic novel and the center's first essay contest, the U.S. Marine Corps Postmortem, and offers insight from Marine Corps leaders who consider both success and failure as critical measures for the strength of an organization. For example, Lieutenant General Loretta E. Reynolds contemplates how the Corps "must find a way to manage today's risks while constantly readying ourselves for the emerging challenges of the future fight."

The first full-length article in JAMS from Christopher Davis provides a historical perspective on lessons learned and the instructive nature of the "enemy" in Haiti between 1915 and 1934. The history of the U.S. occupation of Haiti at this time serves as a useful case study for how forgotten or overlooked history can be detrimental to future operations when there are valuable lessons to be learned. Understanding historical events is certainly valuable for any future operations to learn from past miscalculations or missteps. The occupation of Haiti by the U.S. Marines represents a time of innovation in which the Corps adapted their counterinsurgency strategy and a time of administrative mistakes that fueled resistance and resentment to the U.S. presence. Davis demonstrates the role of Haitian history in the insurgencies against the U.S. occupation, and he explains why the failure to account for that cultural history exacerbated the conflict. The author argues that the work of military innovation, with an understandable focus on the future, can benefit considerably from a look at the past.

In a quick shift from the past to the present, Evan Polisar considers the Peo-

ple's Republic of China's (PRC) propaganda and influence operations to undermine American military plans in the Mariana Islands. As the PRC asserts more power in the Western Pacific through coercive economic and political policies, they further dislocate the United States from the region. Polisar argues that any action taken by the Department of Defense, regardless of Chinese political interference, must be acutely aware of and consider the views of residents on the Commonwealth of the Northern Mariana Islands (CNMI). This is similar to other articles, which proposed innovations in thinking and strategy rather than technology. Polisar argues the United States must counter the PRC's disinformation and propaganda campaigns to gain the trust and approval of the locals. While the PRC's political operations are partly responsible for opposition to the CNMI Joint Military Training proposal, long-standing distrust of the U.S. military, resulting from decades of broken promises and neglect, certainly plays a role in the program's potential success in the region.

Professor Kerry K. Gershaneck continues the conversation on China with a deeper dive into their internal and external political warfare and information warfare strategies. The PRC's internal political repression relies on brutality, surveillance, and disinformation campaigns. The PRC has also initiated the killing of millions of Chinese people during disastrous large-scale campaigns, such as the Cultural Revolution or the Great Leap Forward. Gershaneck articulates how the CCP's draconian censorship has also affected those around the world, including American institutions (e.g., the National Basketball Association controversy) and global brands (e.g., Marriott, United Airlines, Hollywood studios, and Versace) in their efforts to force propaganda that portrays China in a positive light to worldwide audiences. Economic and political coercion seems just as effective as warfare, becoming a particularly visible and viable political warfare tool for the PRC with its use of internet censorship, debt-trap diplomacy, and the continued development of the Belt and Road Initiative to build "a new platform for world economic cooperation."[4]

With a slight shift away from peer or great power competition, Major Troy E. Mitchell proposes a solution to the Marine Corps' inability to discover and deliver emerging technologies for deploying Marines in a fast-paced environment. Mitchell posits that a Marine Expeditionary Force's (MEF) Innovation Team (MIT) could better discover and deliver emerging technologies to advance geographically based Marine concepts that counter future warfare challenges. To further support Marine Corps advances, Captain James R. R. Van Eerden believes that the American approach to defense spending should focus on implementing standard methodologies, particularly as it relates to high-investment activities such as security cooperation. Van Eerden stresses that without this data, it is hard to ascertain whether the United States is achieving its

national security objectives. The important role of security cooperation in the future operating environment cannot be overstated, particularly in the current operating environment marked by great power competition.

We could not consider future warfare without having the larger conversation about how technological innovation, particularly automation in the near future, plays such a critical role in the American conduct of war. Rosario Simonetti and Dr. Paolo Tripodi discuss how next-generation technology will impact command and control through the lens of John Boyd's OODA loop, Marine Corps doctrinal publications, such as *Command and Control* or *Warfighting*, and an examination of the literature from Carl von Clausewitz and Helmuth von Moltke the Elder to Hans von Seeckt. While some early strategists promoted the mechanization of the battlefield, the current emphasis on the automatization of warfare may limit or avoid deploying ground troops altogether. Fully automated warfare, however, raises concerns for command and control but also removes the human element from the battlefield, including the ability to make decisions in a fully automated warfare environment. David E. McCullin takes this notion a step further by using case studies in armed conflict that demonstrated a direct relationship between complexity and predictability. The author's process clearly highlights the gap between strategic and operational planning and how the Corps' future warfare capabilities will have to bridge that space.

Christopher Whyte takes the reader back to the concept of information warfare, discussing how a democratic society can protect itself from such attacks. The author specifically considers the notion that militaries in democratic states are both constitutionally and operationally limited in their ability to address the threat of information warfare from foreign powers, offering a theoretical context and further recommendations for future planning, including studying the factors that can lend to prediction of cyberattacks and their targets.

The final article in this premier issue of JAMS reviews America's default settings—strategic culture—for dealing with the indirect and unorthodox activities of our enemies. Jeannie L. Johnson theorizes that by knowing ourselves better, especially via a systematic assessment of how pronounced American cultural features impact decision making, we can be better prepared to anticipate adversary action and pursue true innovation beyond traditional stances on warfare.

The remainder of the journal rounds out with a selection of review essays and book reviews that continues our focus on innovation and future warfare, but also highlights continuing challenges in national security and international relations. The coming year will be busy for the JAMS editors as we work to provide journal issues on a wide range of topics relevant to the study of militaries and defense. The upcoming Fall 2020 issue, for example, offers a diverse presentation of naval integration and the future of warfare. We also continue

to welcome new members to our editorial board, including recent additions of Ambassador Thomas Graham Jr., Dr. Eliot Cohen from Johns Hopkins University's School of Advanced International Studies, and Admiral James G. Foggo III. We look forward to hearing your thoughts on these topics and to your future participation. Join the conversation and find us online on our LinkedIn page, at MC UPress on Facebook, MC_UPress on Twitter, and MCUPress on Instagram or communicate with us via email at MCU_Press@usmcu.edu.

Notes

1. *Sun Tzu on the Art of War*, trans. Lionel Giles (London: Luzac, 1910), 42–54.
2. Earl Ellis, *Advanced Base Operations in Micronesia*, Operation Plan 712 (Washington, DC: Headquarters Marine Corps, 1921).
3. *Warfighting*, MCDP 1 (Washington, DC: Headquarters Marine Corps, 1989); *Ground Combat Operations*, Marine Corps Warfighting Publication 3-1 (Washington, DC: Headquarters Marine Corps, 2016); *Campaigning*, MCDP 1-2 (Washington, DC: Headquarters Marine Corps, 1997); *Command and Control*, MCDP 6 (Washington, DC: Headquarters Marine Corps, 1996); *Planning*, MCDP 5 (Washington, DC: Headquarters Marine Corps, 1997); and *Expeditionary Operations*, MCDP 3 (Washington, DC: Headquarters Marine Corps, 1998).
4. Yang Han and Wen Zongduo, "Belt and Road Reaches Out to the World," *China Daily* (Beijing), 30 September 2019.

Think Tank, Do Tank
The Brute Krulak Center for Innovation and Creativity

Donald M. Bishop

On 29 March 2019, a ceremony at Marine Corps University (MCU) marked the opening and full operational capability of the Brute Krulak Center for Innovation and Creativity. The conception, birth, assignment of permanent staff, funding, and now-robust schedule of activities of the Krulak Center came after some years of gestation, providing a case study of organizational change.

The Marine Corps has long valued innovation and creativity, but the impetus to establish such a center had its origins in the decennial accreditation process of MCU by the Southern Association of Colleges and Schools Commission on Colleges (SACSCOC). This article looks at the early conceptualization of a Center for Applied Creativity (CAC), the organizational starts and stalls, the thoughts about goals and organization that came together for the Brute Krulak Center for Innovation and Creativity, and finally the initial years of its activity.

Innovation and Creativity in the Marine Corps

The basic series of 12 Marine Corps doctrinal publications, its "Bibles," so to speak, give frequent nods to creativity and innovation as keys to success on the battlefield—*Warfighting*, Marine Corps Doctrinal Publication (MCDP) 1; *Marine Corps Operations,* MCDP 1-0; *Strategy*, MCDP 1-1; *Campaigning*, MCDP 1-2; *Tactics*, MCDP 1-3; *Intelligence*, MCDP 2; *Expeditionary Operations*, MCDP 3; *Logistics*, MCDP 4; *Planning*, MCDP 5; *Command and Control*, MCDP 6; *Leading Marines*, MCDP 6-11; and *Learning*, MCDP 7.[1]

Donald M. Bishop serves as the Bren Chair of Strategic Communications in the Krulak Center at Marine Corps University. During a 31-year career in the Foreign Service, he led U.S. public diplomacy in Afghanistan, China, Nigeria, and other nations. He was detailed from the Department of State as the foreign policy advisor to the Commandant of the Marine Corps in 2006–8.

A recent listing of the most important innovations ever adopted by the Marine Corps offered nine examples.[2] Some were organizational and technological, such as:

- the triangular rifle squad of 13 Marines
- the Higgins boat
- the development of amphibious warfare in the interwar period and its application in World War II and Korea
- adoption of helicopters for vertical envelopment, logistics, medical evacuation, close air support, and C4ISR (command, control, communications, computers, intelligence, surveillance, and reconnaissance)

Others recognized elements of the Marine Corps' institutional ethos and mindset, such as:

- the Corps' warrior culture
- developing good leaders who think, act, and communicate
- institutional self-awareness
- concept development, experimentation, and implementation
- the consolidation of Marine Corps schools in Quantico

Examining the list, Lieutenant General Victor "Brute" H. Krulak (1913–2008) played important roles in several of the innovations. Assigned to Shanghai, China, in 1937, then-First Lieutenant Krulak observed small Japanese landing boats with bow ramps—a design feature that was ultimately incorporated into the Higgins boats used in Allied amphibious landings in all theaters during World War II.[3] After the war, now Lieutenant Colonel Krulak took a personal role in promoting the innovative use of the helicopter in Marine Corps operations. Krulak's 1984 memoir, *First to Fight: An Inside View of the U.S. Marine Corps*, has been required reading in the Marine Corps for many years.[4] Two of its six chapters profile innovators and improvisors.

The professional military education (PME) enterprise for the Marine Corps is concentrated at MCU, located at Marine Corps Base Quantico, Virginia, the "Crossroads of the Marine Corps." Congress gave MCU the authority to grant advanced degrees in 1994, so long as the university "is accredited by the appropriate civilian academic accrediting agency or organization to award the degree, as determined by the Secretary of Education."[5] Currently, the three degrees awarded by MCU are the master of military studies, master of operational studies, and master of strategic studies.

The accrediting body is the Southern Association of Colleges and Schools Commission on Colleges, which requires each institution "to develop an acceptable Quality Enhancement Plan (QEP)." This QEP is "based upon a

comprehensive and thorough analysis of the effectiveness of the learning environment for supporting student learning and accomplishing the mission of the institution. It is used to outline a course of action for institutional improvement by addressing one or more issues that contribute to institutional quality, with special attention to student learning."[6]

MCU's accreditation was renewed by SACSCOCC in 2005 for a period of 10 years. Anticipating the 2015 reaffirmation process, MCU leaders considered themes for its QEP. In 2013, MCU was also mindful of the recent memorandum by the Chairman of the Joint Chiefs of Staff, Army General Martin E. Dempsey, on "Desired Leader Attributes for Joint Force 2020." General Dempsey's sixth attribute was to "think critically and strategically in applying joint warfighting principles and concepts to joint operations."[7] MCU also drew on its institutional memory, consulting the *U.S. Marine Corps Officer Professional Military Education: 2006 Study and Findings* (a.k.a. The Wilhelm Report).[8]

On 13 August 2013, MCU began developing QEP proposals, culminating in the January 2015 approval and publication of the QEP entitled *Strengthening Leadership Through Enhanced Creative Problem Solving*.[9] It included the formation of a CAC. The Marine Corps University Foundation would provide bridge funding for two years until MCU obtained approval to hire a permanent director. The university's statutory Board of Visitors appointed by the secretary of defense, which included among its members university presidents and distinguished academics, was briefed on the QEP and the planned CAC at meetings in 2015. Members provided feedback.[10]

In March 2015, the SACSCOC's on-site review committee usefully summarized the QEP's aim: "[to] enhance students' creative problem solving skills."[11] These skills were to be essential for warfighters. The report of the accrediting agency favorably viewed the MCU report's findings in each section, including institutional process, the focus of the plan, institutional capability for the initiation, implementation and completion of the plan, broad-based involvement of institutional constituencies, and assessment. The accreditors noted with approval that MCU had determined a "foundational definition" based on the thinking of Arthur J. Cropley, Punya Mishra, Danah Henriksen, the Deep-Play Research Group, Michael Mumford, and Sigrid Gustafson.[12] MCU had also developed goals, objectives, and assessment measures adapted from the Association of American Colleges and Universities' Creativity VALUE Rubric, which "is intended to help faculty assess creative thinking in a broad range of transdisciplinary or interdisciplinary work samples or collections of work."[13]

The academics in SACSCOC noted, however, some challenges. The director of the planned CAC required both soft and hard skills—"experience with and understanding of the creativity literature, comfort with associated psychometrics, competence in faculty development and pedagogical technique, etc."

Also, the director needed to be able to identify "champions for creative problem solving among the faculty at each school."[14]

On 23 July 2015, MCU created the Brute Krulak Center for Applied Creativity (BKCAC) as a "general support center to the University's schools," calling it the "centerpiece of the University's 2015–2020 Quality Enhancement Plan." In August, MCU submitted to SACSCOC a revised 93-page plan. The QEP related to the brainstorming, refining, and implementation phases of MCU's planning process, and it addressed curriculum development, faculty development, and integrated learning opportunities.[15] SACSCOC accepted the revised QEP and reaffirmed MCU's accreditation in December 2015 for 10 years.[16]

At this stage, the plan proposed an MCU Center for Applied Creativity, led by a director and deputy. It would partner with the MCU faculty; the development and outreach coordinator; the director of institutional research, assessment, and planning; and the director of the Center for Advanced Operational Cultural Learning (CAOCL).[17]

The Plan Meets Organizational Realities

The MCU plan contemplated that the Marine Corps University Foundation could provide interim funding for two years, after which operations and maintenance funds would be available.[18] The Marine Corps University Foundation, thanks to the generosity of California philanthropist Donald L. Bren, already funded faculty chairs in priority areas. In 2015, the foundation created an additional Bren Chair for Creative Problem Solving. The new chair would be "the lead individual for the standup of the Center for Applied Creativity."[19]

In 2015, Dr. Benjamin M. Jensen—at that time working for the Army Chief of Staff on the Army Futures concept—prepared a *QEP Implementation Plan* brief. It opened with these premises: "You don't teach creativity. You design spaces where MCU students can be creative." Jensen saw the need to "create a hub for developing future concepts." His plan, moreover, called to "reinvest in the profession of arms and the rich tradition of creative problem-solving techniques: staff rides, war games, and decision games."[20]

Dr. Jensen envisioned a process to improve PME; provide an environment to foster continuous learning; integrate state-of-the-art information and education technologies and facilities; and strengthen the university's outreach, research, stewardship, publishing, and conferencing. He believed in the connectivity of the MCU schools with Commandant of the Marine Corps fellows detailed to universities and policy institutes, including the MCU Red Team, the History Division, the Lejeune Leadership Institute, and the Middle East Studies program. He stated that the "center of gravity" must be a "willing faculty." He laid out a concept of operations and a timetable for the first year.[21]

Jensen became the inaugural Donald L. Bren Chair of Creative Problem

Solving—and director of the CAC—on 10 August 2015. He worked on assessments; an implementation plan; outreach to other military colleges and schools and civilian universities; and use of experts in the field of creative studies and research. Other initiatives included wargaming, a strategic communication competition, enhanced staff rides, and conceptualization of a PhD program intended to develop senior strategic planners for the Marine Corps.[22] Strengthening Dr. Jensen's recommendation to reinvest in the profession of arms, MCU gained the permission of the 31st Commandant of the Marine Corps, General Charles C. Krulak, for the center to be named after his father.

When Jensen moved to a Title 10 faculty position at the Marine Corps Command and Staff College, Dr. Jeffrey Nadaner was selected as the next Bren Chair of Creative Problem Solving. His 5 October 2016 contract with the foundation stated he was to be "a resident scholar to serve as Director of the Brute Krulak Center for Innovation and Creativity."[23] Major Robin J. Arant, assigned as deputy from July 2016 to September 2018, bridged the transition.

The QEP had been accepted by SACSCOC, which would review how MCU implemented it in 2020. Jensen, Nadaner, and senior MCU leaders soon realized, however, that writing out goals and a plan in theory had been relatively easy compared to its implementation. Those who hoped for creativity and innovation checklists—or TTPs (tactics, techniques, and procedures)—were to be disappointed.

Because Bren Chairs are not Title 10 personnel but rather employees of the Marine Corps University Foundation, they have no authority to commit funds or make staffing and hiring decisions. In their 2014 review, the educators in SACSCOC had noted that the director of the planned CAC required both soft and hard skills that were described earlier, but they had not anticipated the issue of authorities to hire and expand.

Ordinary organizational dynamics also came to bear. Such a large agenda could not be implemented by one Bren Chair/director alone. Determining how to assess intangible skills such as creativity and innovation of students took longer than expected. QEP partners were asked to include additional tasks to already full schedules. While the SACSCOC review had noted that "identifying champions for creative problem solving among the faculty at each school is essential," the directors and faculty members at MCU's schools had fixed academic calendars and schedules. It is not easy to rapidly integrate new initiatives into finite curricula, teaching time, and faculty workloads. Further, finding office space for the new center had not been integrated into the initial facilities planning. But most critically, with the ordinary rotations of key personnel came the loss of institutional knowledge.

Both Jensen and Nadaner had gained momentum despite these obstacles. In meetings at MCU's constituent schools, they socialized the new focus on

creativity and innovation. Here and there, key staff had not focused on the QEP when it was being written, and others, new to their positions, had to be introduced to its goals and implementation. The two successive directors worked with MCU's senior leaders and the schools to overcome misgivings and to harmonize different concepts, goals, and approaches.

It was clear from the beginning that progress toward the QEP goals would require assessment and evaluation, and this proved a major challenge. An early concept was that the measurement piece could be performed by contractors, but costs would be high, and members of the faculty were the subject matter experts. The formation of a crosscutting university team of evaluators, vice presidents, directors, and faculty worked through the theoretical issues and the choice of assessment tools. Dozens of faculty members, using evaluations that measured artifacts (papers written by students at MCU schools) against creativity rubrics benchmarked past and current performance. The early ratings indicated that one evaluation tool should be discarded in favor of another.[24] The assessment task was aided by a new director of institutional policy, assessment, and planning, Kathleen Kuehn, who joined MCU in the autumn of 2017.

The aphorism that "history is just one damn thing after another" alludes to how the constant churn of events and complications can crowd out even the best initiatives. In this regard, a new president of the United States was elected in November 2016, and he was inaugurated the following January. The new secretary of defense, retired Marine Corps General James N. Mattis, provided new energy to initiate changes in the Department of Defense, the Armed Services, and the Joint and Service PME enterprises. Establishing a new center was just one of many top priorities.

By the summer of 2017, MCU realized that implementing the QEP required more personnel resources than originally conceived, and it had developed a tentative plan to address shortfalls in the artifact review and assessment. The new president of Marine Corps University, Brigadier General William J. Bowers, initiated an Operational Planning Team to conduct a full review of the QEP, to identify requirements, document the status, and make recommendations for implementation.

On 18 December 2017, based on the recommendations of the QEP, Brigadier General Bowers issued *Fragmentary Order (FRAGO) 1*. He bluntly stated, "In the two years following approval of the QEP, insufficient and sporadic progress was made in implementing the approved plan. There are no records of baseline assessments for assessment year (AY) 14–15 being performed, key implementation milestones were not met, and desired resources did not materialize." However, he noted the positive development of the approval of "Information" as the seventh warfighting function, which provided a unique opportunity. He issued *FRAGO 1* to get the QEP "back on track."[25]

His order outlined remedies to some of the roadblocks. For example, "the newly renamed Brute Krulak Center for Innovation and Creativity (BKCIC) will be resourced to include addition of designated personnel and the hiring of a new Title 10 Director." This was a conscious decision to reallocate a vacant position, accepting risk in student service and registrar functions to ensure that the Krulak Center would be established and functional. Mindful of the rapidly evolving technical aspects of war, he reiterated that naming the center after General Krulak emphasized the "connection with Marine Corps warfighting philosophy." MCU's vice president for academic affairs would foster continued support from the Marine Corps University Foundation. Once hired, the Krulak Center's director's tasks would include conducting the QEP's plan for an Innovation Summit.[26]

Nothing Makes the Horse So Fat . . .

As Plutarch said, "nothing makes the horse so fat as the king's eye."[27] A little more than eight months later, Brigadier General Bowers issued *FRAGO 2*, judging that "MCU has now 'caught up' in implementing the QEP." He pointed to the establishment of a QEP Implementation Team, validation of assessments through AY 17–18 using assessment rubrics, a larger BKCIC in new work spaces, the first Innovation Summit, and the integration of operations in the information environment (OIE) into MCU curricula.[28]

Valerie A. Jackson was named director of the Krulak Center in July 2018. The center's staff was rounded out by Marine Corps officers—a deputy director, operations officer, and technical information operations officer. In 2019, they were joined by MCU's two noted experts in Middle East Studies, and a bold insignia was designed for the center. The center's staff worked with the graphics and display experts at the National Museum of the Marine Corps to provide blue-ribbon facilities.

By that time, the Marine Corps University Foundation assented to gathering all of its Donald Bren Chairs—Non-Western Strategic Thought, Armed Politics, Strategic Communications, Cyber Security and Conflict, Applied Creativity, and Great Power Competition—in new offices in the Krulak Center, occupying prime space in MCU's Alfred M. Gray Marine Corps Research Center. Bowers called the Bren Chairs "general support artillery."[29] A Title 10 chair of Energy Studies also joined the center.

The role of the new Krulak Center in the overall QEP process was defined in its establishing charter, signed on 1 November 2018. The charter stated that the center would be "a research support center," an "incubator of academic innovation and mentation," and "a critical and creative thinking Center and integrator." The charter confirmed support to students as the new center's "main and primary focus," providing a place to "discuss, debate, and explore topics of

their interest while providing a state of the art collaborative workspace for their use." The charter integrated concepts developed earlier by Dr. Jensen and Dr. Nadaner. The important tasks outlined in the charter were integration, wargaming, professional writing, creation of a website, a lecture series, the Innovation Summit, and coordination and synergy with other Marine Corps "innovation/futures initiatives."[30]

A formal opening ceremony was held on 27 March 2019. Cutting the ribbon were General Krulak and the Krulak Center's director, Valerie Jackson. Also in attendance were former Secretary of the Navy and former senator from Virginia, John W. Warner; the 29th Commandant of the Marine Corps, Alfred M. Gray Jr.; the 31st Commandant, General James L. Jones; and retired Lieutenant General Carlton W. Fulford Jr. This event marked the center reaching full operational capability.

Think Tank, Do Tank

The center's debut came in November with a wargame that tested escalation theory in an OIE scenario. Then-Command and Staff College professor Benjamin Jensen and Bren Chairs Brandon Valeriano and J. D. Work guided the exercise. The three later repeated the wargame for Marine Expeditionary Force (MEF) Information Groups. An Energy and Innovation Scholars Program was launched with a field trip to the Department of Energy's National Renewable Energy Laboratory in Golden, Colorado; the Rocky Mountain Institute in Basalt, Colorado; and the Defense Entrepreneurs Forum in Denver, Colorado. A student essay contest was linked with staff rides to Pennsylvania and New Jersey to examine the 1776 Battle of Trenton. Bren Chairs taught electives at the Command and Staff College in January 2019, and they joined and made presentations at many conferences and PME schools. Director Jackson and Bren Chair J. D. Work prepared Marines from the 4th Civil Affairs Group for their participation in NATO's Trident Juncture exercise, held in Iceland and Norway in late 2018.[31]

The center's operations officer, Major Timothy Riemann, offered a pioneering and highly lauded elective course at the Command and Staff College called Where Good Ideas Come From. This course had an unorthodox syllabus that featured readings selected by students and course discussions on innovation, leadership, ethics and philosophy, science, the mind, classical fiction and poetry, the future world, and contemporary issues. The course departed from the usual instructor-to-student model. Rather, it provided students with the ability to design the course syllabus of things they wanted to learn or read.

Initiatives of the Krulak Center

Innovation Summits

Phase I of the Innovation Summit, convened on 27 March, included a futurist panel—Harlan K. Ullman, Kara Frederick, and Nate Flick. The major topics of discussion were the effects of cyber technologies, artificial intelligence, and 5G technology on the future of war. A number of Marine Corps organizations and companies in the private sector organized booths and exhibits. Phase II opened with a lecture by retired Marine Corps General John R. Allen, now president of the Brookings Institution, on "America's Strategic Challenges in the 21st Century." Afterward, eight Marine Corps PME students gave presentations on creative problem solving for real-world topics, such as artificial intelligence, complex thinking, tactical agility, swarms of unmanned aerial systems (UAS), and development of innovation in Marine Corps units.

Wargaming

Wargames are now regularly hosted at the Krulak Center. In addition to the wargames mentioned above, the Krulak Center hosted the Marine Corps War College's global wargame. Students engaged three simultaneous operational conflicts in Poland, Taiwan, and Korea.[32] The hallmark wargame for 2019 was MCU's annual Sea Dragon competition. In 2019, teams came from the School of Advanced Warfighting, the Command and Staff College, the Expeditionary Warfare School, and the College of Enlisted Military Education. International students participated with Marine Corps classmates. This wargame focused the teams on fighting a futuristic Marine Air-Ground Task Force (MAGTF), employing concepts such as manned/unmanned teaming, artificial intelligence, and swarming.[33]

Essay Contests

The center now enhances the Marine Corps University Foundation's annual Thomas Lord Charitable Trust Lecture Series with an essay contest. The theme of the second lecture, in December 2018, was "Emerging Technologies and How They Are Shaping and Defining Tomorrow's Battlefield." The essay prize was presented by retired Chief of Naval Operations Jonathan W. Greenert, two retired Commandants of the Marine Corps, Alfred Gray and James Amos, MCUF President and CEO Richard P. Mills, and MCU President Bowers.

Publications

Thinking about the future of the Marine Corps was stimulated by the publication of future visions in graphic story form, published by the Marine Corps University Press as *Destination Unknown*.[34] A workshop at the Krulak Center that brought together Marine Corps illustrators with a graphic novel artist

helped bring the project to fruition. In 2019, an essay contest resulted in another publication, *The U.S. Marine Corps Postmortem: 2019 Essay Contest*, which gathered stories written by Marines looking at issues that might hypothetically cause the Corps to be dissolved in 2040.[35]

Lectures

From a long list of lectures and presentations hosted or organized by the Krulak Center, space permits mention of only a few. The Donald Bren Chair of Non-Western Strategic Thought, Dr. Christopher Yung, moderated the fourth General Graves B. Erskine Lecture, focused on naval expeditionary power. The Commandant, General Robert B. Neller, was joined by Admiral John M. Richardson, the Chief of Naval Operations. David J. Snowden, founder and chief scientific officer of Cognitive Edge and director of the Cynefin Centre at the University of Wales, addressed complexity theory in November 2018. Mike Weeks presented a seminar on peak performance coaching in high-pressure workplaces and environments. The Latvian ambassador to the United States and the Latvian defense attaché spoke on "Securing Transatlantic Alliance: U.S. Role in the Baltics" on 12 February 2019. Dr. Williamson Murray spoke on military innovation at the Krulak Center on 27 February. On 5 March 2019, Finland's military attaché to the United States spoke to MCU staff and students on Finland's security challenges and its responses to threats. Libby Liu, president and chief executive officer of the Open Technology Fund and former president of Radio Free Asia, spoke to students and faculty on "Communicating with Closed Societies" on 15 January 2020.

Special Events

A few of the Krulak Center's special events included a meeting of the MCU Energy and Innovation Scholars Program—focused on project prototyping—with Lieutenant General Charles G. Chiarotti, deputy commandant for installations and logistics. There was also a December 2018 workshop on academic publications chaired by Donald Bren Chair of Great Power Competition Dr. Chris Harmon. Finally, Dr. Chris Yung, working with the Marine Corps Warfighting Lab, hosted a China symposium in January 2019.

Lessons Learned

What lessons might be derived from this narrative? Large institutional changes that derive from new fundamental thinking cannot be implemented by a few individuals notionally partnering with others whose regular duties are still required. Success requires dedicated and hand-picked staff—and streams of regular funding. The rigidity of the appropriations process means, however, that gaining regular funding in any U.S. government organization takes years, not

months. This reality can cause holdups for any large initiative. It is difficult to set necessary staffing and funding in motion ahead of conceptual planning. The willingness of the Marine Corps University Foundation to establish chairs and fund individual initiatives, which allowed MCU to launch the CAC, was an indispensable contribution. The accrediting agency played a key role in stimulating MCU to consider how to enhance educational quality.

Maneuver warfare and the desired traits of innovation in warfighting are synonymous. It is not possible for creativity to be taught with a "check off the box" mindset. Rather, it is necessary to create an environment where seemingly disparate ideas and experiences can collide and mesh in novel ways. Marine Corps University had the raw materials for enhancing creative problem solving in its students, but the students lacked a place where they could reveal the innate side of their warfighting mentality. The Krulak Center provides that much-needed space.

That the Marine Corps' PME enterprise is centered at Quantico—confirming the early visions of Generals John A. Lejeune, John C. Breckinridge, Ben Hebard Fuller, John H. Russell Jr., Robert E. Hogaboom, and Alfred M. Gray Jr.—was an intangible enabler of progress.

It is a reality that military commands and institutions must constantly integrate new demands and initiatives from senior leadership. Indeed, a certain level of organizational turbulence, even turmoil, is an ordinary and normal feature of defense organizations. As of this writing, Marine Corps units and staffs are fully engrossed by the 2019 *Commandant's Planning Guidance*; General David Berger has forcefully set in motion fundamental changes to the way Marines will fight. At the same time, MCU is responding to the Department of the Navy's 2018 *Education for Seapower* study that recommended the creation of a chief learning officer for the department.[36] Sustaining attention to initiatives set in motion by a 10-year accreditation sequence will always prove a substantial challenge. This may indicate that planning for the next five-year visit must begin as soon as the last adjourns.

Last but not least, the greatest lesson we learned was: do not expect innovation to be easy.

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Future War, from the Tip of a Pen

Valerie Jackson

Introduction

Development of *Destination Unknown*

It is amazing what a couple of majors with a good idea can accomplish. Recognizing that the majority of the Corps is under the age of 25, and understanding that traditional forms of professional military education (i.e., reading a book from the Commandant of the Marine Corps' [CMCs'] reading list, then having a discussion) may not be the best vehicle for the absorption of professional material for the age group, Majors Austin Duncan and Adam Yang pitched an idea to the Brute Krulak Center for Innovation and Creativity and the Marine Corps University Foundation (MCUF) for support of a new concept: a graphic novel. With money from MCUF to hire a local illustrator to give classes, the majors assembled Marine officers and enlisted writer-illustrator teams to create something "organic, homegrown, and raw . . . created for the warfighter by the warfighter."[1]

Set in 2075, far enough in the future to elude Pentagon planners, the stories test the bounds of our traditional understanding of both the character and nature of war. The graphic novel is explosively popular, and has gone through two print runs, mailed and downloaded by Marines, the other Services, partners, and allies across the globe. As of the writing of this article, it has won three awards for innovation: the Navy Agility and Accountability Award, the Secretary of the Navy A+ Award, and the Department of Defense Gears of Government Award.

Our 31st Commandant, General Charles C. Krulak, wrote in the foreword to *Destination Unknown* that the reader must "not be afraid to look for answers

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in new intellectual or creative spaces."[2] Indeed, this work offers a new vision of an old idea: the answers to the problems that Marines may face in the future quite possibly lie dormant in the minds of Marines themselves, waiting for the spark of innovation to unleash the energy that guarantees our future victories.

The U.S. Marine Corps Postmortem

As the topic for the third and final essay contest of the Krulak Center's inaugural year, the U.S. Marine Corps Postmortem essay contest challenged Marines to envision events that could lead to the disestablishment of our beloved Corps. As the era of one commandancy evolved into the next, the contest capitalized on the occasional paranoia Marines have about the Corps' existence. The stories ran the gamut of possibilities: ethical decay, senior officer lack of leadership, defeat in battle, and complacency. Marine authors got creative with their presentations, making the writing itself a novel product. Krulak Center staff engaged senior officers to both read and comment on the importance of the contest and the nerves that some of the essays quite deliberately touched. Some of those comments can be seen below. Others have been made privately or in casual conversation. The contest did its work: it made Marines think about our weaknesses to make us stronger.

Major General William F. Mullen[3]

As human beings, we tend to think about things in a linear fashion. We assume that the current trends we are seeing will continue into the future and plan accordingly. This is done despite the well-established fact that trends in anything rarely continue along a linear path, often going in unexpected directions that are hard to predict. The only real constant is change. As military professionals, we have to be prepared for whatever happens, but in particular, we need to be prepared to deal with worst-case scenarios. In addition, we learn a great deal more from failure than we ever do from success, because failure tends to affect us significantly by burning itself into our consciousness, with a commitment that we should never let it happen again.

This is why it is so useful to think about and wargame future failures. Many call this process a *premortem*, and it has always proven to be valuable. In these, several questions are asked and possibly answered: What are we not seeing? What happens when (not if) the plan goes awry? How do we set ourselves up mentally to respond quickly and effectively to changing situations instead of succumbing to the *stunned mullet* response—an Australian slang term for complete bewilderment or astonishment—that is very costly in combat? How do we do this on a regular basis when the opportunities to do this face-to-face are few and far between?

Needless to say, writing for self-reflection and analysis forces us to think

deeply and determine how best to convey our message. Doing so in fiction is much more difficult because the framework used in analytical writing is frequently absent. It does, however, allow more freedom of thought and can also be more palatable to the reader because it is not about real-life people or units. This last point may be what makes it most valuable. The author can make a telling point about sometimes controversial topics without losing a reader who usually turns away from the subject at hand. When that author is conducting a premortem by presenting potential futures, they are also pushing the reader to think innovatively, which may be the only path to success in the future operating environment that we see at present.

It is for these reasons that I applaud the Krulak Center's efforts with the U.S. Marine Corps Postmortem essay contest and the graphic novel *Destination Unknown*. They make for both interesting and mentally challenging reading, which is how we further develop our mental acuity to adequately deal with whatever challenges lie ahead.

Lieutenant General Loretta E. Reynolds[4]

Much has been written lately about great power competition and the changing security environment. As we enter a new decade, it is essential that national security professionals continue to assess and prepare for a changing global environment. The world of 2020 is different than the world of the year 2000 or even 2010. The security environment we face in the future will continuously change with new technologies, such as 5G, quantum computing, hypersonic systems, and artificial intelligence. As military professionals, we are impacted by shifting influences on national power—environmental challenges, economic shifts, and the ever-changing global political landscape—not just at home, but in the countries of our allies and strategic competitors. New warfighting domains of space and cyberspace will challenge our understanding of battlespace geometry, our warfighting processes, and the timing and tempo of conflict. An even more complex and interconnected information environment can yield faster battlefield communication and improved situational awareness, or greater risk from malign actors who wield misinformation like a weapon and our own overreliance on technology that can be targeted by our adversaries.

This strategic environment demands that we remain vigilant and never give in to intellectual complacency. Our world is changing; warfare will change with it. Moving forward together, we must find a way to manage today's risks while constantly readying ourselves for the emerging challenges of the future fight.

In this vein, I congratulate the Krulak Center at Marine Corps University for hosting the U.S. Marine Corps Postmortem essay contest. Our profession demands that we prepare for our worst day, that we imagine worst-case out-

comes and then vigorously guard against the decisions that will lead to failure. We must never get caught choosing habit over hard work. We find ourselves today in a time where the risk of not changing is greater than the risk of change. Tomorrow's force will require bold leadership, new thinking, rejection of the status quo, and open minds. We must constantly challenge our own assumptions. When we think about evolving threats as a Corps, we must be clear minded about two things. We must be clear about what stays constant, such as our ethos of "first to fight," or our commitment to being ethical warriors who will always be most ready when the nation is least ready. We also need clarity in those areas we will need to adapt, such as tactics/techniques/procedures, doctrine, equipment, relationships, and organizational constructs.

The essays written are sobering but also enlightening. They represent a willingness to imagine the worst and describe the potential impact of poor choice and hubris, of a changing dynamic in warfare where the Corps fails to correctly predict or understand the actions of our adversaries or our allies. The essays recognize the moral courage required to make meaningful change and the cost of not acting; they create discomfort when we are forced to accept that victory is not assured just because we are U.S. Marines. They mention closed-minded leadership and a preoccupation with current threats that distract from the deadlier future threat. They reference the importance of information, disinformation, and how critical it is to guard the truth and maintain the strategic narrative by doing what is right but not always convenient. The battle for the truth is increasingly contested in all facets of our profession; a firm grasp of the truth is necessary across the functions of staffing, equipping, training, and deploying troops. Finally, the essays mention the importance of integrity and military ethics, characteristics of the U.S. Marines that have always made the Corps a force the nation needs even when it may not have thought it needed it. The reoccurring theme is that the Marine Corps stands ready whenever crisis strikes the nation. When we fail to maintain our distinction as ethical warriors, transformed at recruit training for the good of the nation, we cede strategic battlespace to the adversary's narrative.

Some may scoff at the ideas written herein, but the wiser reader will see them as a warning and a clarion call for change. The time for change is now. Our responsibility as leaders in the military profession demands that we remain professionally curious, that we study and learn from history but not be burdened by old habits, and that we challenge assumptions and reject the status quo. The authors of these essays have demonstrated that this leadership can—and must—come from all levels. I challenge you to read these and think about your own role in setting the course for a lethal, relevant Corps capable of winning the future fight.

August Cole[5]

From stuffy, overfilled hearing rooms on Capitol Hill to undersea Pacific Ocean graveyards of shattered fighters, the demise of the Marine Corps in 2040 can be found in many places. These are just some of the scenes from the top stories entered in the Krulak Center's 2019 Marine Corps Postmortem writing contest, a competition for Marine Corps University students that explored what might cause the United States to disband the Corps two decades from now.

For any organization to squarely engage with its future tactical or strategic vulnerabilities, let alone its outright relevance, is no easy task. Yet, in this moment of unrelenting technological, political, and social change, it is an imperative analytical exercise for understanding future conflicts. The idea behind exploring such dark corners is to not only predict bad outcomes but to do something about them.

As a form of fiction intelligence (FICINT)—a melding of fiction and intelligence to create actionable information—the U.S. Marine Corps Postmortem's crowd-sourced narratives, as well as other Krulak Center efforts such as the *Destination Unknown* graphic novels, are by their nature experimental. And yet, they are perfectly timed for an era of thoughtful action and recalibration for the Marine Corps. In his recent guidance, the 38th Marine Corps Commandant, General David H. Berger, wrote: "We cannot afford to continue to admire problems or fail to take the necessary decisive actions."[6] Nor can the Marine Corps afford failure of imagination in the steps it takes in the coming years.

Expect to see more such useful fiction. Breaking bad news about structural or technological problems to senior leaders is never easy. But it can go over a lot better when a potential vulnerability and its stakes are assessed through a fictional scenario. Then the question can be credibly asked, "Could that really happen—and what can we do about it so that it does not?" Another crucial aspect is the rich description used to create such scenarios—a Chinese military victory in the East China Sea, for example—that put people first, not technology. Fiction also allows intellectual trial and error when the costs are lowest. Finally, the Marine Corps needs to be able to draw on as many perspectives as possible in navigating the fog of future wars, and with as much intellectual diversity as possible.

What any one of these U.S. Marine Corps Postmortem essays reveals is of course important as a specific reflection of a possible future. Most critical, however, is they make clear that today's Marines are willing to confront tomorrow's challenges when it matters most—before they happen.

Endnotes

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3. MajGen William F. Mullen currently serves as the commanding general for Training and Education Command in Quantico, VA.
4. LtGen Loretta E. Reynolds is the deputy commandant for information at Headquarters Marine Corps.
5. August Cole is an award-winning author and futurist who has explored the future of conflict through fiction and other forms of storytelling. He coauthored with P. W. Singer the novel *Ghost Fleet* (2015), which has been on the Commandant's Professional Reading List for several years. He acted as a writing mentor for volume 1 of *Destination Unknown* and has generously continued in that capacity for the Marine author/artist teams currently drafting volume 2 of *Destination Unknown*.
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History as an Enemy and an Instructor
Lessons Learned from Haiti, 1915–34

Christopher Davis, PhD

Abstract: As Haiti and other nations in the Caribbean and Latin America experience increasing instability, and the United States increases its naval presence in the region, history offers important lessons for future U.S. involvement. An exploration of the tactical innovations of the Marine Corps and of the influence of national history on the Haitian insurgencies during the U.S. occupation of Haiti (1915–34) reveals the significance of history in either achieving or curtailing military goals.

Keywords: U.S. military history, Haitian insurgencies, counterinsurgency, tactical innovation, culture, Haiti, U.S. involvement in Haiti, occupation of Haiti, Marines in Haiti

Political Instability in Haiti and Its Causes

Since 2019, the Latin American and Caribbean region has experienced a sharp increase in the political and economic instability of several of its nations, some of which had previously been the focus of U.S. military interventions during the early twentieth century under similar circumstances. Haiti in particular, though no stranger to political and economic instability, has during the last year experienced a heightened level of social unrest and resentment toward the government in Port-au-Prince. This echoes the unrest present when the Haitian president, Jean Vilbrun Guillaume Sam, was assassinated, prompting the arrival of the U.S. Marines to restore order on 28 July

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1915. Between 1911 and 1915, Haiti experienced its historically highest level of chronic political instability when as many as seven different presidents were either overthrown or assassinated while in office.[1] While not experiencing such an extreme turnover rate in its leaders currently, the Haitian government at present once again faces the possibility of being violently overthrown by an increasingly frustrated populace.

In light of the recent buildup of U.S. military forces in the Caribbean region to counter events in Venezuela, the potential lessons of past operations in the region can be all the more pertinent going forward. With regional stability there once again in question, the history of the area and the individual nations within it is a resource by which to develop successful tactics and strategies and avoid repeating missteps. The goal of this article is to demonstrate the role of Haitian history in the insurgencies against the U.S. occupation between 1915 and 1934, and why the failure to account for that history exacerbated those movements. Also demonstrated will be how the U.S. Marine Corps successfully adapted its approach to unconventional warfare as a result of these conflicts. In so doing, the argument will be made that the work of military innovation, whose focus is understandably toward the future, can benefit considerably from looking backward as well. The history of the U.S. occupation of Haiti during the previous century serves as a useful case study in how history can be an enemy when it is overlooked and a valuable teacher when understood.

The current crisis in Haiti stems from government corruption, and while that is not new for Haiti, the scope of that corruption and the hardships placed on the Haitian people as a consequence of it is new. In 2005, when global oil prices reached record levels, Venezuelan president Hugo Chavez used the country's vast oil supply (then producing around 2.5 million barrels a day) in an attempt to extend Venezuela's influence in the region, and thereby court potential allies against the United States. The program, known as PetroCaribe, was designed to improve the development of participant nations by loaning them oil at a low interest rate, and deferring payment on 40 percent of the oil purchased for up to 25 years. Those nations could then sell the oil elsewhere and use the proceeds for social programs.[2] The hope was that participating nations, Haiti being among them, would benefit from this arrangement and that the government would use these funds from the oil revenue to improve the nation's infrastructure. This was not the case.

Much has changed for both Venezuela and Haiti since 2005 and, in both cases, not for the better. By 2014, years of mismanagement and corruption by the Venezuelan government came to the forefront as global oil prices dropped, and their economy collapsed. As of 2019, in spite of the nation's vast oil supply, Venezuelan oil production has dropped to a mere 830,000 barrels per day. Haiti in that time has seen its own share of troubles, particularly from the devastat-

ing earthquake that hit the capital of Port-au-Prince in January 2010. While the PetroCaribe program was still running, the Haitian government claimed to have used nearly $4 billion raised between 2008 and 2016 for around 400 infrastructure and health-care programs in the wake of the disaster. However, as time passed, little measurable progress could be detected in these areas despite the money supposedly invested in them. This was already a source of frustration for Haitians, and by 2017, suspicions of wrongdoing resulted in a five-person commission in the Haitian Senate, whose investigation uncovered that the amount of money in the government's coffers were misreported, exchange rates had been adjusted, and that more than one-half of the contracts awarded by the government to companies did not go through the usual bidding process.[3]

The situation in Haiti quickly began to unravel after this discovery. As inflation dramatically increased, and the flow of oil from Venezuela continued to slow, the Haitian government's plan to raise fuel taxes in response provoked violent protests as early as 2018. When Venezuela suspended the PetroCaribe program in 2019, in response to the suffering from its own economic collapse, the combination of government corruption, fuel shortages, and massive inflation triggered a surge of antigovernment protests in Haiti that are still active today.[4] Not only do these protests currently show little sign of abating, but the government opposition has already expanded the list of those it blames for the current crisis. While much of the public outrage is directed toward Haitian president Jovenel Moise for his involvement in the PetroCaribe scandal, despite meetings between American officials and the Moise government to address the nation's crisis and offers to meet with Haitian opposition leaders as well, some protestors have accused the United States of supporting the Moise government.[5] One of the more dramatic displays of these protestors against perceived U.S. interference was caught on video in November 2019, when protestors sacrificed a pig outside of the U.S. embassy.[6]

History of Haiti, the Haitian Revolution, and U.S. Interventions

What little media attention this display received seems to have dismissed the act as a mere eccentricity, but herein lies the danger of engaging with—and drawing conclusions concerning—a people while unfamiliar with their history. A rich historiography exists to inform and clarify the events of the Haitian Revolution, such as Philippe Girard's *Haiti: The Tumultuous History*, Laurent Dubois's *Haiti: The Aftershocks of History*, and David Geggus's *The Haitian Revolution: A Documentary History* to name a few.[7] According to Haitian tradition, the revolution that resulted in Haitian independence by 1804 began in August 1791, when a spiritual leader named Dutty Boukman and several other slaves (either African or of African descent) performed a ritual of sacrificing a black pig while forging

a pact of revenge against the French slaveholders.[8] In all likelihood, what came across to those reporting on this more recent incident as an eccentric display was in reality the recreation of a ritual from the Haitian past that is as significant to their history as the first shot fired at Lexington, Massachusetts, was to our own revolutionary history. It is perhaps fair to speculate that these protestors were making a call for a new revolution against the Moise government and the U.S. presence in Haiti. At this point, no such revolution has materialized in spite of continued protests. Nevertheless, this incident highlights how lack of familiarity with a nation's history can blind us from understanding the deeper meaning, and the motivational factors of, local resistance to U.S. presence.

As the crisis in Haiti continues to unfold, and the United States attempts to navigate the situation, it is important to understand how Haitian history, and particularly our lack of understanding of it, has challenged American policy in the past. The occupation of Haiti by the U.S. Marines between 1915 and 1934 was a time of innovation, in which the Marine Corps developed counterinsurgency tactics that differed significantly from the conventional warfare being waged along the western front of World War I. It was also a time of administrative missteps that fueled resistance and resentment to the U.S. presence that could otherwise have been avoided, or at the very least significantly diminished.

The Price of Efficiency

What can the case study of Haiti between 1915 and 1934 teach us about military innovation in 2020? Though this event occurred a century ago, many of the conflicts that the United States has been engaged with since the occupation of Haiti have likewise been asymmetrical conflicts against opponents utilizing guerrilla rather than conventional warfare. Therefore, there are valuable lessons to be learned from previous conflicts in which the better trained, equipped, and efficient U.S. military was harassed by a guerrilla-style organization. One finds it hard to make an argument against efficiency as it is a vital component of any and all successful military operations. Nevertheless, what the occupation of Haiti demonstrates is that efficiency, carried out without consideration for its potential impact, can undermine the overall goal. In the case of Haiti between 1915 and 1934, the efficiency of the Marines in establishing order and streamlining state infrastructure projects failed to take into account how Haitian history had shaped the way Haitians would respond to these projects. In her book *The Marines, Counterinsurgency, and Strategic Culture*, Jeannie L. Johnson examines the nation-building efforts of the Marines in Haiti and how the emphasis on efficiency was both a strength and a weakness of their efforts.[9] From the perspective of the Marines, the inability of the Haitian government to effectively and efficiently exert its authority across the state was the greatest contributing factor to its chronic instability.[10] For Haiti to be stable, the gov-

ernment needed to be able to assert control beyond the confines of the capital, Port-au-Prince. The Marines set out with the goal of creating the means for greater centralized political authority, and it did so by focusing on improving the country's infrastructure, allowing for greater transportation across Haiti, as well as forming a local security force trained by the Marines known as the *Gendarmerie*.[11] At first, these could be viewed as early successes of the occupation as it succeeded in giving the Haitian government enhanced ability to enforce its will outside of the capital.

Johnson's conclusion is that this approach favoring efficiency above other concerns resulted in negative long-term consequences. While the Marines succeeded in creating the means for the Haitian government to centralize and project its authority during and after the U.S. intervention, Johnson argues that this success undermined the intended goal of nation-building. Johnson makes a distinction between nation-building and state-building in that, while the Marines succeeded in building the efficiency of the Haitian state in certain aspects, such as infrastructure and security, it did not devote adequate attention to nation-building activities such as fostering democratic institutions and building positive relations with the Haitian people.[12] Her conclusion is that improving the Haitian state's ability to project authority at the expense of fostering democracy during the U.S. occupation laid the groundwork for post-occupation Haitian dictatorships such as the Duvalier regime to maintain and abuse their authority.[13] The goal of the Marines to prioritize establishing long-term centralized authority in Haiti during the occupation was also stated in the September 1931 issue of *Leatherneck*. In an article entitled, "The Garde d'Haiti," the author recalls the initial goals of the occupation: assume police and city government duties in Port-au-Prince before working to establish the Gendarmerie to assume these duties once the Marines left.[14] While the establishment of centralized authority in Port-au-Prince can be viewed as a success of the U.S. occupation, the long-term consequences of this for Haitians contrasted the Marines' intentions. The intent was order and stability, but the long-term result was a better infrastructure for future authoritarianism.

Post-Occupation Consequences: Lessons Learned from Haiti

While Johnson's argument provides an example of what Haitian history can teach us in terms of nation-building versus state-building, the focus of this argument is limited to the post-occupation consequences. Therefore, additional focus needs to be applied to how Haitian history impacted the intervention itself and what lessons this can teach about the role of history in the execution of military interventions. Indicative of the problem faced by the Marines during the occupation by not understanding Haitian history was their attempts to

win over the population. Believing that resistance to the U.S. presence resulted from ignorance of its motives and intentions, the Marines' policy to address this was to appoint prominent native civilians as proxy ambassadors to explain why Haitians should support U.S. involvement.[15] While this may have been the right idea, in the case of Haiti, it was not properly applied and ultimately did not address the real problem. The real source of increasing Haitian resistance against the U.S. presence stemmed from the Marines enacting an outdated and controversial Haitian law that, while intended to increase the efficiency of the Haitian infrastructure and economy, instead solidified Haitian fears that the slavery their ancestors had fought against had returned.

Shortly after taking control of Port-au-Prince in July 1915, the Marines followed up by deploying companies in Cap-Haitien, Les Cayes, Jeremie, Port-de-Paix, and Saint-Marc.[16] In taking these key positions across Haiti, what remained was the mountainous terrain of the north between the port cities of Saint-Marc, Port-de-Paix, and Cap-Haitien. Completing the infrastructure needed to connect Port-au-Prince to these northern ports meant building railroads through this region. To accomplish this task, the Marines looked to Haitian history as a means of streamlining the project, but in this case misapplied it in a way that sharply increased Haitian resistance. The policy in question was known as the corvée. The corvée was a tradition going as far back as the Haitian revolutionary leaders Toussaint L'Ouverture and Jean-Jacques Dessalines who had attempted to rebuild the Haitian economy after that conflict. It was a nineteenth-century law in which the Haitian state could require citizens to participate in plantation work or road repair without compensation.[17] By 1917, as U.S. efforts in Haitian nation-building had similar objectives, Major Smedley D. Butler advocated for the resurrection of this defunct Haitian law.[18]

On its surface, the application of a Haitian law for the purpose of improving infrastructure in Haiti would appear to have been a reasonable and efficient approach to the situation. However, this decision represents the primary catalyst for increased local insurgency and popular resentment in Haiti as well as, over time, increased resentment within the U.S. population and government toward the occupation. It also represents the key example of this article in how not understanding the history of the population being engaged by U.S. nation-building efforts can ultimately undermine those efforts. When this approach was applied by the Haitian leaders in the aftermath of the revolution, despite the fact that this enforced labor now included payment, it was not well-received by a population of former slaves who were not keen to work the plantations from which they had already been liberated.[19] This policy had been defunct since the previous century for a reason. The Haitian peasantry had been resistant to the idea of coerced labor even when their own government had imposed it.

What Butler advocated in 1917 was found to be even more unpalatable to

the Haitian populace. To increase the rate of infrastructure development without further taxing the limited budget of the Gendarmerie, the corvée applied in this case was unpaid labor that appeared optional.[20] Gendarmes would notify peasants who had been selected for service that they either had to work on the roads or pay a tax, but this was not a real choice for a population who had no money with which to pay such a tax.[21] In this case, efficiency came at the cost of Haitian public support, or at least acceptance, of the U.S. presence. Whereas Butler saw a means of efficiently streamlining U.S. goals, the Haitians, a people whose nation had been formed by African slaves after resisting and overthrowing a foreign, Western power (France), saw something very different: the return of slavery and therefore a direct threat to Haitian national identity and freedom.

Haitian Resistance to U.S. Occupation

By 1918, the result was a drastic escalation in local resistance, particularly in the northern region, compared to what the Marines had encountered in the initial revolt immediately following the 1915 intervention. During the U.S. occupation of Haiti, Marine forces repelled two revolts that became known as the cacos revolts, with the first occurring in 1915 and the second between 1918 and 1920. The first caco revolt of 1915 began as part of the initial, and not unexpected, reaction of certain groups to the U.S. takeover of Port-au-Prince. *Cacos* was a term for Haitian resistance fighters, typically consisting of peasants operating in the northern mountain region, where generations of aspiring and would-be leaders recruited to overthrow the government in Port-au-Prince.[22] In 1915, opposition leader Rosalvo Bobo maintained this tradition as he and his caco army orchestrated the presidential assassination that triggered U.S. intervention. And it was this insurrectionary force that turned its energies toward the Marines once the United States determined that Bobo would not be allowed to control the successive Haitian government.[23]

During this initial revolt against the U.S. presence in Haiti, the Marines were able to capitalize on the fact that, regardless of how Haitians viewed that presence in relation to their nation's sovereignty, the cacos enjoyed little support from the Haitian public. After four years of worsening chronic instability, many Haitians were more resentful of the cacos as they, not the Americans, had been the ones attacking farms, raiding stores and supplies, and robbing women on their way to town as part of their insurrections.[24] The wedge between the Haitian public and insurgents provided a decisive advantage for the Marines in terms of public relations. The result was that this revolt was short-lived and quickly curtailed as the Marines successfully adapted its strategy to counterinsurgency (which will be discussed further in the following section). The second caco revolt, however, was the result of far more widespread resentment to the continued U.S. presence, primarily in response to the corvée. Along with stok-

ing the historical fears of the Haitians of a foreign military force returning them into slavery, as well as carrying out this policy largely in the northern mountains where, historically, caco resistance had been strongest, it soon became clear that the corvée allowed opportunities for abuse. Most of these abuses appear to have occurred by the Haitian Gendarmes themselves in instances where they exempted some from service in exchange for bribes while others were impressed into service, and sometimes reimpressed even after having served their designated time.[25] These abuses largely occurred in the north under Major Clark H. Wells, who in 1920 was relieved of his command after then-Brigadier General George Barnett had discovered Wells had falsified reports to cover them up.[26] Along with a military investigation, the U.S. press soon picked up stories of "indiscriminate killings" in Haiti, which in turn fueled a congressional investigation into the occupation itself.[27]

Accounts from American missionaries and local clergy, who were initially supportive of the U.S. occupation, reveal an assessment of the situation and how the image of the Marines among the Haitians had been negatively impacted by the corvée. In a letter to the U.S. Department of State from a Catholic bishop in the north of Haiti, Monseigneur Keruzan, described various brutalities carried out against the Haitian population there. While asserting that the majority of these acts committed during the corvée were by the Haitian Gendarmes and not the American Marines, it had caused "universal anger and resentment against the Americans." They believed that more should have been done to restrain the Gendarmes under their command, and that the enforcement of the corvée "by the authority of the whites, seem to them (Haitians) as a species of slavery."[28] The corvée was soon abolished, but the damage to the U.S. image had been done and resentment to the American presence in Haiti continued even after the second revolt had been suppressed and the abuses brought to an end.

In both the first and second caco revolts, the Marines were able to successfully defeat the insurgencies. However, while the first revolt in 1915 was a reactionary movement by a group loyal to a specific leader with very limited support from the rest of the Haitian population, the second revolt was a consequence of a policy that failed to take into account the history of the people in question. For the sake of efficiency, an outdated Haitian law was utilized without consideration for how a program of coerced, unpaid labor by a foreign military of white officers would be received by a people whose national identity was forged in resisting slavery and forced labor. Had the history of Haiti and how it shaped Haitian cultural and national identity been given greater consideration, the sharp increase in resistance and resentment to the U.S. presence in Haiti after 1917 could potentially have been avoided. Sadly, this pattern would be repeated in later conflicts such as Vietnam. As a result, while the Marines were able to defeat the second caco movement, they could not regain the pub-

lic support, or at least acquiescence, of their presence they enjoyed before the corvée was implemented.

Innovations in Nonconventional Warfare

In spite of the consequences of the use of the corvée, Marine tactics and strategy evolved from pursuing a conventional warfare approach to one better suited for the irregular warfare experienced in Haiti and elsewhere. During the first caco revolt in 1915, along with limited public support of the cacos themselves, the Marines had the additional advantages of state-of-the-art rifles and machine gun technology, compared to an opponent armed with antiquated rifles, pikes, and/or machetes.[29] Although the cacos had greater familiarity with the terrain, this did little against the superior training and technology utilized by the Marines. Though disarmament through negotiation was the preferred method of dealing with caco resistance, the Marines used patrols conducting hunt-and-kill operations to eliminate the cacos they encountered.[30] Some of these sweeps were done with intelligence gathered from the local communities, in which Haitian prostitutes became valuable informants on who in town was and was not a caco.[31] This effective combination of training, technological superiority, use of patrols, and intelligence gathering resulted in very few causalities for the Marines compared to the extremely high causality rate of the cacos.

During the second caco revolt (1918–20), which experienced higher and more prolonged levels of insurgency, these small-patrol tactics evolved further. The one-sided engagements from the previous caco revolt had resulted in a doubling down of the caco strategy to avoid direct engagement with the Marines and focus more on quick strike and retreat operations, particularly disrupting supply lines.[32] To more effectively draw the enemy out into the open, the Marines in Haiti, as well as in U.S.-occupied Nicaragua and the Dominican Republic, employed a strategy of using their patrols as bait. They would entice the cacos to engage a seemingly small force, thereby bringing them into the line of sight of expert marksmen.[33] The Marines effectively retooled the caco strategy of limited and disruptive engagement and applied it against the caco infrastructure. By using small, aggressive, and relentless patrols to keep the cacos off-balance and constantly on the run, the Marines' strategy developed here disrupted and eroded the flow of information through the insurgent's organization.[34] Such tactical and strategic developments in Haiti and other parts of the region during this time would later be codified in *The Small Wars Manual* (originally published in 1940), in which the lessons learned from these events became Marine doctrine in nonconventional conflicts:

> Above all, an active and aggressive campaign against the hostile forces in the field is the most effective method of destroying their intelligence service. A guerrilla band which is constant-

> ly harassed and driven from place to place soon loses contact with its own sources of information; it becomes confused and its intelligence system breaks down. As the occupation continues, superiority in this respect will gradually be obtained by the intervening forces.[35]

The Small Wars Manual stated this as part of how Marines should assess and effectively dismantle the organization of an unconventional enemy.

Conclusions

In analyzing these events and how the Marines adapted their tactics for the kind of conflict encountered, we see the early stages of development for the tactics that are more applicable to the more recent conflicts in which the United States has been engaged. Johnson's description of the development of the aggressive, small patrol tactics during the Banana Wars is one of Marines in three different theaters—Haiti, the Dominican Republic, and Nicaragua—reaching the same conclusions independently of each other.[36] Originally beginning these operations based on the conventional strategy of garrisoning the major population centers as strategic defensive points, the Marines recognized in each theater that this approach needed to be modified for a different kind of conflict.[37] This demonstrated the high capacity for the Marines to adapt to situational realities, yet it also demonstrated another important skill: the ability to let your enemy teach you how to defeat them. As the cacos utilized hit-and-run strikes and a focus on the disruption of U.S. supply lines, the Marines in turn applied a modified version of this strategy against them. By using small patrols to lure cacos into engagements and applying these patrols aggressively to keep their supply and organizational intelligence off-balance, the Marines combined their enemy's most effective tactics, which were better suited to the terrain, with the Marine's own superior training and weapons technology. This approach of using what works for a specific enemy and modifying those tactics to include the Marines' preexisting advantages offers the ability to innovate tactics and strategies tailored to specific opponents.

The case of Haiti during the early twentieth century also demonstrates that history can be an enemy as well. Not being familiar with the history of a specific people and how that history has shaped their culture can have real consequences in which missteps in administrative policy can occur, unnecessarily creating heightened resistance and resentment from the indigenous population. What the United States effectively did by instituting the corvée was trigger the worst fears of the Haitian people based on their historical experience, resulting in an armed backlash and loss of whatever goodwill the United States originally had with the populace. Even worse, without understanding the history of the corvée

in Haiti and how it would be perceived when instituted by a foreign force of white officers, the Marines then found themselves having to put down a movement without even understanding what was causing it. Innovation has been shown to occur when we learn from the enemy's strategies, and the case of Haiti in 1915–34 has shown that history should be allowed to do the same. Whatever the near future holds for Haiti and other nations in the region that are facing increasing popular unrest and decreasing political stability, understanding the individual histories of these places is essential to successfully develop any and all approaches the United States may undertake to navigate these issues.

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Slot Machine Warfare
China's Campaign to Undermine American Military Plans in the Commonwealth of the Northern Mariana Islands

Evan N. Polisar

Abstract: The Department of Defense (DOD) has proposed establishing several live-fire training areas in the Commonwealth of the Mariana Islands (CNMI) to address dozens of training deficiencies impacting Pacific forces. Capitalizing on local resistance to the proposal, the People's Republic of China has waged a campaign of political and economic warfare in the CNMI through proxy casino companies to inflame opposition among residents and assert greater influence in the region. This article examines the DOD's joint training proposal, China's political and military efforts to undermine it, and important considerations should the plan move forward.

Keywords: China, Indo-Pacific, political warfare, military training, Mariana Islands

Introduction

The Indo-Pacific region is undergoing a period of profound change that will have considerable implications for the national security of the United States. Already home to more than one-half of the global population and many of the world's busiest maritime trading routes, the Indo-Pacific has been identified by the Department of Defense (DOD) as the "single most consequential region" for American competitiveness and prosperity in the fu-

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ture.[1] Recent presidential administrations have sought to increase the role of the United States in shaping the region through strategies such as the Pivot to Asia and the Free and Open Indo-Pacific, while simultaneously pursuing the ongoing realignment of the American military presence on Okinawa to address long-standing grievances held by the government of Japan.[2]

Against this backdrop, the DOD has pursued new joint military training capabilities in the Commonwealth of the Northern Mariana Islands (CNMI) to address 42 training deficiencies identified in a 2013 study of the United States Indo-Pacific Command.[3] One of four independent regions (or "hubs") within the geographic area of responsibility with a concentration of units that meet or exceed the size of a squadron or battalion, the CNMI is expected to play an important role in maintaining American combat readiness in the Western Pacific following the repositioning of thousands of Marines from Japan to Guam, Hawaii, the western United States, and the rotational force in Darwin, Australia.[4] The DOD has identified the CNMI islands of Tinian and Pagan as the "only suitable locations for development of RTAs for unit level and combined level training" capable of addressing these deficiencies. The DOD's Combined Joint Military Training (CJMT) proposal seeks to establish large-scale, live-fire ranges and training areas (RTAs) on the two-thirds of Tinian already leased by the U.S. government and the entirety of Pagan.[5] The RTAs would be used to address deficiencies in areas such as tactical amphibious operations, close air support, convoy operations, small arms proficiencies, naval gunfire support, and more to meet Title 10 U.S. Code (U.S.C.) requirements for organizing, training, and equipping forces.[6]

Though considered to be an important element of future basing and training options in the Western Pacific, the CJMT proposal has stalled for several years amid bureaucratic delays and local opposition. Amid this uncertainty, the People's Republic of China (PRC) seized an opportunity to promote its strategic interests and assert greater influence in the region by fueling resentment to the proposal through a proxy campaign of political and economic warfare.[7] As part of a " 'blocking operation' designed to degrade the readiness of frontline U.S. Navy and Marine Corps (USMC) forces assigned or transiting [in the CNMI]," casino developers with close links to the PRC have promised multi-billion-dollar investments on several islands—an economic lifeline for the territory that has a per capita income of roughly $17,600 and poverty levels exceeding 55 percent.[8] These developers have vocally opposed U.S. military activities in the CNMI and suggested that they would take their business elsewhere should the proposal move forward.[9] Lieutenant General Wallace C. Gregson Jr. (Ret), former commander of Marine Forces, Pacific, describes what is happening in the CNMI as part of a larger, targeted information operation seeking to "con-

trol [American] access and limit our military presence" throughout the entire region.[10]

As the PRC continues to assert power in the Western Pacific through coercive economic and political policies—backed by a sweeping military modernization program designed to apply pressure on nations in the region and beyond with the ultimate goal of dislocating the United States—the CJMT proposal is increasingly caught in the cross fire of U.S.-China power competition.[11] The DOD and senior military leaders continue to advocate for the CJMT proposal, including it in several guiding strategic documents (as recently as the June 2019 *Indo-Pacific Strategy Report*) and recent testimony before the Senate Armed Services Committee, and may soon face the difficult decision of whether to move the project forward over the objections of CNMI residents.[12]

This article argues that any action taken by the DOD, regardless of Chinese political interference, must be cognizant of the views of CNMI residents. While the PRC's political operations are to a degree responsible for opposition to the CJMT proposal, long-standing preconceptions of distrust of the U.S. military resulting from decades of broken promises and neglect stand to be exacerbated by the establishment of new live-fire RTAs. The CNMI recently established a Second Marianas Political Status Commission for the purpose of reassessing its political status with the United States and exploring options for asserting independence—an endeavor that is increasingly influenced by negative attitudes toward the CJMT—underscoring the potential long-term ramifications of moving the proposal forward in bad faith.[13]

This article first examines the origins of the CJMT and discusses the PRC's efforts to assert influence in the Western Pacific through political warfare and a sweeping military modernization program. After moving to a discussion of the questions surrounding the relevancy of the CJMT within the context of the changing security environment, this article concludes by outlining three considerations that should be addressed by the DOD prior to moving the proposal forward.

The Origin of the Combined Joint Military Training Proposal

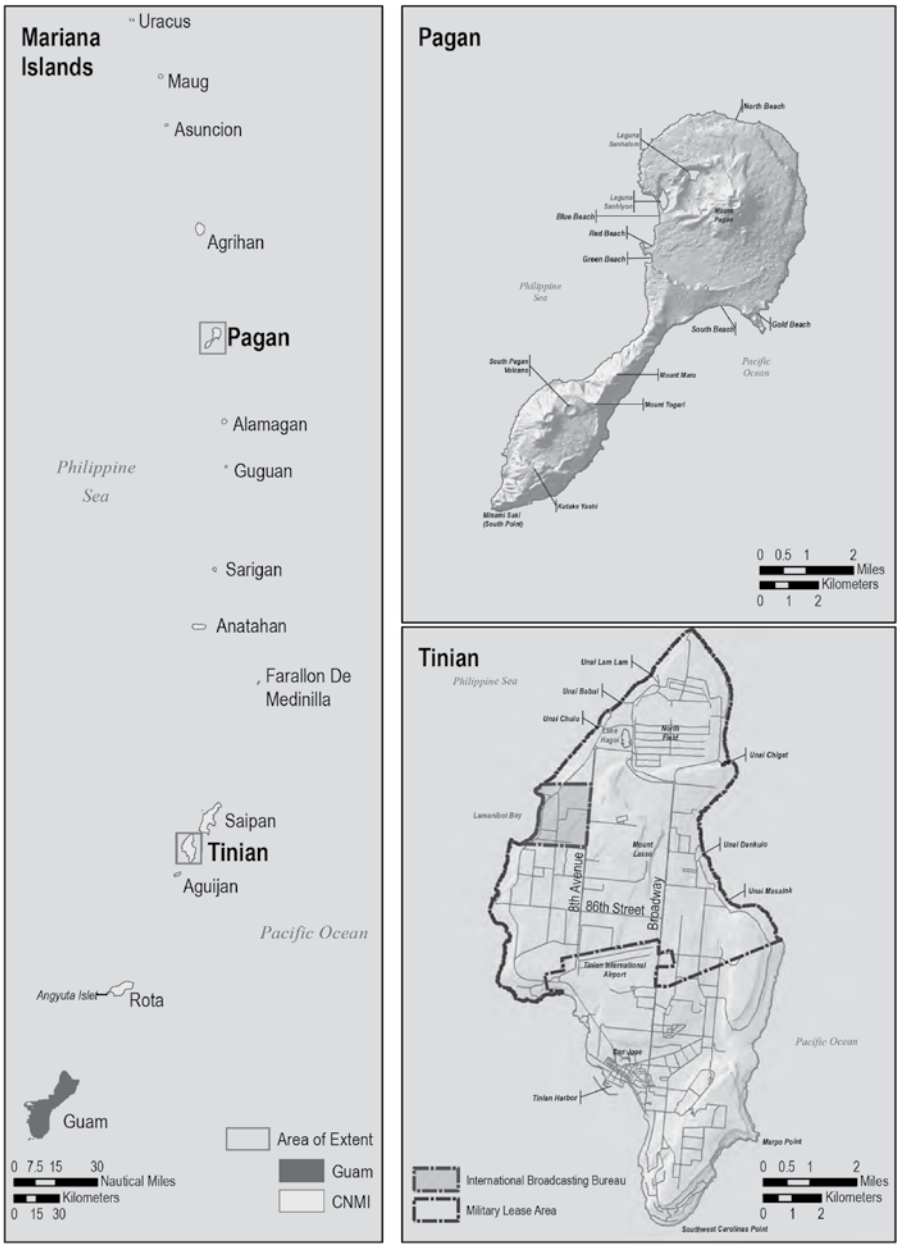
Located to the north of Guam, the CNMI consists of 14 islands spanning more than 300 miles with a total land area of 183.5 square miles.[14] After capturing the islands during World War II, American forces utilized Tinian as the point of departure for the atomic bombings of Hiroshima and Nagasaki, Japan.[15] Since then, the CNMI have continued to play an important role in U.S. strategic planning due to their location. Most recently, in May 2019, the DOD finalized a 40-year lease agreement to establish a United States Air Force divert airfield on Tinian, adding valuable operational capabilities for American forces during

military exercises, humanitarian assistance and disaster-relief operations, or other emergencies as the U.S. military expands its footprint in the region.[16]

The CJMT grew out of a 2009 study completed by the Institute for Defense Analyses examining the state of individual Service component training capabilities in the Pacific. The study was the first to recognize the existence of unfulfilled training needs and identify the CNMI as a desirable location for future RTAs, noting its potential for supporting American forces reliant on foreign nations' RTAs.[17] The following year, the 2010 *Quadrennial Defense Review Report* validated the Institute for Defense Analyses study and formally recognized deficiencies in joint training in the Western Pacific. The U.S. Navy subsequently identified 62 specific training deficiencies affecting Pacific forces in 2012 and finalized a consolidated list of 42 needs in its 2013 *Final Commonwealth of the Northern Marianna Islands Joint Military Training Requirements and Siting Study*.[18] The study made initial recommendations for where to establish new RTAs in the CNMI, paving the way for the National Environmental Policy Act (NEPA) process to begin. Under NEPA, which requires federal agencies to examine the potential effects of proposed actions that could cause significant harm to the environment, the DOD initiated an environmental impact study of the CJMT proposal in 2013.[19] The *Draft Commonwealth of the Northern Mariana Islands Joint Military Training Environmental Impact Statement/Overseas Environmental Impact Statement* (DEIS/OEIS), released in 2015, determined that the CJMT would have significant impacts on farmland, historic and cultural areas, public recreation, native wildlife and marine habitat, special-status species (including endangered coral), and other areas.[20] The DEIS/OEIS suggested several mitigation measures to offset these effects but acknowledged that both Tinian and Pagan would incur unavoidable adverse effects.[21] The document further noted the potential need for increasing training volume beyond the maximum capacity identified for each island, from 20 weeks on Tinian and 16 weeks on Pagan, up to 45 weeks and 40 weeks, respectively, which would require additional compliance under NEPA.[22]

After receiving strong opposition from CNMI residents amid concerns that the proposal would cause irreparable damage to the islands and those who live there, the DOD announced in February 2016 that it would publish a supplemental draft impact statement with "additional studies on the proposal's impacts to coral, potable water, local transportation, and socioeconomic effects on surrounding communities."[23] The revision was expected to be finalized in March 2017, but has yet to be released at the time of this writing. Once finalized, the Office of the Assistant Secretary of the Navy must adhere to a mandatory 30-day waiting period before deciding whether to allow the proposal to move forward.[24]

Map 1. Map of CNMI and CJMT project area



Source: Draft Commonwealth of the Northern Mariana Islands Joint Military Training Environmental Impact Statement/Overseas Environmental Impact Statement *(Washington, DC: Department of Defense, 2015).*

Casinos as a Weapon of War

As the U.S. military continues to pursue the CJMT, the Chinese government has increasingly turned to political and economic warfare as an innovative means of expanding its reach without risking military conflict. Investors with

ties to the Chinese government have set their eyes on the CNMI, pledging billions in economic development to assert influence on the island's residents and economy. The United States-China Economic and Security Review Commission cites the "rapid growth in Chinese investment and [the] influx of Chinese tourists" as fueling opposition to the DOD's plans, while a recent report from the Center for Strategic and Budgetary Assessments emphasizes the "strategic benefit [for the PRC] of handcuffing the U.S. military on Pagan, interfering with it elsewhere in CNMI, and creating a politically influential Chinese presence in an American territory."[25] Indeed, significant investments in casinos and resorts, including two on the island of Tinian (one of which would border land leased by the DOD intended for the CJMT) have caused trepidation among residents, who fear that the United States' military presence could jeopardize Chinese investments. Representatives from Alter City Group, one of several Chinese developers invested in the islands, have fueled the narrative that American military strategies are not in the best interests of CNMI residents, stating that "the [U.S. military] has suggested activities which adversely impact the island of Tinian, its residents and adjacent operators like [Alter City Group]. The benefits from the military with the [proposal] are minimal, but the burdens are significant and unsustainable."[26] Press releases issued by casino developers such as Imperial Pacific Holdings Limited have been published verbatim on the online newspaper *Saipan Tribune*, with headlines such as "Imperial Pacific: Bringing in More Jobs" and "Imperial Pacific=Economic Miracle."[27]

The PRC's pattern of coercive economic practices (often referred to as *debt-trap diplomacy*) has already allowed it to extend its political and military influence well beyond the CNMI and throughout the Indo-Pacific region. One of the most well-known examples of this practice is the case of Sri Lanka's Magampura Mahinda Rajapaksa Port in the city of Hambantota. After unsuccessfully attempting to solicit $300 million in capital investment for the port in the early 2000s, Sri Lanka turned to the PRC to fund the project. From 2009 to 2014, unable to make the port commercially viable, Sri Lanka borrowed an additional $1.9 billion from the PRC. By 2017, Sri Lanka owed the PRC more than $8 billion. To relieve itself of the debt burden, the government eventually signed over the port to China on a 99-year lease, raising concerns that the facility could one day become a Chinese naval hub at the edge of the Indian Ocean.[28]

The PRC established a similar foothold in the Maldives following the 2013 election of Abdulla Yameen Abdul Gayoom, a pro-Beijing president who has since promoted exclusive trade agreements with the PRC and facilitated other forms of access likely to lead to increased Chinese naval operations in the region.[29] The PRC has also financed a new wharf on the island of Espiritu Santo in Vanuatu, developing it into one of the largest in the region while making significant investments in the nation's airport, sports stadiums, convention cen-

Figure 1. The Imperial Pacific Resort Hotel (pictured under construction) is part of a $7 billion resort and casino development with ties to the PRC on the CNMI island of Saipan

Source: Reprinted with permission by Jon Perez.

ters, roads, and office buildings—including governmental buildings used by the prime minister and Vanuatu's foreign ministry staff.[30] In May 2019, Vanuatu's prime minister Charlot Salwaia announced that he would seek additional funding from the PRC through the One Belt, One Road initiative, stating that "we can't wait for grants to come," to address needs such as roads, ports, telecommunications, utilities, health care, and education.[31] In total, the PRC has increased its foreign direct investments in Pacific Island countries 173 percent between 2014 and 2016 to nearly $3 billion to improve its strategic foothold.[32] Over time, Indo-Pacific governments have developed a clearer understanding of China's political and economic warfare strategies, resulting in a "significant stiffening of resistance" to Chinese influence operations among sovereign nations. China, however, maintains momentum and continues to assert its influence throughout the region.[33]

The PRC has recently turned its attention toward states aligned with the United States through Compacts of Free Association (COFA), including Palau, the Federated States of Micronesia (FSM), and the Marshall Islands.[34] As the agreements approach expiration in 2023 and 2024, the PRC seeks to undermine the relationship between the United States and its COFA partners. The PRC's influence operations in the FSM have been "systemic," intertwining Chinese in-

terests into the FSM's political and commercial spheres through "grants, loans, donations, gifts, scholarships, educational opportunities, and China-sponsored regional forums offering investment and aid," and routinely hosting high-level FSM delegations.[35] China's efforts to promote these contributions have allowed it to receive "outsized credit" for its investments in the FSM, while longstanding and significantly larger economic partnerships between the FSM and the United States are "taken for granted."[36] The FSM legislature's consideration of a 2015 resolution proposing to terminate the nation's compact agreement with the United States—irrespective of the proposal's failure—illustrates the potential impacts of such influence operations. This has not gone unnoticed in the United States, leading lawmakers to include provisions in the conference report accompanying the National Defense Authorization Act for Fiscal Year 2020 calling for expeditious negotiations for the agreement's renewal, and the Donald J. Trump administration signaling that it will prioritize renegotiating the agreements.[37]

Beyond Casinos: Enduring Resentment Toward the American Military in the Commonwealth of the Northern Mariana Islands

As the power struggle with the PRC continues to play out in the CNMI, a series of early missteps in the CJMT process, combined with the United States' poor history of environmental stewardship in the region and across the globe, has cast a shadow over the legitimacy of the military and amplified the concerns of those opposed to the proposal. These underlying and enduring feelings are likely responsible, to a degree, for increasing the region's vulnerability to Chinese influence operations. Indeed, CNMI residents have expressed their concerns that the DOD's interests will eventually supersede their own, paving the way for the U.S. Navy and Marine Corps to proceed regardless of the wishes of the community.[38] The CNMI's previous governor, Eloy S. Inos, went so far as to call the CJMT an "existential threat" to the islands' tourism-driven economy, fragile ecosystem, cultural resources, and way of life.[39] The CNMI's current governor, Ralph D. L. G. Torres, has described the process in which the proposal was pursued as "a slap in our face."[40]

A network of activists opposed to the proposal on environmental grounds have organized to stop the CJMT. Rosemond Santos, a founding member of the Guardians of Gani'—one of several groups to sue the DOD over the CJMT proposal—describes her connection with the island of Pagan concisely: "God lives there," and when she visits the island, she can "sense the presence of [her] ancestors."[41] Santos recalls a hearing on the island of Tinian following the release of the DEIS/OEIS when residents expressed concern about the plan and an important fishing area that would be impacted by live-fire training. The

Figure 2. A Japanese shrine at Bandera Point, on the island of Pagan, sits in an area designated as Green Beach, one of several beaches sought by the DOD for live-fire amphibious assault training

Source: Reprinted with permission from Dan Lin.

representative of the military suggested that the DOD would "move the fish" to solve the problem.[42] Governor Torres describes the DOD's initial approach to the CJMT as having "started with people who were arrogant and disrespectful." During his first meeting with representatives of the U.S. Navy, then-CNMI Senate President Torres inquired what recourse was available to the commonwealth's government. He was told "there's not much the government can do, at the end of the day, whether you like it or not, [the DOD] can take [the islands] through eminent domain."[43]

Many in the CNMI believe the islands have already given enough to the DOD, which currently leases the entirety of the island of Farallon de Medinilla on a $20,600, 50-year lease, and most of the island of Tinian on a similar $17.5 million lease.[44] The DOD recently received permission to triple the number of explosives dropped on Farallon de Medinilla annually and doubled the area around the CNMI where the U.S. Navy conducts undersea sonar and explosive training, despite significant opposition from the community.[45] For some, these are just recent examples of the larger trend of broken promises and indifference to the people on the islands. David Mendiola Cing, a resident and former senator of the CNMI, remembers when the land leases were first being debated, recalling that residents were desperate from poverty and desired a military-based

economy like the one on Guam. However, "in the 2010 census, every resident fell below the poverty line, and the median household income was $24,470, [and he says] Tinian was 'the sacrificial lamb for the Commonwealth, for all of us to become U.S. citizens'."[46] The land lease, which was agreed to in the 1970s, described the services that would be made available to CNMI residents, including emergency care in military facilities, augmented firefighting capabilities, access to an on-base movie theater, federal assistance for funding for the local school system, jobs, and other economic activities.[47] Rather than constructing an installation capable of providing these services, the land was used for cattle grazing, leaving residents feeling cheated.[48]

For other CNMI residents opposed to the CJMT, the American military's legacy of poor environmental stewardship has led them to question the safety of the proposal. On the island of Saipan, the Tanapag Fuel Farm stands as a vestige of past American military presence. Abandoned by the Navy more than 50 years ago, the facility contains 42 above-ground fuel tanks that have, over time, corroded and collapsed, leaking their toxic contents into the ground.[49] In 2006, the U.S. Environmental Protection Agency, the CNMI Division of Environmental Quality, and the U.S. Army Corps of Engineers removed more than a dozen of the tanks, disposing more than 1,000 tons of oil-contaminated soil and 140 tons of scrap metal in the process.[50] In nearby Guam, a Superfund cleanup has been ongoing since 1993 to address contaminated groundwater in the region's sole-source aquifer at Andersen Air Force Base.[51] On Kaho'olawe Island, Hawaii, where the U.S. Navy conducted live-fire target practice for nearly 50 years, more than $400 million was needed to clear 85 percent of the island of nearly 30,000 munitions during a seven year period.[52] After Hawaii's legislature urged the Navy to finish the job, a Navy spokesperson explained that "no one familiar with Kaho'olawe or the clearance project ever promised or expected to clean up all of the [ordnance]."[53] And, in Vieques, Puerto Rico, where the U.S. Navy conducted amphibious training and high-impact exercises nearly 180 days out of the year until 1999, including four months of integrated live-fire exercises by carrier groups and amphibious ready groups, thousands of acres of land have been left contaminated with mercury, depleted uranium, and Agent Orange, with an estimated cleanup cost exceeding $130 million.[54]

These considerations are significant when viewed through the lens of the rapidly changing security environment in the Western Pacific. As the PRC continues to project power into the region, the situation in the CNMI stands out as an opportunity for exerting new pressure on the United States, facilitated to a degree by views of residents influenced by preconceived views toward the American military. Projections included in the DEIS/OEIS indicate that the number of tourists to the CNMI could increase "between 25 percent and 56 percent higher than 2012 levels" in large part due to those visiting from the PRC—eco-

nomic growth that could be jeopardized by the implementation of the CJMT.[55] The CNMI already draws its largest amount of revenue from hospitality, and residents increasingly worry that constant bombing and training on the islands will discourage tourism, jeopardize its visa waiver program with China, and impact daily life.[56] In this way, the CJMT already presents a double-edged sword for CNMI residents, pitting American strategic interests at odds with the desires of many people in the community. As questions surrounding the proposal continue, the CNMI's discontent with the United States over its treatment of the islands—contrasted with readily available, large-scale Chinese economic investments—continues to take on greater significance.

The Combined Joint Military Training Proposal: A Strategic Imperative?

The PRC's far-reaching military modernization program complements its political and economic warfare campaigns. China's military buildup is particularly noteworthy as it represents the most tangible front for exerting power and coercing sovereign states and territories throughout the Pacific. In the 10 years that have passed since the CJMT took shape, the Western Pacific has experienced significant changes in the strategic landscape as the PRC extends its territorial reach farther into international waters with new capabilities in the maritime, air, space, and cyber domains.[57]

The PRC's modernization effort has yielded developments in submarines, surface craft, aircraft, unmanned vehicles, advanced missiles, and the requisite command and control, communications, computers, intelligence, surveillance, and reconnaissance systems.[58] New aircraft have the ability to carry long-range and precision strike land-attack cruise missiles capable of reaching Guam and the CNMI, while new antiship ballistic missile capabilities give the PRC the ability to strike American aircraft carriers in the Western Pacific for the first time.[59] Rear Admiral A. Eric McVadon (Ret) describes the PRC's antiship ballistic missile capabilities as the "strategic equivalent of China's acquiring nuclear weapons in 1964," while other analysts have warned that the proliferation of such technology increases the risks of "miscalculation, deterrence failure, military escalation, inadvertent war, and an intractable security dilemma."[60] Already controlling the region's largest naval force with more than 300 craft, the People's Liberation Army Navy is expected to possess between 65 and 70 submarines in 2020, including several with submarine-launched ballistic missile capabilities considered to be China's first credible sea-based nuclear deterrent.[61]

It is important to note that the PRC does not seek military conflict with the United States, and the likelihood of armed conflict between the two countries is widely considered to be unlikely.[62] While the PRC prefers to achieve its military, economic, and diplomatic goals without jeopardizing regional stability, it

nevertheless wants a military force capable of winning if a fight becomes necessary.[63] The PRC's military modernization effort should therefore be seen as a form of deterrence that complements its nonmilitary instruments of power as it continues to fortify its antiaccess/area-denial (A2/AD) shield and to extend its reach into the Western Pacific.

The United States will need to adapt to the paradigm of near-peer strategic competition as the PRC fields increasingly sophisticated military capabilities that can challenge American power. Given that the CJMT is predicated on enabling forward-based Pacific forces to meet their Title 10 requirements to organize, train, and equip, dramatic shifts in the operational environment should be important factors for determining if and how the plan will progress.[64] While not directed at China specifically, the capabilities encapsulated within the CJMT are considered integral for the type of joint force operations that will likely characterize any future military operations. The DOD formulated the CJMT based on the determination that "existing U.S. military live-fire, unit and combined level training ranges, training areas, and support facilities are insufficient to support U.S. Pacific Command Service Components' training requirements in the Western Pacific, specifically in the Mariana Islands."[65] The need for these capabilities is further described in the 2015 *National Military Strategy*, which specifically cites the CJMT proposal as critical for "[enhancing] the readiness of our forward forces to respond to regional crises . . . [and supporting] the arrival of next-generation capabilities and joint training and readiness."[66] The recently published 2019 *Indo-Pacific Strategy Report* similarly identifies the air, surface, and subsurface training capabilities encompassed by the CJMT as important for maintaining joint force readiness and increasing multilateral training opportunities amid the military buildup in Guam.[67]

Documents disseminated to the public following the release of the DEIS/OEIS explain that readiness training "must be as realistic and diverse as possible to provide the experiences necessary for the success," citing the need for training to be realistic, integrated, adaptable, exclusive, continuous, uninterrupted, and supportive of alliances and partnerships.[68] As the security environment continues to evolve, so too have American military concepts for conducting operations in environments contested by near-peer adversary forces. In keeping with then-Secretary of Defense James N. Mattis's statement in the unclassified summary of the 2018 *National Defense Strategy* that the United States "cannot expect success fighting tomorrow's conflicts with yesterday's weapons or equipment," the DOD is fielding new technologies as Service components issue new operating concepts addressing the emerging paradigm of near-peer competition.[69] As an example, the most recently published *Marine Corps Operating Concept* is premised on the need to train, organize, and equip for future operational constraints, such as complex terrain, the proliferation of technolo-

gy, and the increasingly nonpermissive A2/AD environment.[70] The subordinate concept, littoral operations in a contested environment, provides an additional framework for the U.S. Navy and Marine Corps to fight in contested littoral areas without presumptive sea control, and describes how both will operate "from dispersed locations both ashore and afloat [to] achieve local sea control and power projection into contested littoral areas," including "creating gaps/seams by location and/or time that can be exploited through a maneuver warfare approach."[71] The forthcoming expeditionary advanced base operations concept is expected to provide an approach for mobile, low-cost, distributed expeditionary operations in austere environments, including the ability to position coastal missile defenses and rearming and refueling points along key island chains.[72]

While these new operational concepts will require routine access to training—suggesting a greater need for new RTAs in the Western Pacific—such significant shifts in operational paradigms also emphasize the degree to which the PRC's increasing naval, air, space, and cyber power have resulted in an operational environment that is vastly different from the one that existed when the CJMT was first proposed. When considering the proposal's raison d'être of addressing joint training deficiencies throughout U.S. Indo-Pacific Command, it is possible that some of the capabilities driving the CJMT may no longer be essential—or even viable—for American power projection in the region. This consideration is illustrated by the Marine Corps' recently published *Force Design 2030*, which calls for substantially altering how the force will prepare to meet the emerging operational environment in the Indo-Pacific. Citing the impacts of the proliferation of advanced long-range fires, mines, and other threats, *Force Design 2030* outlines the Commandant's intention to divest the Marine Corps from increasingly vulnerable systems, including eliminating the Service's tank force, a significant number of cannon artillery battalions, several air combat elements and amphibious assault companies, and a total force reduction of approximately 12,000 Marines by the end of the decade.[73]

Notably, many of the force projection capabilities identified for divestment by *Force Design 2030* are encapsulated within the CJMT. The list of unmet training needs outlined in the *2013 Joint Military Training Requirements and Siting Study* included RTA requirements for field artillery, tank operations, and amphibious operations, including forced entry and maneuver operations. While some of these capabilities—amphibious capabilities, for example—will continue to be critical for U.S. power projection in the future (as reiterated by concepts such as littoral operations in a contested environment and expeditionary advanced base operations), it is nevertheless important to recognize that the way in which these operations are conducted must reflect changes in the strategic landscape. For instance, the United States has not staged a large-scale amphibious operation since the Korean War. And, according to Major

General David W. Coffman, director of expeditionary warfare for the Chief of Naval Operations, the Marine Corps has too few ships to even conduct such an operation today without incurring an unacceptable number of casualties given the PRC's increasingly sophisticated missile capabilities, growing military strength, and expanded A2/AD shield.[74] The PRC's continued militarization of the South China Sea, including the placement of antiship cruise missiles and long-range surface to air missiles in the Spratly Islands and recently conducted strategic bomber takeoff and landing drills on the disputed Woody Island (a.k.a. Yongxing Island by the PRC) further illustrates the speed with which the PRC has expanded its reach into the Western Pacific.[75] *Force Design 2030* reflects this reality, pairing divestments with increased investments in land-based rocket artillery, long-range precision antiship missile capabilities, unmanned aerial systems, and smaller, lower signature amphibious vehicles.[76] Such significant operational constraints call into question the need to establish new RTAs for amphibious capabilities while others already exist throughout the area of operations. These concerns are further buoyed by findings from the 2013 *Training Needs Assessment*, which noted that just 2 of the 62 deficiencies initially identified were "not mission capable" across all four hubs—suggesting that some form of training capability already exists in the area of operation for virtually every training requirement identified as deficient.[77]

While changes in the operational environment suggest the DOD would benefit from refining the list of deficiencies sought to be addressed by the CJMT, it can also be argued that even a refined list of training capabilities would provide sufficient strategic benefits simply by making it easier for forces to remain operationally proficient. Bilateral and multilateral amphibious operations are central aspects of the littoral operations in a contested environment and expeditionary advanced base operations concepts and will continue to serve important purposes across the spectrum of military operations. As these concepts illustrate, future operations are likely to continue to increase in complexity and will require access to geographically dispersed training areas. Further, as noted by senior military leaders, having RTAs sovereign to the United States may also be of enough strategic benefit to warrant the proposal. For instance, the 2009 Institute for Defense Analyses study noted that the CNMI were particularly important to U.S. forces located on the Western Pacific rim given their reliance on foreign nations' RTAs and long transit time to American soil.[78] During a prior military buildup on Andersen Air Force Base in Guam, Air Force major general Dennis R. Larsen explained the strategic benefits of placing RTAs within American territories, saying that "this is not Okinawa. . . .This is American soil in the midst of the Pacific. . . . We can do what we want here and make huge investments without fear of being thrown out."[79] While this perspective offers another insight into the impetus for the CJMT, guiding national strategic doc-

uments, including the *National Military Strategy* and the *Asia-Pacific Maritime Security Strategy*, laud the United States' role in the region and infer that other nations are increasingly looking to the American military to promote stability.[80] This suggests that there is increased interest in partnering with American forces, rather than growing risk of being denied access to areas of strategic importance.

Considerations

Following years of delays and uncertainty, the CJMT proposal may soon move forward following the release of the revised EIS/OEIS. The proposal, however, does not exist in a vacuum. While Service components are required to meet specific responsibilities under Title 10, technological advancements on the part of the PRC have already required the United States military to adapt with new operating concepts emphasizing maneuverability, resiliency, and distribution. Amid challenges posed by near-peer military threats and ongoing economic and political warfare campaigns, it is necessary to take steps to ensure that the CJMT is still in the best interest of U.S. national security and that it is carried out appropriately. To satisfy these considerations, the DOD should do three things before moving forward with the proposal.

First, the DOD should revisit the conclusions of the 2009 Institute for Defense Analyses study and *2013 Joint Military Training Requirements and Siting Study* to determine the extent to which the joint training deficiencies driving the CJMT proposal are relevant to the current and future operational environment. The PRC's development of cutting-edge technologies, emphasis on space and cyber domain warfare, and proliferation of new, modernized naval craft and aircraft will continue to reshape the balance of power in the region. Furthermore, its antiship cruise missile program, expanding air defense architecture, and rapidly improving offensive capabilities will increasingly call into question conventional American deterrence strategies that have been effective throughout the past several decades. *Force Design 2030* serves as an example of how the shifting landscape requires an evolution in how the Marine Corps trains, organizes, and equips its forces. Ensuring the CJMT is focused on specific enduring capabilities rather than overextending itself with unnecessary RTAs would save valuable resources and, perhaps more importantly, demonstrate the U.S. government's desire to do only what is necessary to maintain its strategic foothold. This small step would be an important signal to CNMI residents that their land and concerns are not taken for granted.

Second, the DOD should clarify the strategic benefits of placing the CJMT in the CNMI region. Several documents supporting the CJMT specifically mention the need to construct RTAs on American soil to decrease reliance on foreign RTAs. While the PRC's coercive economic and diplomatic processes have brought a few nations further into its sphere of influence, the United States

continues to maintain its alliances and develop new partnerships, conducting hundreds of exercises and military engagements with dozens of countries every year. This fact is not lost on CNMI residents. The DOD should therefore articulate which, if any, foreign RTAs it fears losing access to, what options exist for filling these potential gaps with preexisting RTAs within U.S. Indo-Pacific Command, and how it will work with other American government agencies to strengthen existing foreign RTA agreements. The DOD should clearly address why the deficiencies outlined in the *Joint Military Training Requirements and Siting Study* cannot be addressed elsewhere, either at foreign RTAs or those existing in Hawaii or the Western United States. As with the previous consideration, this small step would send an important signal to residents of the CNMI and more sufficiently communicate the DOD's position on the long-term strategic necessity of the CJMT.

Finally, recognizing that moving forward with the CJMT will likely create new challenges for the U.S. government in the CNMI, the DOD must do more to address the concerns of the territory's residents. As has been illustrated, opposition to the CJMT stems from several factors, including residents' feelings of neglect and disrespect, the military's perceived indifference toward the proposal's impacts on their daily lives, as well as concerns stemming from the potential loss of billions in foreign investments. In this regard, it is important to acknowledge that the PRC's economic and political operations in the territory only tell part of the story. The DOD's legacy of broken promises has arguably influenced many in the region to distrust the military's DEIS/OEIS findings, such as the determination that the CJMT would benefit the local economy despite failing to acknowledge the constraints the proposal would place on future economic growth and the potential loss of billions in outside investments. The DOD, and the entire U.S. government, must work with government of the CNMI to mitigate the impacts of these considerations and commit to new economic investments in the territory. These discussions should be conducted respectfully and transparently to emphasize the United States' continued commitment to the CNMI and its people. Doing so may be the best option for moving the CJMT proposal forward in a manner that is acceptable to all parties.

Conclusion

The PRC's continued political influence operations in the CNMI present a significant challenge for the DOD and the U.S. government. Chinese investments provide residents with sorely needed economic incentives and an alternative to constant live-fire training, despite being at odds with American strategic interests. Given the above scenario, this article argued that the U.S. government should unequivocally recommit itself to the CNMI, paying particularly close attention to the islands' needs so as not to create additional opportunities for

the PRC to exploit through political and economic influence operations. While the CJMT could strengthen the United States' strategic posture in the CNMI region, if implemented in the face of overwhelming opposition, such an action would likely undermine the military's position as a moral and ethical force and lead to new animosity among the local population. As the government of the CNMI considers exerting greater independence from the United States, the DOD must therefore make every possible effort to work with the local government to address the concerns of those whose lives will be changed by bombs, bullets, and wargames.

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Political Warfare
The People's Republic of China's Strategy "to Win without Fighting"[1]

Professor Kerry K. Gershaneck

Abstract: The Commandant of the Marine Corps has identified the People's Republic of China (PRC) as an existential threat to the United States in the long term. To successfully confront this threat, the United States must relearn how to fight on the political warfare battlefield. Although increasingly capable militarily, the PRC employs political warfare as its primary weapon to destroy its adversaries. However, America no longer has the capacity to compete and win on the political warfare battlefield: this capacity atrophied in the nearly three decades following the collapse of the Soviet Union. Failure to understand China's political warfare and how to fight it may well lead to America's strategic defeat before initiation of armed conflict and to operational defeat of U.S. military forces on the battlefield. The study concludes with recommendations the U.S. government must take to successfully counter this existential threat.
Keywords: People's Republic of China, PRC, political warfare, United Front Work Department, propaganda, China Dream, Great Rejuvenation, Xi Jinping, people's war, three warfares, strategic psychological warfare, People's Liberation Army, PLA, proxy army, PLA's Strategic Support Force, public opinion/media warfare, cyber warfare, Confucius Institutes

In October 2019, Commandant of the Marine Corps General David H. Berger identified the People's Republic of China (PRC) as "the long-term existential threat to the U.S."[2] The Marines would be the "first-responder to

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any fight that bubbles up," said Berger, "quickly getting to the scene to 'freeze' the conflict and allow diplomats to de-escalate, ideally, or for the military to send in follow-on forces if called upon."[3] Kinetic conflict with the PRC has not happened yet, but that fact should offer little comfort or consolation for U.S. national security leadership. In reality, the PRC is already at war with the United States, and with much of the rest of the world—but not in the traditional sense.

The PRC is fighting this war for global influence and control to achieve its expansionist China Dream.[4] The PRC's weapons include coercion, corruption, deception, intimidation, fake news, disinformation, social media, and violent covert operations that rely on physical assault, kidnapping, and proxy army warfare. The PRC prefers to win this war by never having to fire a shot, but its increasingly powerful military and paramilitary forces loom ominously in the background in support of its expanding war of influence.

In the minds of Chinese Communist Party (CCP) rulers, this war is designed to restore China's former imperial grandeur as the Middle Kingdom—to once again be what China's rulers have called "Everything Under the Sun," the all-powerful Hegemon Power (*Baquan*).[5] It is a war to ensure the CCP's total control over the Chinese population and resources, as well as those of what China has historically called the *barbarian states*—nations nearby (e.g., Thailand and Japan) and global (e.g., European, African, and South American countries).

Much like the emperors of the Celestial Empire at its zenith, the CCP effectively classifies other barbarian nations as either tributary states that recognize the PRC's hegemony or as potential enemies.[6] Despite the professed intention of simple, peaceful "national rejuvenation" reflected in Xi Jinping's China Dream, the CCP has demonstrated expansionist intentions and its actions reflect no desire for equality among nations.[7] Rather, it seeks to impose its all-encompassing civilization on other, lesser states, consistent with the book by a PLA officer that provided the ideological foundation of Xi's China Dream.[8] Of greatest concern, Xi's China Dream is one of unrepentant, totalitarian Marxist-Leninism.[9]

For the CCP, this is a total war for regional and global supremacy, and it takes the form of military, economic, informational, and—especially—political warfare. A detailed definition of political warfare will be provided later, but a simple description follows: *political warfare* employs all means at a nation's command—short of war—to achieve its national objectives. These means range from overt actions such as political alliances, economic measures, and public diplomacy, to covert operations, including coercion, disinformation, psychological warfare, assassination, criminal activities, violent attacks, and support for proxy armies and insurgencies.

The PRC's political warfare is both defensive and offensive in nature: it takes the form of unrestricted warfare, and it is conducted on a global scale.[10]

Most recently, the world has seen Beijing's political warfare apparatus engaged in a massive global effort "aimed at redirecting blame [for the COVID-19 crisis] away from China and sowing confusion and discord among China's detractors."[11]

As a prelude to this article, it is crucial to establish the answer to some key questions: Why does it matter that the PRC seeks regional and ultimately global hegemony? Why cannot the world simply accept and abide a *rising China*, a seemingly benign term employed by PRC propaganda organs? Why should the world be concerned about China's long-term strategy, extensively detailed in Michael Pillsbury's highly acclaimed book *The Hundred-Year Marathon*, to replace America as the global superpower?[12] What is there to fear about "China's peaceful rise" and the CCP's goal of a "Chinese-led world order"?[13]

After all, should the United States be concerned if, say, a rising Brazil or a rising India or a rising Taiwan sought regional hegemony and proclaimed its intent (as a PRC defense white paper proclaimed) to "lead the world into the 21st Century"?[14] The answer is simple, and stark: the PRC is an expansionist, coercive, hypernationalistic, militarily powerful, brutally repressive, fascist, and totalitarian state that wants to reshape the world in its image. The world has seen what happens when expansionist, totalitarian regimes such as the PRC are left unchallenged and unchecked. In a hegemonic world, people are subjects—simply property of the state. There is no place for ideals such as democracy, popular sovereignty, inalienable rights, limited government, independent thought, free expression, and rule of law.

The PRC's totalitarian nature is explored in detail in this article, but it is useful here to lay a foundation regarding general characteristics of totalitarianism, such as identification of the individual as merely a subject of the state; total control of media, education, and entertainment; control of major economic sectors; lack of governmental checks and balances; control by a single party, with a separate chain of control alongside the government; personality cults; militarism; a contrived historical narrative of humiliation leading to hypernationalism; and an entitlement to aggression. These characteristics were witnessed in the twentieth century in Adolf Hitler's Germany, Vladimir Lenin's Soviet Union, Benito Mussolini's Italy, Imperialist Japan, and Pol Pot's Cambodia. Such political structures and narratives established a divine right of governance for dictatorships and empires like the PRC long before the founding of the CCP. There is nothing new or inherently Chinese about totalitarian fascism.

The threat that modern totalitarian Sino-Fascism poses is, however, unprecedented. The power of modern technology and the PRC's rapid convergence of massive economic, military, and political power, position it to be—as Canada's top-rated think tank, the Fraser Institute, asserts—"world freedom's greatest threat."[15]

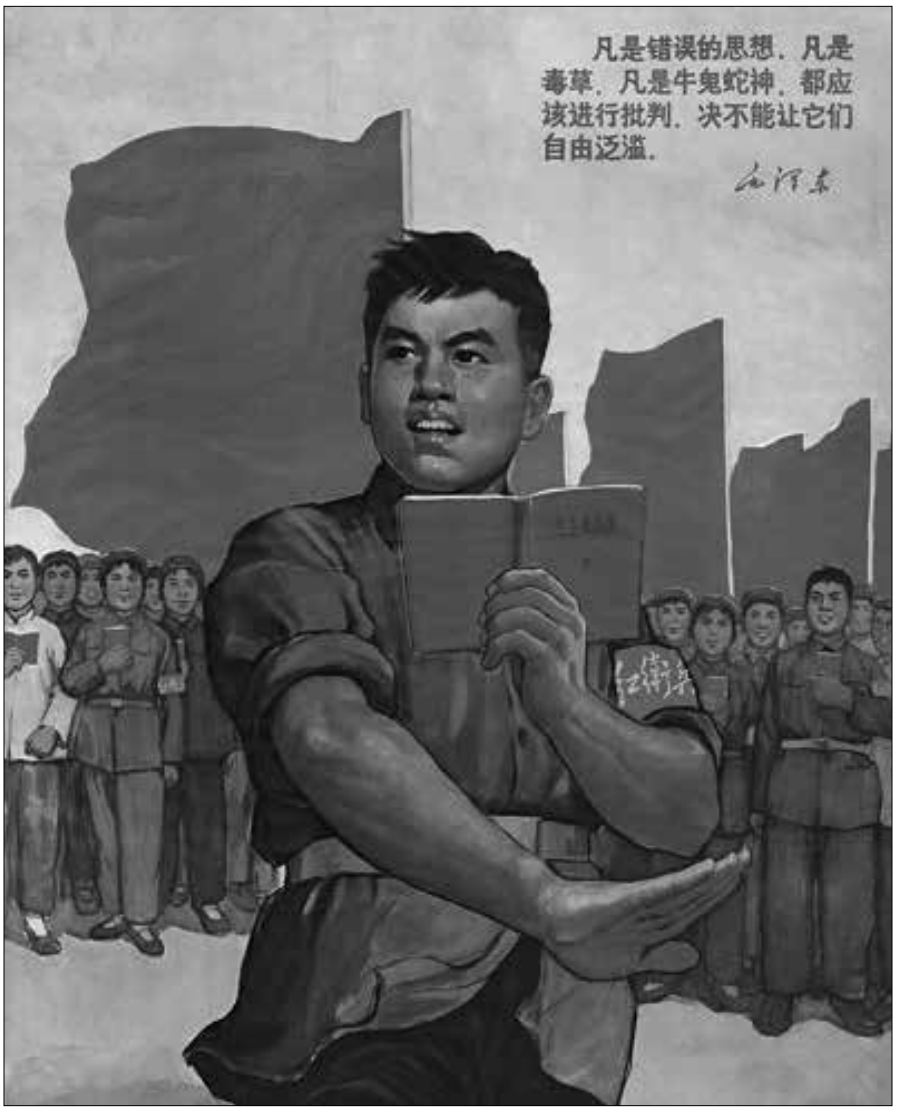
The PRC has become a hegemon bent on controlling the world's resources, ostensibly to benefit China—but in reality to benefit the roughly 6.5 percent of its population who are Chinese Communist Party members. In addition to brutally repressing China's population, the CCP has proven it can effectively leverage the openness of democratic systems to achieve hegemony over those democracies.[16] It prefers to do this peacefully if possible: not really without a struggle but ideally without kinetic combat—without "firing a shot."[17] However, the PRC has repeatedly signaled that it is now strong and confident enough to fight a war to achieve that hegemony, even if it must pay a very large price.[18]

As the PRC builds a navy that will, in 10 years, be roughly twice the size of the U.S. Navy and will be "perhaps qualitatively on a par with that of the U.S. Navy" as it adds multiple-warhead, maneuverable hypersonic missiles to its triad nuclear strike capability that now covers the entire U.S. mainland, Beijing flouts international law and increasingly eschews existing rules and norms.[19] According to U.S. vice president Michael R. "Mike" Pence, the PRC relies instead on coercion and corruption to achieve its economic, military, and diplomatic aims.[20] Beijing's strategies include "fracturing and capturing regional institutions that could otherwise raise collective concerns about China's behavior, and intimidating countries in maritime Asia that seek to lawfully extract resources and defend their sovereignty," according to Ely Ratner of the Council on Foreign Affairs.[21]

The PRC's political warfare apparatus is a key weapon of compellence in its drive for regional and, ultimately, global hegemony, and its arsenal of coercive weapons is immense. Brutal internal repression is one well-documented form of the PRC's unique brand of political warfare. Amnesty International and the U.S. government have criticized the PRC for imprisoning at least a million Uighurs in so-called reeducation camps under particularly brutal circumstances.[22] In fact, the repression of Uighurs and other Muslim sects is part of a much more insidious trend: the *Washington Post* editorial board assesses that "China's systematic anti-Muslim campaign, and accompanying repression of Christians and Tibetan Buddhists, may represent the largest-scale official attack on religious freedom in the world."[23] The late 2019 release of the PRC's secret China Cables from 2017 provides confirmation of the gross atrocities and brutal repression against Uighurs.[24] The cables provide irrefutable evidence of the power and intensity with which the PRC uses political warfare against its minorities. Beijing has employed both military/police operations and political warfare to crush unique cultures and democratic freedoms in Kashmir, Tibet, Tiananmen Square, and North Korea—and potentially it will use both military and political warfare to subjugate Hong Kong and Taiwan when it feels powerful enough to do so.

The PRC's internal political repression entails a brutality much more le-

Figure 1. Translation: *Criticize the old world and build a new world with Mao Zedong Thought as a weapon*. This 1966 propaganda poster was one of many produced during the Cultural Revolution (1966–76) to encourage young Red Guards to study Mao to "scatter the old world and build a new world."



Source: "Cultural Revolution Campaigns (1966–1976)," Chineseposters.net.

thal than religious suppression and thought control: the CCP is responsible for the deaths of millions of Chinese people during disastrous large-scale reigns of terror such as the Great Leap Forward (1958–60), the Cultural Revolution (1966–76), and smaller-scale atrocities such as the Tiananmen Square Massacre in 1989. Scholars such as Hong Kong-based historian Frank Dikötter have

confirmed, based on the PRC's archives, that during the Great Leap Forward alone, "systematic torture, brutality, starvation and killing of Chinese peasants [occurred and]. . . . At least 45 million people were worked, starved or beaten to death in China over these four years."[25] The Cultural Revolution resulted in the murder of at least 2 million more, and "another 1 to 2 million were killed in other campaigns, such as land-reform and 'anti-rightist' movements in the 1950s."[26] Estimates of Chinese killed directly or indirectly through CCP political warfare against its own population are strongly debated, but they range as high as 70 million deaths during peacetime.[27]

While there is debate regarding the total number of Chinese killed by the CCP, there is no doubt that the Chinese Communist Party that is responsible for what amounts to mass murder still tightly holds the reins of power in the PRC and that it reveres the man who presided over the deadliest repression: Mao Zedong. Evidence of the CCP's continued reverence for Mao includes what *China Daily* described as the "unprecedented" respect and "piety" Xi and the CCP displayed for Mao during the 70th anniversary of the PRC extravaganza in October 2019.[28]

While the PRC's "propaganda machine has mastered the power of symbol and symbolism in the mass media" and many Chinese eagerly embrace its hypernationalistic patriotic education programs, those residing in the PRC face censorship and thought control unimaginable to most citizens of liberal democracies.[29] Of even greater concern, the CCP's censorship and thought control have gone global: through its extensive propaganda and influence tentacles, Beijing disregards rules or actions that, in the CCP's view, contain China's power or "hurt the feelings of the Chinese people."[30] The PRC's Ministry of Foreign Affairs and propaganda organs lambast as "immoral" those who criticize its egregious human-rights abuses and as "racist" those who object to overseas Chinese malign influence activities.[31]

The CCP's draconian censorship ensnares American institutions such as the National Basketball Association, who was recently chastised by the *Washington Post* editorial board for "essentially importing to the United States China's denial of free speech."[32] Further, an increasingly punitive Beijing now routinely censors world-famous brands, such as Marriott, United Airlines, Cathay Pacific Airways, Givenchy, and Versace.[33] Hollywood has been co-opted "to avoid issues that the Chinese Communist Party would consider sensitive and produce soft propaganda movies that portray China in a positive light to global audiences."[34] Beijing is very clear in conveying its coercive censorship requirements, as reflected with the *Global Times* headline: "Global Brands Better Stay Away from Politics." The article condemned "so-called 'freedom of speech' " and carried explicit and implicit threats to those who did not toe the CCP line.[35]

Beijing also exports violence to other countries in support of its political

warfare activities abroad. One example is its use of proxy armies. The PRC's support of its proxy armies in Myanmar seems an anomaly to many contemporary diplomats, academics, and journalists, but such support has been the norm for the CCP since the founding of the People's Republic of China.[36] Its proxy armies across Southeast Asia kept the United States and its allies in the region distracted and cost them dearly for more than four decades of the Cold War.[37]

Economic coercion has become a particularly visible PRC political warfare tool, as the CCP uses the promise of its global One Belt, One Road (OBOR) scheme (also called Belt and Road Initiative, or BRI) to build what *China Daily* describes as "a new platform for world economic cooperation."[38] The U.S. assistant secretary of state for East Asia and Pacific Affairs, David R. Stilwell, characterizes OBOR and related PRC economic coercion less charitably: "Beijing . . . [employs] market-distorting economic inducements and penalties, influence operations, and intimidation to persuade other states to heed its political and security agenda."[39] Vice President Mike Pence's foreign policy speech of 4 October 2018 specifically details American concerns regarding the PRC's use of destructive foreign direct investment, market access, and debt traps to compel foreign governments to acquiesce to its wishes.[40]

Of equal concern, the PRC shapes public opinion inside and outside its borders "to undermine academic freedom, censor foreign media, restrict the free flow of information, and curb civil society," according to Ely Ratner.[41] Worldwide, countries have belatedly awakened to the remarkable degree to which the PRC's diplomatic, economic, and military interests—and with these, the PRC's malign influence—have infiltrated their regions, such as Australia and New Zealand as well as countries across Europe, Oceania and the Pacific Islands, South America, the Arctic nations, and many African countries.[42] Canada and the United States have had equally rude awakenings regarding the efficacy of the PRC's ability to co-opt institutions, organizations, and people (called "united front" operations) and other forms of PRC coercion, repression, and violent attacks within their borders. [43]

Of particular concern to the U.S. military is the PRC's highly successful employment of political warfare operations to co-opt retired senior U.S. military officers to lobby on behalf of PRC objectives and to undermine U.S. national security objectives.[44] The PLA has successfully co-opted retired U.S. military flag and general officers through organizations such as the Chinese Association for International Friendly Contact (CAIFC) and other programs such as the Sanya Initiative.[45]

Established in December 1984 as a political warfare platform, CAIFC's "main function is establishing and maintaining rapport with senior foreign defense and security community elites, including retired senior military officers and legislators."[46] CAIFC routinely sponsors retired U.S. officers for free visits

to the PRC for what amounts to political indoctrination sessions. According to Mark Stokes and Russell Hsiao, "CAIFC facilitates influence operations through PRC foreign affairs, state security, united front, propaganda systems, and military systems."[47] To entice American and other foreign retired military officers, "CAIFC serves as a window to China's broader business community." In some cases, foreign retired officers have been required to "agree to publish editorials supporting China [*sic*] position and criticize U.S. regional policy in exchange for business development support in China."[48]

The Sanya Initiative began in February 2008 as a PRC initiative to influence senior retired U.S. flag and general officers to support PRC security interests. At the first meeting at Sanya Resort on the PRC's Hainan Island, senior PRC political warfare and intelligence officers led the PLA side, and U.S. participants were led by retired Admiral (and former Vice Chairman of the Joint Chiefs of Staff) William A. Owens. According to a Congressional Research Service report on the Sanya Initiative, "The PLA side asked the U.S. participants to help with PRC objections to U.S. policies and laws: namely the Taiwan Relations Act (TRA), Pentagon's report to Congress on PRC Military Power, and legal restrictions on military contacts in the [National Defense Authorization Act] NDAA for FY2000."[49] Meetings were subsequently held during 2009, in Honolulu, Hawaii; Washington, DC; and New York City. As a result, Owens (who had business interests in China as a managing director of AEA Investors in Hong Kong) published an opinion piece opposing the Taiwan Relations Act as harmful to the relationship with a rising great power—China—that has increasing wealth and influence in the world.[50] Owens and certain other U.S. officers continued to meet with senior CCP officials and to support PRC security objectives in discussions with members of Congress and DOD officials.[51]

Senior officials of allied and friendly countries are also targeted by CAIFC and similar programs, particularly through academic and think tank affiliations. For example, a think tank called the National Institute for South China Seas Studies (NISCSS), located on Hainan Island, focuses on persuading foreign retired and serving officials that the PRC is entitled to own the South China Seas. To this end, NISCSS has established collaborative links with institutions such as the University of Alberta, the Korea Institute for Maritime Strategy, International Ocean Institute (Canada), Center for Southeast Asian Studies (Indonesia), and a South China Seas-themed summer camp organized by Nanjing University. Senior academics and retired military personnel from South Korea, Australia, Indonesia, and Taiwan (as well as other countries) continue to attend NISCSS seminars.[52]

Australian journalist John Garnaut captures the nature of the long-overdue awakening concerning the PRC's political warfare—and the disturbing lack of consensus on response:

> Belatedly, and quite suddenly, political leaders, policy makers and civil society actors in a dozen nations around the world are scrambling to come to terms with a form of China's extraterritorial influence described variously as "sharp power," "United Front work," and "influence operations". . . . A dozen others are entering the debate. But none of these countries has sustained a vigorous conversation, let alone reached a political consensus.[53]

The use of political warfare is not unique to the PRC, of course. During the Cold War, the United States and other democratic countries engaged in an ultimately successful political warfare effort to bring down the Soviet Union's Iron Curtain.[54] But the PRC version of political warfare is different than the other states, and it seeks to achieve more through its influence and political warfare operations than other states, according to Singapore's former ambassador Bilahari Kausikan, a highly respected expert of PRC malign influence. Kausikan notes that China is a totalitarian Leninist state that takes a holistic approach, which melds together the legal and the covert in conjunction with persuasion, inducement, and coercion. He identifies the aim of the PRC is not simply to *direct* behavior but to *condition* behavior.[55] "In other words, China does not just want you to comply with its wishes," Kausikan asserts, but "far more fundamentally, it wants you to think in such a way that you will of your own volition do what it wants without being told. It's a form of psychological manipulation."[56]

As it wages global political war to achieve its political, economic, and military ends, China exports authoritarianism, as detailed by the National Endowment for Democracy.[57] Beijing intentionally undermines the credibility of democracy and individual freedoms to bolster support for its own totalitarian regime—what it calls the China Model.

While there has been relatively recent bipartisan agreement in the United States regarding the need to confront the general threat posed by the PRC, there is still insufficient attention devoted to countering the threat of PRC political warfare. Based on the author's discussions with senior National Security Council officials and DOD and Department of State officials, there has been, until relatively recently, a lack of will to identify and confront PRC political warfare. Consequently, as Garnaut observed, there is no comprehensive approach at the strategic and operational levels that bring a common vision, coherency, and the necessary resources to fight it.

Specific weaknesses of the United States and other democracies in combating PRC political warfare are delineated by a 2019 Center for Strategic and Budgetary Assessments report. Key weaknesses include the fact that there is

little consensus about or clearly defined strategic goals within or between Western countries; no powerful strategic narrative to provide a strong focus for a counterauthoritarian political warfare campaign; no clearly defined strategy or game plan to drive coalition political warfare operations; and universally weak levels of experience, culture, and doctrine in the field of political warfare, even though some Western countries possessed substantial political warfare expertise during the Cold War. Also worth noting is the fact that politicians, business people, media personalities, and the general population are poorly informed regarding the political warfare challenges they face, and are ill-prepared mentally and practically for the long struggle ahead.[58]

Organizations such as Project 2049 Institute, Hudson Institute, Center for Strategic and Budgetary Assessments, Jamestown Foundation, and Global Taiwan Institute, as well as individual scholars and reporters, have provided superb analysis and reports on PRC political warfare. Nevertheless, relatively little open-source academic literature is written in English on the subject. Of particular concern is the significant deficiency in academic research in both civilian and U.S. government educational institutions regarding the PRC's comprehensive political warfare strategies.

As previously noted, the United States was once adept at conducting political warfare. During the Cold War, the United States successfully waged political warfare against the Communist Bloc through a variety of mechanisms, including such overt actions as building political alliances and initiating economic development (i.e., the Marshall Plan in Europe). American agencies also used "white" propaganda (the source is identified), covert operations using the clandestine support of friendly foreign elements, and "black" psychological warfare (the source is concealed). The United States also encouraged underground resistance in hostile states, covertly funded non-Communist political parties, covertly started magazines and organizations to organize artists and intellectuals against Communism, and provided financial and logistical support to dissidents behind the Iron Curtain and military support for freedom fighters.[59]

Looking to the future, the United States must invest heavily and with great urgency now to inoculate our institutions, military forces, and citizens against the existential threat posed by PRC political warfare, and to effectively counter the threat. The Marine Corps and the other military Services must first understand the political warfare threat, however, then engage in the fight and ultimately win the war.

PRC Political Warfare: Goals, Ways, Means, and Wartime Support

Political Warfare Goals

In congressional testimony, Princeton's Professor Aaron L. Friedberg identified

four strategic goals for the CCP, and hence for its political warfare operations: "First and foremost," said Friedberg, "to preserve the power of the CCP. Second, to restore China to what the regime sees as its proper, historic status as the preponderant power in eastern Eurasia. Third, to become a truly global player, with power, presence and influence on par with, and eventually superior to, that of the United States."[60]

Further, Friedberg asserts that the PRC rejects concepts the CCP derisively refers to as " 'so-called universal values': freedom of speech and religion, representative democracy, the rule of law, and so on," which threaten the legitimacy of the CCP. Accordingly, the PRC has worked "openly and vigorously to make [the world] safe for authoritarianism, or at least for continued CCP rule of China." He says the PRC's efforts have "intensified markedly" since the rise to power of Xi Jinping in 2012.[61]

A 2018 Hudson Institute study provides an apt, if somewhat informal, description of PRC political warfare goals, target audiences, and strategies:

> With the United States, whose geostrategic power the Party perceives as the ultimate threat, the goal is a long-term interference and influence campaign that tames American power and freedoms, in part by limiting and neutralizing American discussions about the CCP. Liberal values such as freedom of expression, individual rights, and academic freedom are anathema to the Party and its internal system of operation.[62]

The CCP, by changing how democracies speak and think about the PRC, is making the world safe for its continued rise. However, as Friedberg testified, PRC political warfare goals extend well beyond CCP self-preservation. These goals include restoring China to what the CCP sees as its rightful place as the Middle Kingdom, particularly in eastern Eurasia but also across more distant continental and maritime domains. Concurrent with its intent to drive the United States from the Asia-Pacific region, Beijing's goal is to take physical possession of Taiwan.

Taiwan remains the central focus of PRC political warfare. Stokes and Hsiao write that "from Beijing's perspective, Taiwan's democratic government—an alternative to mainland China's authoritarian model—presents an existential challenge to the CCP's monopoly on domestic political power."[63] The CCP's desired final resolution of the Chinese civil war entails the destruction of the political entity called the Republic of China (commonly known as Taiwan), and absorbing Taiwan as a province into the PRC. Consequently, taking Taiwan represents a key milestone in what Xi describes as "national reunification"—and he has clearly stated he will use all means, including force, to obtain it if necessary.[64] Of greater concern, Friedberg concludes that the PRC has "stepped up

Figure 2. Translation: *American imperialism must be beaten!* This 1965 poster reflects a PRC propaganda theme that continues through present day: that U.S. defense of its friends and allies is "imperialism" and must be defeated.

Source: "Foreign Friends: Indo-China," Chineseposters.net.

its use of influence operations to try to undermine and weaken the ability of other countries to resist its efforts. Ultimately Beijing appears to envision a new regional system extending across Eurasia, linked together by infrastructure and trade agreements, with China at its center, America's democratic allies either

Figure 3. Translation: *We must liberate Taiwan*. Although the PRC's planned 1950 invasion of Taiwan was foiled by the intervention in the Korean War, this 1958 propaganda poster supported Beijing's psychological warfare against Taipei and Washington, with Beijing's continuing threat to seize the island by force. Unification with Taiwan remains the primary PRC political warfare objective today.

Source: "Taiwan – Liberation," Chineseposters.net.

integrated and subordinated or weakened and isolated, and the United States pushed to the periphery, if not out of East Asia altogether."[65] A brief examination of the ways and means the PRC devotes to its political warfare efforts to achieve these goals follows, including a brief overview of the PRC's political warfare traits and organization. Additionally, this article will describe how political warfare supports the PRC's wartime and other military operations.

PRC Political Warfare Traits

Common characteristics of the PRC's political warfare strategy include such elements as a strong centralized command of political warfare operations by the CCP through organizations like the United Front Work Department (UFWD) and the PLA. These organizations provide a clear vision, ideology, and strategy, and they employ overt and covert means to influence, coerce, intimidate, divide, and subvert rival countries to force their compliance.

Key traits of the PRC's political warfare programs include tight control over the domestic population and detailed understanding of targeted countries. To achieve its goals, the CCP employs a comprehensive range of instruments in coordinated actions, and exhibits a willingness to accept a high level of political risk from the exposure of its activities.

Ways and Means: Funding and Economic Aspects

China is the world's second-largest economy, and the CCP has invested enormous resources into "influence operations" abroad, estimated at $10 billion a year in 2015.[66] Current funding is likely significantly higher, but credible data is unavailable. Further, the PRC's OBOR initiatives provide access to additional political warfare support resources, as OBOR can be rightly viewed as a global United Front Work Department strategy.[67]

Cash is vital in this global political war, augmented as needed by threats of overt or covert military, economic, or other attacks. Unlike the Cold War, in this current political war with the PRC, ideology plays little role. As Lum et al. explain,

> At hardly any time did countries aspire to adopt the Chinese model. Mao's disastrous Great Leap Forward, Cultural Revolution, collective farms, state owned enterprises, egalitarian poverty (except for Party insiders), and repressive government had little appeal except to other dictatorial regimes.[68]

Beijing's phenomenal economic growth during the past three decades has provided a different model, based on what is termed the Beijing Consensus that largely rejects most Western economic and political values and models.[69] The main attribute of this PRC model is for people to be "brought out of poverty,

not necessarily to have legal freedoms."[70] With the scale and relatively rapid growth of the Chinese economy, the CCP is indeed helping many political, news media, and other influential elites worldwide come, as the CCP characterizes it, out of poverty. Cash, combined with the massive growth of the PLA and its ever-watchful political warfare and intelligence apparatus, have proven to be the compelling motivators for those supporting and enabling the PRC's global ambitions.

Beyond funding political warfare operations, Beijing frequently employs economic instruments in its political warfare campaigns. The PRC is the largest trading partner for nearly all countries in the Western Pacific, and Beijing's goodwill is important for their development and prosperity. Indeed, in the Western Pacific, the PRC adheres to the plan detailed in its *Blue Book of Oceania*.[71] In China, *Blue Books* are "made available to all government departments, stocked in Xinhua Bookstores across China, and are seen as the standard reference on any given topic."[72] The Chinese government's interest in Oceania has increased significantly in recent years, with massive increases in aid, trade and investment, and diplomacy that have surprised many in the United States and other affected governments.[73] As noted by Babbage, the Chinese have many ways to apply pressure to countries by using economic incentives such as tourism sanctions, boycotts of corporations, and other reprisals, including its pressure campaign of South Korea for its commitment to host American missile defense systems.[74]

Organization

A number of party and state organizations support the CCP's political warfare operations, and it is useful to provide a very brief overview of how some of the key elements interrelate. Peter Mattis writes that there are three layers within this system: the responsible CCP officials, the executive or implementing agencies, and supporting agencies that bring platforms or capabilities to bear in support of united front and propaganda work. On the first level, several CCP officials oversee the party organizations responsible for political warfare and supporting influence operations. The organization flows down from the Politburo Standing Committee (PSC). The senior-most united front official is the Chinese People's Political Consultative Conference (CPPCC) chairman, who is the fourth-ranking PSC member. The other two officials are the PSC members who direct the UFWD and the Propaganda Department. They often sit on the Secretariat of the CCP, which is empowered to make day-to-day decisions for the routine functioning of the party and state, which are synonymous in the PRC.[75]

The UFWD is the executive agency for united front work, with responsibilities within the PRC and abroad. The UFWD operates at all levels of the party system, and its purview includes Hong Kong, Macao, and Taiwan affairs; the

Overseas Chinese Affairs Office of the State Council (OCAO); ethnic and religious affairs; domestic and external propaganda; entrepreneurs and nonparty personages; intellectuals; and people-to-people exchanges. The department also leads the establishment of party committees in Chinese and foreign businesses.[76] The OCAO is particularly important in rallying the worldwide diaspora. OCAO's mission statement maintains that it works "to enhance unity and friendship in overseas Chinese communities; to maintain contact with and support overseas Chinese media and Chinese language schools; [and] to increase cooperation and exchanges between overseas Chinese and China related to the economy, science, culture and education."[77]

Propaganda and United Front Work Departments

According to the Jamestown Foundation, the UFWD has reorganized in recent years and now has a total of 12 professional bureaus. The responsibilities of the bureaus range from policy in Xinjiang and Tibet, to businesspeople and Chinese diaspora communities. The UFWD has added six bureaus to its structure in the past three years to increase the CCP's power to directly influence religious groups and overseas Chinese, as well as to target members of " 'new social strata' . . . such as new media professionals and managerial staff in foreign enterprises."[78]

In addition to the UFWD, a range of CCP military and civilian organizations actively carry out united front work, either working directly for the UFWD or under the broader leadership of the CPPCC. For instance, the Taiwan-related China Council for the Promotion of Peaceful Nationals Reunification of China (CPPNRC) carries out united front work for the PRC. CPPNRC has at least 200 chapters in 90 countries, including 33 chapters in the United States registered as the National Association for China's Peaceful Unification.[79]

The Propaganda Department's duties include conducting the party's theoretical research; guiding public opinion; guiding and coordinating the work of the central news agencies, including Xinhua and *People's Daily*; guiding the propaganda and cultural systems; and administering the Cyberspace Administration of China and various state administrations pertaining to press, publication, radio, film, and television.

On the third level, many other party-state organizations contribute to influence operations. Their focus may not be on united front or propaganda work, but they still have capabilities and responsibilities that can be used for these purposes. Many of these agencies share cover or front organizations when they are involved in influence operations; Mattis reports that such platforms are sometimes lent to other agencies when appropriate. The principal political warfare organizations report to the PSC through their own separate chain of command that deals mostly with party affairs, according to Mattis.[80]

The PLA and Chinese Intelligence Organizations

The PLA plays a significant role in PRC political warfare. Under the leadership of the CCP Central Military Commission (CMC), the PLA General Political Department/Liaison Department (GPD/LD) is the PLA's principle political warfare command. Policy analyst J. Michael Cole describes the GPD/LD as "an interlocking directorate that operates at the nexus of politics, finance, military operations, and intelligence."[81]

Hsiao and Stokes note that GPD/LD liaison work augments traditional state diplomacy and formal military-to-military relations, which are normally considered to be the most important aspects of international relations. The GPD/LD, the UFWD, and other influence organizations play a role in setting up and facilitating the activities of a multitude of friendship and cultural associations, such as the previously described CAIFC, a key organization in co-opting foreign military officers.

PRC intelligence organizations (Chinese Intelligence Service or CIS, and Ministry of State Security or MSS) seem to play a secondary role in foreign influence operations, says Mattis. Beijing's participants in exchanges organized with these organizations are rarely intelligence officers themselves, but are usually party elite who understand the party's objectives and are skilled in managing foreigners. There is a seemingly compartmented role for intelligence in the overall political warfare and influence spectrum.[82] But MSS and CIS are certainly engaged in political warfare active measures, and intelligence collection is always an integral part of political warfare's success during political warfare operations.

Political Warfare in Support of PLA Combat Operations

Through the use of political warfare and deception, the PRC has achieved notable strategic victories without fighting.[83] However, if the PRC's rulers perceive that political warfare alone will not deliver the results it desires regarding Taiwan, the South China Seas, or with India, the PRC may achieve its goals through planned combat operations, or a war may inadvertently ignite from its actions.[84]

In any armed conflict within the Asia-Pacific region (or globally), the PRC's fight for public opinion will be their second battlefield, on which it will wage a wide range of political warfare operations. The PRC has used political warfare to support past combat operations, seen in the 1950 invasion of South Korea, the 1951 occupation of Tibet, the 1962 Sino-Indian War, the 1969 border battles with the Soviet Union, the 1974 assault on the Paracel Islands, the 1979 invasion of Vietnam, the 1988 Spratly Islands attack, the 1995 occupation of Mischief Reef, and the recent standoff with India and Bhutan at Doklam.[85]

The PRC's doctrinal principle of uniting with friends and disintegrating

Figure 4. Translation: *The people do not fear the American imperialists, but the American imperialists fear the people*. This propaganda poster highlights the PRC's support for national liberation forces across Southeast Asia, to include Thailand, Laos, Cambodia, and Vietnam. The PRC provided political warfare, military personnel, and material support that led to Vietnam, Cambodia, and Laos falling to Communist forces.

Source: "Foreign Friends: Indo-China," Chineseposters.net.

enemies guides PRC active political warfare measures to promote its rise and to combat perceived threats.[86] Its political warfare operations propagate the CCP's narrative of events, actions, and policies to lead international discourse and influence policies of both friends and adversaries.

Military officers become acquainted with political warfare concepts early in their careers and study it in-depth as they rise in rank. Their resources include PLA texts on military strategy, such as the 2013 Academy of Military Science's edition of *Science of Military Strategy* and the 2015 National Defence University's edition of *Science of Military Strategy*.[87] Other texts include teaching materials used by the PLA National Defence University, such as *An Introduction to Public Opinion Warfare, Psychological Warfare, and Legal Warfare*.[88]

Based on available literature and experience, the PRC will engage in hybrid warfare, similar to—but possibly more sophisticated than—that employed in Russia's 2014 seizure of Crimea.[89] In Crimea, Russia employed hybrid and political warfare strategies as assistance to local groups, including criminal and terrorist organizations and mobilization of the Russian diaspora. Russia also created credible online channels that camouflaged Russian sponsorship and re-

cruited a strong network of "agents of influence" and "fellow travelers" who were committed to Russia's cause.[90]

The doctrine, concepts, and capabilities that the PRC employs include "military and para-military forces that operate below the threshold of war, such as increased presence in contested waters of fishing fleets and supporting maritime militia and navy vessels. These operations might spark conflict when an opposing claimant such as the Philippines, Vietnam, or Japan responds."[91] Further, the PRC is already engaged in hybrid warfare against Taiwan, so these types of operations would likely increase in preparation for an attack on the island nation.[92]

The PRC will augment conventional military operations with nonconventional operations, such as subversion, disinformation and misinformation (commonly referred to as "fake news"), and cyberattacks. The operationalization of psychological operations (psyops) with cyber capabilities is key to this strategy. China has fully empowered its psychological warfare forces, most notably the Three Warfares Base (or 311 Base) in Fuzhou, China, on the mainland.[93] This base "is responsible for strategic psychological operations and propaganda directed against Taiwan's society. . . . [and the PLA] has been suspected of cyber espionage against Taiwan government networks."[94] It was subordinated to the PLA's Strategic Support Force and is integrated with China's cyberforces.[95]

Doctrinally, China will employ political warfare before, during, and after any hostilities it initiates. Prior to a military confrontation, China often initiates a political warfare campaign worldwide. This includes the employment of united front organizations and other sympathizers to initiate protests, support rallies and other actions, including the use of mass information channels such as the internet, social media, television, and radio for propaganda and psyops. History shows political warfare efforts are often tied into China's strategic deception operations. Deception is designed to confuse or delay an adversaries' defensive actions until it is too late to effectively respond.

A Fall 2017 *Marine Corps University Journal* article describes how conflict with China might begin.[96] The PLA would gain the initiative by striking the first blow—that is, it is the PLA's "absolute requirement to seize the initiative in the opening phase of a war." Regarding triggers that prompt the first strike, China's policy stipulates that "the first strike that triggers a Chinese military response need not be military; actions in the political and strategic realm may also justify a Chinese military reaction." That could be a perceived slight, diplomatic miscommunication, or statement by a government official that supposedly justifies Chinese military reaction.[97]

Prior to initiating an offensive or other military confrontation, the PRC will use worldwide psyops and public opinion warfare as part of a concerted political warfare campaign, as it did before (and during) the Doklam confron-

tation with India.[98] As with the Doklam confrontation, the PRC will employ united front organizations and other sympathizers, along with both Chinese and other-nation mass information channels, such as the internet, television, and radio. As the PLA Navy, Air Force, Rocket Forces, Strategic Support Forces, and other forces engage in kinetic combat against targeted enemy forces, the CCP will already be fighting for worldwide public opinion on this second battlefield to shape perceptions globally. The focus of these influence operations will be to support China's position and demonize, confuse, and demoralize the United States, Japan, Taiwan, and its supporting friends and allies. The global campaign also will attempt to win support for the PRC's position from initially undecided nations.

As previously noted, in addition to standard propaganda, disinformation and deception will be employed. Disinformation and deception will likely include false reports of surrender of national governments and/or forces, atrocities and other violations of international law, and other reports intended to distract or paralyze decision making by the United States and its friends and allies. Internally, the political warfare campaign in support of the combat operations will be important in mobilizing mass support for the PRC's actions. This political warfare campaign will continue through the military confrontation and after—regardless of the success or failure of the operation.[99]

Recommendations

The purpose of this article is to provide knowledge regarding the PRC's extensive political warfare operations in general and to provide recommendations for the United States to successfully combat these operations. The United States and its friends and allies face a relentless, multifaceted onslaught of PRC political warfare strategies, tactics, techniques, and procedures but, as in the Cold War, if the United States shows the strength and leadership to fight back, friends and allies will follow. This research should prove useful in helping the United States to establish and lead allies and partner nations to counter PRC political warfare. Respected individuals such as Peter Mattis and institutions such as the Hudson Institute and the Center for Strategic and Budgetary Assessment have provided a range of recommendations to counter PRC political warfare.[100] Some of the recommendations below draw on their excellent work.

As a matter of policy, the United States government, to include the DOD and the Department of State, must call the PRC political warfare threat by its rightful name: political *warfare*. The PRC is engaged in *warfare* against the United States: not mere strategic competition or malign influence—it is an information or disinformation war for influence, by PRC definition. Words matter. Proper terminology leads ideally to proper national goals, objectives, policies, and operations. That is why American diplomat and historian George

F. Kennan wrote both the successful strategy of Soviet containment and on counterpolitical warfare strategy in straightforward terms. The United States must educate our internal and external audiences that China is at war with us—and why and how we will successfully confront that existential threat.

The United States must mandate the development of a national strategy to counter PRC political warfare, with appropriate legal authority to compete successfully regarding organization, training, manpower, and funding. Through legislation, require a comprehensive approach, and include the requirement to appoint a highly respected coordinator for political warfare within the National Security Council, and the development of counter-political warfare career paths in diplomatic, military, and intelligence organizations, similar in concept to the recently established cyber operations occupational specialty.

The Center for Security and Budgetary Assessment's political warfare study cited in this article provides an excellent delineation of steps to be taken to build a strategy: first, the United States must state its goals in combating political warfare, particularly the PRC's version, and develop a theory of victory and an end state. Second, determine if the "goal is to force a cessation of authoritarian state political warfare and instill greater caution in . . . Beijing or, alternatively, to facilitate the demise of these regimes and their replacement by liberal democratic alternatives."[101]

The United States must rebuild national-level institutions that can successfully undertake countering PRC political warfare operations. The Executive Branch and Congress must revive America's ability to engage in information operations and strategic communication similar in scope to the capabilities that were developed during the Cold War era, to include an independent U.S. Information Agency-like organization and active measures capabilities with broader authority than the existing Global Engagement Center and external to the Department of State.[102] This rebuilding includes governmental structures and capacity building with the private sector, civil society, and the news media.

The United States also should establish systematic education programs in government, industry, business, academia, and the general public regarding PRC political warfare operations. Within the DOD and the Department of State especially, establish short and long courses in senior- and intermediate-level professional courses, as well as entry-level for the foreign service, intelligence, commerce, public affairs, and education-affiliated communities. In some cases, this education program would be voluntary, as with private education institutions, the private sector (industry and business), and nongovernmental organizations. However, within the government, the training should be compulsory, including for contractors, businesses and institutions with government contracts, and publicly funded education institutions. Similarly, in coordination with news media, the private sector and civic groups should initiate public-

information programs to be able to distinguish between factual information and propaganda or disinformation.

The focus of U.S. efforts should be on building internal defenses within the most highly valued PRC target audiences: political elites, thought leaders, national security managers, and other information gatekeepers. Such governmental, institutional, and public-education programs were employed successfully during the Cold War, with threat briefs and public discussion a routine part of the program.

With competent leadership, U.S. government education institutions should be able to rapidly resource and conduct a five-day course, which would include the following subjects:

- PRC political warfare history, theory, and doctrine;
- PRC political warfare practice (objectives, strategies, tactics, techniques, and procedures);
- Political warfare terminology;
- Political warfare mapping (e.g., diagramming hostile influence structures and related funding and support mechanisms, as well as intended audiences);
- National strategic communication planning;
- News media relations and social media employment;
- Intergovernmental relations;
- Civil society engagement;
- Legal and law enforcement implications;
- Defensive and offensive strategies; and
- Examples of contemporary political warfare campaigns and case studies to educate the public

Immediately available mass education instruments include Department of State and DOD public affairs media assets. As during the Cold War, public affairs information programs can be used to educate internal and external audiences about the PRC threat and to routinely expose PRC political warfare operations publicly. As a matter of policy, U.S. government public affairs assets should be used to counter anti-U.S. military three warfares operations—psyops, legal warfare (lawfare), and public opinion (media) warfare—and to expose united front operations such as CAIFC efforts to co-opt retired U.S. military officers.

The government must establish a regional Asian Political Warfare Center of Excellence (APWCE) similar to the European Centre of Excellence for Countering Hybrid Threats based in Finland. The mission of the APWCE would be similar to the European model, as reflected in the adapted proposal below:

To develop a common understanding of PRC political war-

fare threats and promote the development of comprehensive, whole-of-government response at national levels in countering PRC (and other country) political warfare threats.[103]

The APWCE would function as follows:

1. Encourage strategic-level dialogue and consulting between and among like-minded participants in Asia and globally; investigate and examine political warfare targeted at democracies by state and nonstate actors and to map participants' vulnerabilities and improve their resilience and response;
2. Conduct tailored training and arrange scenario-based exercises for practitioners aimed at enhancing the participants' individual capabilities, as well as interoperability between and among participants in countering political warfare threats;
3. Conduct research and analysis into political warfare threats and methods to counter such threats; and
4. Engage with and invite dialogue with governmental experts, nongovernmental experts, and practitioners from a wide range of professional sectors and disciplines to improve situational awareness of political warfare threats.

Domestically, establish task-specific government departments and agencies responsible for investigating, disrupting, and prosecuting political warfare and other illegal foreign influence activities and hold these departments and agencies accountable for success. The Department of State, Department of Defense, Department of Justice, Federal Bureau of Investigation (FBI), and the intelligence agencies each play key roles in countering CCP political warfare. Based on failures in countering PRC political warfare to date and in prosecuting espionage prosecutions as described by Peter Mattis's congressional testimony, it appears imperative to review existing laws and legislative and policy authorities and requirements that apply to PRC political warfare to ensure clear mission statements, requirements for action, and assessment of success.

The United States should increase the readiness, staffing, and training of law enforcement and counterintelligence professionals to better screen, track, and expose PRC political warfare activities. In discussions with FBI, military intelligence, and Department of State officials, it is apparent that combating PRC political warfare has not received the priority it must have to compete in resource battles within the bureaucracies. As Mattis highlights, "the Executive Branch has failed to prosecute or [has] botched investigations into Chinese espionage," which are more straightforward to prosecute than political warfare and other influence operations.[104] The U.S. intelligence community and

Department of Justice personnel who perform counterpolitical warfare operations are likely the same as those who conduct counterespionage, and for them to succeed there is a need for better analytical, investigative, and legal training.

We must routinely expose PRC political warfare operations publicly. As a matter of law and policy, expose covert and overt PRC political warfare. Either by legislation or executive order, mandate an annual National Security Council-led, publicly disseminated report on the CCP's influence and propaganda activities, similar to the President Ronald W. Reagan-era annual report on Soviet active measures, with a special focus on united front interference and influence operations that includes practical advice for ordinary citizens about how to recognize and avoid these operations. As Mattis notes, an annual report on the CCP's activities "forced government agencies to come together to discuss the problem and make decisions about what information needed to be released for public consumption. . . .[It] would have the beneficial effect of raising awareness and convening disparate parts of the U.S. Government that may not often speak with each other."[105] A classified annex could be produced for internal government consumption.

As the Hudson Institute suggests, one way to operationalize the public exposure of PRC political warfare is for the Executive Branch to work with think tanks, journalists, academic institutions, and other civil society organizations to map out PRC political warfare operations and expose them in ways that will not harm U.S. national security. One approach would be to create a united front tracker to expose the PRC political warfare fronts, enablers, and operations and hold the organizations accountable. This tracker could, for example, expose the myriad of organizations engaged in united front activities, and activities such as taxpayer-funded conferences at universities and academic institutions that parrot PRC propaganda themes. By exposing such political warfare operations on a sustained basis, the United States will better inform its citizens of the threat they face. Also, such a tracker should also be used to publicly shame united front and other PRC political warfare operations. Such shaming can be quite beneficial, as was proven when the U.S. government took forceful action against the Republic of South Africa's influence operations during the apartheid era. It is worth revisiting that legislation (U.S. Comprehensive Anti-Apartheid Act of 1986) and the resultant success it had in limiting South Africa's information operations. Other steps that should be taken include publicly identifying those involved in foreign censorship and influence in the news media. Most Americans likely are unaware that PRC-based news organizations act as organs of the CCP and that their reporting is based on CCP Propaganda Department direction, as opposed to the often-independent reporting of commercial news media organizations.

We must increase the costs for CCP interference. Too often, the U.S. government has gone soft on PRC transgressions, even on American soil—often overriding U.S. law enforcement officials to accommodate illegal PRC intelligence activities. Beijing "faces few if any consequences for its interference inside the United States," reports Mattis.[106]

When PRC embassy and consulate officials travel to universities to threaten students or turn them out for a rally, as they do to counter pro-democracy Hong Kong rallies and disrupt the layover of Taiwan's president in Honolulu, the U.S. government can revoke their diplomatic status or place travel restrictions on those officials.

The United States must continue to closely monitor the various Chinese student associations, Confucius institutes, and similar institutions affiliated with the PRC and take legal action to ban them and/or prosecute PRC officials engaged in subversive activities. Although ostensibly a student support association, the real Chinese student association's mission is to penetrate academia to subvert democratic institutions and to engage in espionage against their host country as well as academics and Chinese students matriculating abroad. Confucius institutes are also engaged in various forms of censorship, coercion, and surveillance of Chinese students and academics. To help counter them, Mattis suggests leveraging civil rights legislation. For instance, Conspiracy against Rights (18 U.S.C., Title 18, § 241) could be used against Chinese student associations, Confucius institutes, and other united front and undercover CCP intelligence and security officials. These organizations "threaten, coerce, or intimidate Chinese people (or others) in the United States."[107]

Specifically, this provision makes it unlawful for two or more persons to conspire to "injure, oppress, threaten, or intimidate any person in any State, Territory, Commonwealth, Possession, or District in the free exercise or enjoyment of any right or privilege secured to him by the Constitution or laws of the United States, or because of his having so exercised the same."[108] Other related civil rights legislation could be employed as well.

The United States should advance academic study and thesis development in U.S. government higher education institutions regarding PRC political warfare, including how to contain, deter, and/or defeat the political warfare threat. Further, we should encourage research into this existential challenge and how to combat it with funding and with special high-level recognition and awards.

Finally, the United States must pass legislation to diminish the offensive power of PRC news media and social media. Freedom of the press must be scrupulously safeguarded in democracies, but allowing totalitarian state news agencies such as the PRC's to dominate the democracies' news media is the path to national suicide. Legislation, combined with the exposure and public sham-

ing discussed previously, would help diminish (but never completely eliminate) the harm the PRC does through its insidious infiltration of the news media. Initially, simple steps can be taken, such as passing legislation that requires reciprocity pertaining to the news media, social media, and entertainment sectors. Legislation should be passed that states no PRC-affiliated entity or person should be allowed to buy or engage in any news media, business, education, or entertainment activities in the United States that U.S. citizens cannot do in the PRC. Legislation should also be passed that supports and encourages Chinese-language publications, social media, and broadcasts that counter PRC propaganda outlets globally.

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MEF Innovation Team (MIT)
Discovering and Solving the MEF's Complex Problems

Major Troy E. Mitchell, PhD

> *The greatest enemy of knowledge is not ignorance, it is the illusion of knowledge*.[1]

Abstract: Adversaries use cost-effective and timely technologies to counter expensive military acquisitions that undermine the United States' military capabilities. With the private sector outpacing defense innovation, the speed of technology and business drives future warfare considerations. If technology corporations drive the speed of the future of warfare, then appreciating design thinking's business model applicability to military strategy shapes how the Marine Corps responds to uncertain operating environments during the next several decades. This article incorporates aspects of design thinking for the Marine Corps to provide variables aiding in future warfare innovation to solve complex problems inherent to the future operating environment.
Keywords: design thinking, innovation, future warfare design, strategy, design methodology

Design thinking is a design methodology providing a solution-based approach to solving ill-defined or unknown complex problems by understanding the needs of various actors within the operating environment. The outcomes of design thinking provide five attributes to enable flexibility and focal points to vector all components of the Marine Corps' system to achieve

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success in a highly competitive and innovative business environment rapidly shaping military operations. To plot the outcomes of design thinking, the Marine Expeditionary Force (MEF) Innovation Team (MIT) provides a mutual, innovative medium with an opportunity for Marines in the MEF to communicate their ideas, grow innovative knowledge and insight, mass observations and results to (re)assess emerging capability requirements, and incorporate a cyclical process using the aspects of design thinking based on the warfighting attributes. The MIT's mission is to educate, collaborate, and accelerate the application of technologies and design thinking toward MEF priorities to transition the MEF to the future operating environment by challenging conventional approaches.

The U.S. military's peer competitors are identifying cost-effective and innovative technologies that counter the United States' expensive and time-consuming military acquisitions that advance the Department of Defense's (DOD) military capabilities. Unfortunately, expensive military acquisitions countering potential adversaries are planned in five-year increments via the DOD Program Objectives Memorandum (POM).[2] With the private technology sectors outpacing the DOD's innovation capabilities, the speed of innovative technology and business are shaping future warfare considerations. To close the innovation gap in technology advancement, each Service has created an office to procure developing technologies. The Marine Corps' concern is the inability to rapidly discover and deliver emerging technologies for deploying Marines. An opportunity to rapidly discover and deliver emerging technologies comes through the creation of the Marine Expeditionary Force's Innovation Team that uses design thinking to advance geographically based Marine concepts that counter future warfare challenges. By establishing the MIT, the MEFs can solve complex problems while educating Marines, creating a collaborative environment for innovative thinking while also accelerating the application of new and emerging technologies to meet future warfare considerations.

The research presented here is divided into five sections. The first provides foundational information about innovation, organizations, and design thinking. This section reviews the three categories of literature to support generating an innovation organization at the MEF level from an entrepreneur perspective. The second section, "(Re)framing the Operating Environment," discusses *why* the Marine Corps requires a MEF innovation organization based on an existing gap between Service organizations and the individual Marine. The third section, "MEF Innovation Team," describes *how* the MEF can structure an innovative organization with a defined mission and purpose. The fourth section, "MEF Innovation Design," describes the utility of design thinking as a process to aid an innovation team in discovering and delivering developing technologies to the MEF. The final section, the "MEF Innovation Campaign,"

articulates opportunities for the MEF to create an outreach program using the MEF innovation lab.

Innovation, Organizations, and Design Thinking

To conceptualize appropriate models for incorporating design thinking in the Marine Corps, this section focuses on four primary research questions:

- What is innovation?
- What is design thinking?
- How are innovative organizations structured and resourced?
- How can design thinking aid in solving complex problems?

What Is Innovation?

There are many definitions and perceptions related to innovation. Unfortunately, there is not a military definition, particularly in the Marine Corps, for what innovation means. The concept of innovation enables the military and the civilian sectors to identify new solutions or adaptations to overcome existing problems. Since the military does not have a definition for innovation, much of the writing on innovation reviews business perspectives from entrepreneurs. Everett M. Rogers is a pioneer in the field of innovation. He describes innovation as "an idea, practice, or object that is perceived as new by an individual or other unit of adoption."[3] In his work, Rogers describes the diffusion of innovation as a process of communicating innovation through channels over time among the members of a social system.[4] In 1899, French sociologist Gabriel Tarde first described the idea of diffusion as an innovation-decision process with a diffusion curve or "s-curve" depicting the rapid growth of new innovations and the alternation of the innovation's lifecycle.[5] Both Rogers and Tarde describe innovation as an adaptive process for altering circumstances within an environment. In 2011, *The Innovator's DNA* further advanced Rogers and Tarde's research by discussing criteria for the type of organization required for the MEF by articulating how innovation is a learned behavior via five skills called *disruptive innovators*.[6] The skills include questioning (framing an environment), observing (understanding and reframing the environment), networking (promoting dialogue with organizations to obtain different views), experimenting (trying and testing innovations), and using associational thinking as the catalyst for creativity.[7]

It has been argued that creativity cultivates self-efficacy, because individuals who believe they can effect change are more likely to set higher standards, try harder, and persevere longer to solve complex problems.[8] Marines can expand military creativity through ideas codified in the book *Collective Genius: The Art and Practice of Leading Innovation* by embracing concepts such as creative abrasion (discourse), creative agility (test-experiment-adjust), and creative resolu-

tions (decisions).[9] Creativity and innovation are neither synonymous with nor do their meanings bridge the gap between social science academics and businesses. This article uses the business definitions of creativity, where *creativity* refers to the mental ability to conceptualize new ideas or identify new connections between unrelated objects. *Innovation* refers to the transformation process of maturing creative ideas to support an environment.[10] The difference between the civilian and the military sectors are most significant in the defined markets, products, services, or processes of enhanced value. Design connects creativity to innovation by navigating from the current to the desired state. Inferring an industry perspective to the Marine Corps' history, Peter Drucker believes that creativity may transition to creative imitation as individuals understand the capabilities of an innovation and transform it to suit their needs.[11]

Military organizational barriers within the Marine Corps stifle innovative ideas by aligning the Corps' standards, experiences, and values to support its organizational culture. Throughout the Marine Corps' history, innovation has been driven at the Service-level down to the infantry. Limiting cognitive innovation in the Corps results in a Service culture whose binding fabric deteriorates in a fiscally constrained environment, portraying a lack of Marine Corps' preparedness and an inability to improvise to solve future wars' ill-defined challenges.

What Is Design Thinking?

The Marine Corps continues to face complex, ill-defined challenges that support the application of design thinking. Design thinking ideology asserts a hands-on, user-centric approach to problem solving leading to innovation, and innovation leading to differentiation and a competitive advantage.[12] The design thinking approach combines what is desirable with what is technologically and economically feasible.[13] Furthermore, design thinking attempts to understand the needs of various actors in an environment, define problems in human-centric ways, deliberate ideas through brainstorming, and adopt hands-on approaches to prototyping and testing.[14]

Although the Marine Corps does not have a working definition for innovative design or design thinking, *Marine Corps Planning Process*, Marine Corps Warfare Publication (MCWP) 5-10, defines an approach to design as "achiev[ing] understanding gained largely through critical thinking and dialogue."[15] Additional research describes design as the action of bringing something new and desired into existence. Furthermore, the design approach uses experience, routine, and adaptation to dismantle complex problems. Unfortunately, many design practices are "faith based rather than research based."[16] Steve Jobs explained a common fallacy in the understanding of the concept of design, whereby "most people make the mistake of thinking design is what

it looks like. . . . It's not just what it looks like and feels like. Design is how it works."[17] The Marine Corps currently uses design to navigate from current to future states through an operational approach, whereas design thinking allows Marines to transition from creativity to innovation from a different perspective.

How Are Innovative Organizations Structured and Resourced?

The literature from business model innovations articulates three mandates for creating an innovative organization: (1) create a strategy for innovation, (2) create a culture of innovation, and (3) implement a process for innovation experimentation and effectuation.[18] Specifically, innovative organizations require flexibility to cultivate a creative culture and reduce resistance to change.[19] For these reasons, the authors of *Fast Second: How Smart Companies Bypass Radical Innovation to Enter and Dominate New Markets* propose organizations should create innovation institutions in small, independent units with different skills and attitudes.[20] Small, cross-functional, independent units mirror start-up environments with faster decision-making processes and have close interaction with users operating the product for validated learning.[21] In many large organizational business models, managers avoid innovative change since change requires the leadership to leave their comfort zone—questioning the leadership's mental model and dominant logic.[22]

The MEF becomes innovative through design thinking by solving complex problems and maturing developing technologies for future operating requirements. To adapt requires a cultural change supporting innovation and an alteration to military leadership's perspectives supporting a creative environment, thereby setting the conditions for innovative thinking. Leading inhibitors to innovation originate from a fear of failure, bureaucratic/hierarchical intervention, and intra-Service rivalries undermining the Marine Corps' survival and ability to flourish. A risk-averse Marine Corps sees innovation as an inhibitor versus an opportunity—discouraging learning, adapting, and improvisation. Risk aversion draws from a lack of leadership embracing an adaptive organizational culture meeting and resolving future conflicts.

How Can Design Thinking Aid in Solving Complex Problems?

Herbert A. Simon provided one of the first models of design thinking in *The Sciences of the Artificial*. Design thinking uses mental models of *metacognition*—the process of thinking about thinking and applying creativity to this type of thought process—through an ability to create new and better answers.[23] Transitioning Simon's ideas, Richard Buchanan wrote about "wicked problems"—social system problems with a fundamental indeterminacy without a single solution and where much creativity is needed to find solutions—via problem definition and problem resolution.[24] To solve the future environment's complex

problems, planners study the interactions of the observed opposition system while understanding the commonalities, unpredictable behaviors, and interactions of the environment's subsystems—and applying design methodologies supporting a perceived desired end state.[25] Incorporating design thinking into military processes explores causal relationships in the environment, which increases the knowledge and understanding of the users by solving the right problem.

IDEO, the world's largest design engineering company, provides an innovation perspective of a design process and way of thinking that nondesigners can incorporate into their organizations.[26] The former chief executive officer of IDEO, Tim Brown, labeled his organization's design practice as "design thinking" via a series of steps that navigate inspiration, ideation, and implementation.[27] During the inspiration step, the organization defines a problem while researching how a technological solution may resolve an issue. Then, in ideation, the organization builds prototypes and concocts scenarios of how the innovation can resolve the defined problem. Finally, the technology is implemented through marketing as the organization transitions to the next defined problem. Roger Martin, a strategy consultant for cognitive processes of successful executives, embraced IDEO's design thinking concept in "the knowledge funnel" model.[28] The knowledge funnel helps businesses increase their knowledge while capturing the value of the experiences gained through applied heuristics and algorithms. His research led to a cycle of generating ideas (abduction), predicting consequences (deduction), testing, and generalizing (induction) as a method to approach organizational problems.[29] Lessons from industry provide perspectives for a MEF innovative organization to address geographical priorities. If industry's innovative organizations can find utility via design thinking's process, the Marine Corps too can adjust through a paradigm shift from the product-centric business model currently in use to an adaptable innovation model.

(Re)Framing the Operating Environment

Former Secretary of Defense Robert S. McNamara developed the DOD's planning, programming, and budgeting system (PPBS) with a product-centric business model for a five-year POM cycle that the Marine Corps uses.[30] Unfortunately, the product-centric process creates increased time lines for uncertain future operating requirements. An alternative to the PPBS is a mission-centric system incorporating the design thinking process that allows for procurement of commercial off-the-shelf (COTS) products, which allows the DOD to solve clearly defined challenges in a predictable near-term future. Capability development over time focuses on low-risk steps versus large, high-stakes, high-costs bounds addressing warfighting requirements.[31] The product-driven, systematic process inhibits and delays new and developing technologies' rapid transition.

The primary concern is the Marine Corps' inability to rapidly discover and deliver emerging technologies for deployments during the next year. The Marine Corps attempted to decrease the discover-to-deliver five-year time line by creating the Rapid Capabilities Office (RCO) at the Marine Corps Warfighting Laboratory (MCWL) in 2017. The RCO's mission is the "ability to accelerate the identification, assessment, and development of emergent disruptive capabilities that will inform [the] requirement development and investment planning for the acquisition process."[32] Unfortunately, RCO is not able to meet emerging demands due to a limited outreach program requiring education in how the office serves the Marine Corps, and how Marines request support for innovative ideas.[33] In 2018, Service-wide outreach programs reached elements of the Marine Corps through the Commandant of the Marine Corps' (CMC) Innovation Symposium, the quarterly CMC Innovation challenges, the POM Wargame, the Advanced Naval Technology Exercise, and the Defense Naval Science Technology Exercise. The RCO annually attempts to visit the operating forces of the Marine Corps, but limited outlets exist for rapid innovative concepts consolidated for the MEF's priorities and geographical regions.[34]

The challenges for the RCO include their inability to identify, assess, and inform the delivery of emerging capabilities to the warfighter. Section 804 and 806 authorities in the National Defense Authorization Act for Fiscal Year 2016 enables the RCO to procure new and emerging technologies.[35] Section 804 describes rapid prototyping as "the use of innovative technologies to rapidly develop prototypes to demonstrate new capabilities and meet emerging military needs . . . within five years of the development of an approved requirement."[36] Meanwhile, Section 804 defines rapid fielding as "the use of proven technologies to . . . begin production within six months and complete fielding within five years of the development of an approved requirement."[37] Section 806 provides flexibility for the RCO to accelerate acquisitions for existing technologies if additional prototyping and safety requirements are not necessary. Although 804 and 806 provide avenues for fielding technologies in less than the five-year POM cycle, 804 requires additional research, design, and safety development, whereas 806 uses existing commercial capabilities for military purposes. The RCO process may take one year to develop the proposal and obtain general officer board approval for up to three projects per year. Developing the proposal, preventing conflicts from proposals for existing programs of record, and operating force urgent and deliberate universal needs statements are required to ensure the RCO is not duplicating Service initiatives. Once approved with the correct funding and authorities, the process commences a time line spanning an additional two years to meet the deploying Marine's requirement. Unfortunately, the Marine may have already returned from the deployment, transitioned from the position warranting the emerging technology, or exited the Marine Corps.

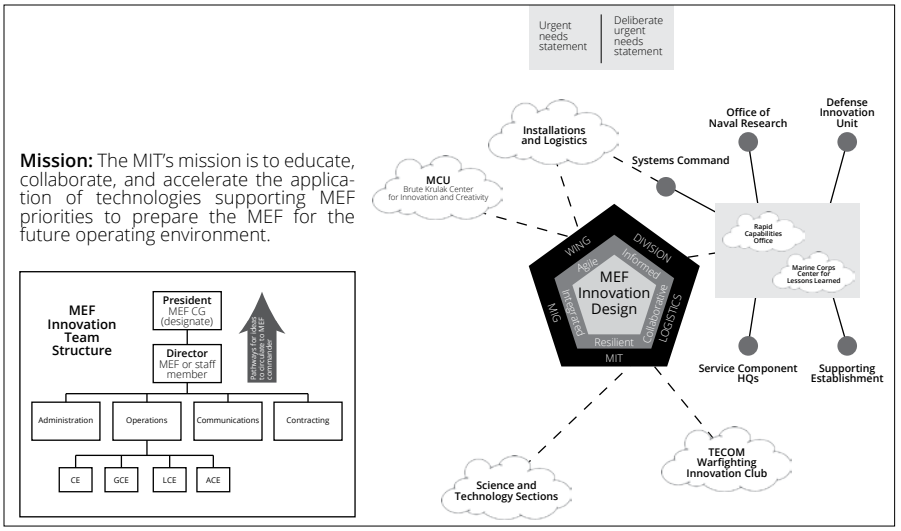
Each Service has an RCO. For example, the Army's RCO "serves to expedite" technologies while incorporating some aspects of design thinking by "execut[ing] rapid prototyping."[38] The Air Force's RCO "expedite[s] development and fielding . . . by leveraging defense-wide technologies."[39] Finally, the Navy's Office of Naval Research initiated the Navy Innovation Process Adoption to "collaborate, overcome obstacles and swiftly deliver new capabilities to America's Sailors and Marines."[40] Service organizations collaborate with entrepreneurs in Silicon Valley as well as DOD affiliates such as Defense Advanced Research Projects Agency (DARPA) to close the gap with technologies and processes developed by then-Secretary of Defense McNamara. Each organization falls into the innovator's dilemma by residing in a so-called sandbox for innovation based on a set of rules to operate in semiautonomous teams.[41]

The proposed rapid definition means delivering the deploying MEF's innovative requirement in six months. A six-month innovation horizon prepares and fields Marines with the technology prior to deploying. In the event the product fails to meet the user's requirements, a feedback mechanism from the user to the developer initiates modifications to reassess the requirement. To meet a six month time line, there are four proposed requirements: (1) the technology must exist in a COTS capability for alteration, (2) safety certification requirements must be met, (3) the technology does not duplicate a program of record or urgent need, and (4) the product achieves a technology readiness level of seven or greater. The MEF can use operations and maintenance (O&M) appropriations to finance COTS technologies to continue the rapid innovation cycle. The one-year "rapid" cycle fills the gap between the RCO and deploying Marine by ensuring the emerging technology is used in today's operating environment versus several years after their deployment. If the purchase is less than $4999.99, the MEF or subordinate command uses the government commercial purchase card. In the event the commercial technology exceeds $5,000, the purchase is required to be contracted via the regional contracting offices at Marine Corps Installations East or West.

MEF Innovation Team: Connecting the Enterprise to the Marine

A Marine Expeditionary Force with an innovative culture can incorporate design thinking to meet the demands of rapid discovery-to-deliver requirements. To close the gap between Service processes provided by the RCO and the Marines, the integration of the MEF Innovation Team provides a medium for Marines to (1) communicate ideas, (2) cultivate innovative knowledge, (3) mass observations and results to (re)assess emerging capability requirements, and (4) incorporate a repeatable process. The MIT's mission is to educate, collaborate, and accelerate the application of technologies supporting MEF priorities to

Figure 1. MEF Innovation Team (MIT) architecture



Note: CE=command element; GCE=ground combat element; LCE=logistics combat element; and ACE=aviation combat element.
Source: Courtesy of the author, adapted by MCUP.

prepare the MEF for combat in the future operating environment. The MIT would have a facility—called a laboratory—to provide a safe space to conduct discovery learning and foster creative confidence, where rank means nothing and talent and creative ideas mean everything, which considers alternative approaches to solving complex problems free of censorship. J. F. C. Fuller believed a lab for the future forms a creative center as a place in which new discoveries are made and progress is fashioned.[42] The MIT fosters a collaborative environment of Marines aimed at mutual learning and critical thinking. The purpose of the MIT is to codify the exchange of ideas in the art of war, avoid lengthy military acquisition processes, and harness innovative ideas in an institutional architecture.[43] By establishing a MIT, the MEF integrates the needs of geographically based subordinate commands with Service-wide organizations and capabilities (figure 1). The MIT is not a redundant organization, but it meets the immediacy requirements of deploying Marines. Meeting the deploying Marines' requirements allows the RCO to focus on Service-wide two to five year requirements as an intermediate capabilities office.

Figure 1 displays the structure of the MIT. Some of the MIT structure may be sourced from the MEF's science and technology sections or augmented by the MCWL's liaison teams. The MIT president is the MEF commanding general, or their designated representative with the authority to approve innovative ideas and allocate funding. The president sets the tone and agenda based on the MEF's priorities. Next, the director is an O-4 (major)/O-5 (lieutenant colonel) on the MEF staff and coordinates with the RCO and external

agencies for emerging requirements. Since the MIT focuses internally to the MEF, the RCO refocuses on Service-wide developing technologies meeting the CMC innovation concepts. The director position may be a tour for Defense Innovation Unit fellows, DARPA, or RCO Marines. Additionally, the director manages and supervises the MIT and serves as the lead innovation coordinator for the major subordinate commands/elements (MSC/MSE). The director ensures MIT members attend MEF, MSC, and MSE exercises where innovation begins. Furthermore, the director coordinates external briefers such as DARPA, the Defense Innovation Unit, Office of Naval Research, MD5 (now National Security Innovation Network), PhaseZero, and the Marine Corps Warfighting Laboratory to explore innovative ideas with the MEF on how to meet geographical challenges. The intent for the director is to provide an outlet and venue for the generation of ideas from Marines at the company, department, platoon, or squad level—where innovation begins.

To support the director, a communication position is required. The communication Marine/civilian manages the MEF innovation website serving as an "information paper"-like outlet for the submission of prioritized, presented, or explored ideas for monthly MIT symposiums/meetings.[44] The PhaseZero or MD5 (Marine Maker)-like website supports academic and technological research, application tools for creative thinking and project development, how-to videos posted by technology organizations and Marines to stimulate thinking about developing technologies, and collaboration forums for members to circulate ideas and provide solutions to developing problems. Moreover, the communication member manages social media sites for the MIT's outreach program that allows Marines to adapt their ideas from reading or seeing other Marines' innovative concepts. Through the use of social media, Marines grasp innovative outlets, opportunities, and meetings to grow innovative capacity throughout the MEF. Through journal article submissions, graphic novels, YouTube channels, and technology research, the MEF has an outlet for the professional curiosity for learning and exchanging innovative ideas. Although the *Marine Corps Gazette* is considered the professional journal of the Marine Corps, it has limited scope and publishing windows for including innovation articles, and there are also other outlets and platforms available to Marines.

The final three positions are the administration, operations, and contracting personnel. The administration personnel manage the organization, the MEF innovation-reading list, and organize the MEF's innovation challenge boards. Next, the operations Marine facilitates the monthly meetings, serving as a liaison to the MSC/MSEs, and attends exercises speaking with Marines as they discover how to perform their mission safely and more effectively. The operations section subdivides into functional groupings—command element, ground combat element, aviation combat element, and logistics combat element—to

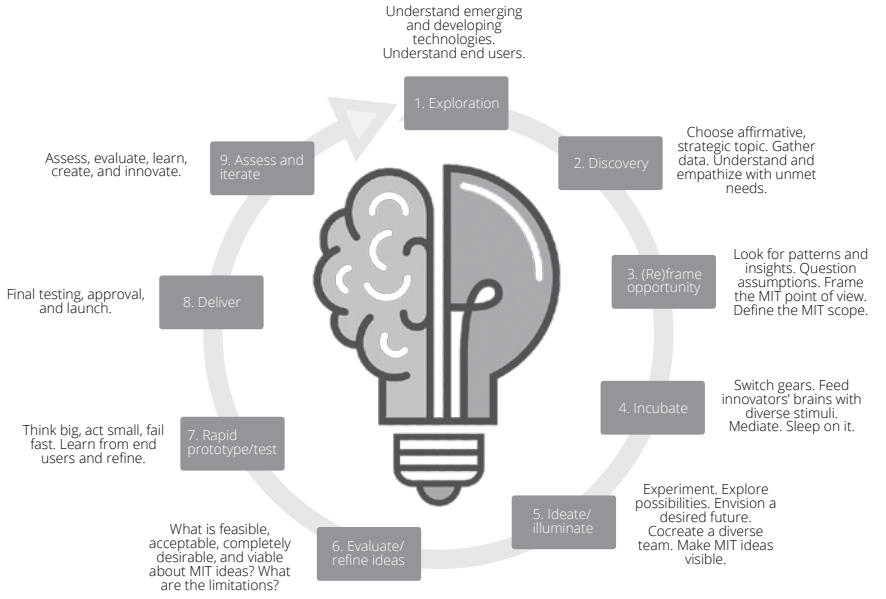
provide conduits to the division, wing, logistics group, and command elements. Three main aspects of the operations section are: (1) conducting research of new and emerging technologies, (2) attending exercises and deployments to synthesize after action points, and (3) organizing and facilitating meetings, symposiums, briefs, and maintaining/staffing the laboratory. Finally, the contracting personnel use MEF O&M funds to deliver innovative concepts to the Marine. The contracting personnel bid in a commercial solution window of seven days, and solicit a cash award via alternative acquisition strategies for prototypes inside the rapid window. The contracting personnel coordinate with Marine Corps Installations East and West for the generation of requirements. With the incorporation of the MIT, linkages exist inside the MEF for collaboration with external stakeholders such as DARPA, the Office of Naval Research, the Defense Innovation Unit, and RCO.

MEF Innovation Design

The MIT laboratory provides an outlet for design thinking and red teaming solutions to MEF problems—leading to MEF wargaming and analysis inputs.[45] By using the design thinking methodologies (figure 2), the MIT laboratory will generate creative resolutions as a prototype course of action for testing and evaluation prior to the MEF implanting an approved course of action. The dueling hypotheses from the MEF staff and the MIT red team provide opportunities for the MEF commander to obtain a superior answer to complex problems that inform their decision making. In dueling hypotheses, the MEF commander and their staff observe the tension between competing ideas as the understanding of the problem increases, thereby widening the aperture of possibilities for an innovative solution.

The MEF Innovation Design incorporates a framework of nine principles based on design thinking as depicted in figure 2. Understanding the applicability of the nine principles in the MEF Innovation Design, military planners use design thinking to surpass complex adaptive systems. For example, steps one through four aid in understanding the environment and defining the problem. To understand the environment, innovators must appreciate quite a few variables: the time available, sociocultural factors, impacts from the environment (i.e., weather, geography, and history), platform medium (i.e., cyberspace, information environment, cognitive and physical dimension, etc.), and whether they are engaging friendly, adversary, or other actors. Much as with the business sector, an innovative idea in the Marine Corps is inserted into a given society with competitors, business partners, and needs to consider the utility of the product to the environment. When defining the problem from a business or military perspective, both entities identify critical issues by asking *why* or *what if* questions against available resources to achieve the desired state. If the inno-

Figure 2. MEF innovation design

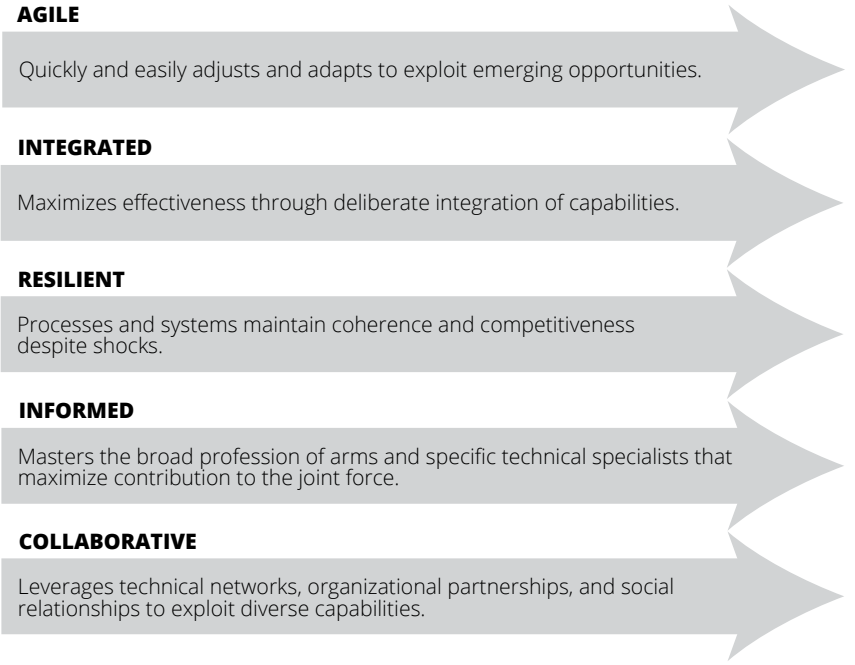


Source: Courtesy of the author, adapted by MCUP.

vation team seeks to reframe the problem, they look for ways to bypass resistance or mental blocks and think about the opposite of the research question to identify possible solutions.[46] Meanwhile, steps five through seven develop and test courses of actions through wargaming to achieve the right force at the appropriate time and place. Elements of these steps continue to be tested against five innovation attributes for product or operational success, including whether they are feasible, acceptable, complete, desirable, and viable.[47] These collective steps ensure a knowledge-based innovation approach through the convergence of different inputs into the planning process.[48] Finally, steps eight through nine provide the opportunity to conduct operations or deliver products to Marines and obtain the necessary feedback to begin a new cycle, if required.

To face the future of warfare using design thinking, the MEF should develop warfighting innovation attributes validating the innovative requirement. Five warfighting innovation attributes are used, such as the checklist for the MIT, to evaluate technologies, ideas, or processes by focusing the MEF toward a common vision. The MEF Innovation Design attributes are agile, integrated, resilient, informed, and collaborative, which are defined further in figure 3. Employing these attributes as the center point for the MEF innovation strategy requires bold leadership. The MEF concentrates bold leadership when it innovates beyond the plan, critically thinks ahead of existing paradigms, and builds a MEF contributing to success in any operating environment.

Figure 3. Five attributes of the MEF innovation design



Source: Courtesy of the author, adapted by MCUP.

The five attributes of the MEF Innovation Design provide flexibility and focal points to vector components of the U.S. Marine Corps' innovation ecosystem to achieve victory in a highly competitive and innovative business environment that rapidly shapes military operations. The five attributes listed in figure 3 provide multiple focus questions aiding in discovery or (re)framing opportunities. For example:

- How can existing and emerging technologies increase multidomain systems integration to create and exploit an advantage?
- How do we grow a MEF who think and operate in a multidomain paradigm to ensure mission success?
- What networks will the Marine Corps require to integrate and collaborate across multidomains in joint/coalition/combined operations?
- How is the MEF advancing in observed systems to counter adversarial technological advancements in multidomain environments?

The five warfighting innovation attributes allow the DOD's business pro-

cesses to modernize using flexible attributes versus lengthy processes to enable the rapid transition of new capabilities into the environment and meet innovation adaptation requirements from future adversarial threats.[49]

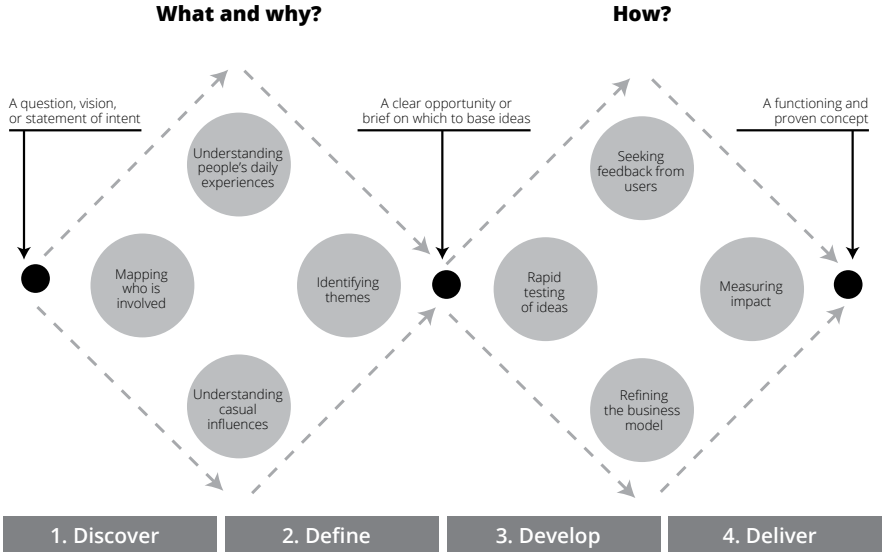
MEF Innovation Campaign

To start the circulation of information regarding the MIT laboratory, the MEF should create a network of innovative Marines through a MEF innovation campaign led by the director. The director's MIT Innovation Campaign has four lines of effort: opening access to innovative learning, providing opportunities for innovative growth, linking MEF innovation and combat priorities, and exploring organizational knowledge. The first line of effort—opening access—alludes to increasing access, members, and growing the innovative network via mediums such as the innovation website, innovation journal, after action reports with a section on innovation, innovation repositories of information, and an innovation reading list.

Second, the MIT director can provide opportunities for creative confidence that focuses on the CMC and MEF priorities by filtering innovation through design thinking. The MIT lab maintains their online presence, monthly meetings, symposiums, expositions, guest lecturers, and online collaborative website. Third, the MIT director's outreach can link everything to the MEF innovative priorities through the PhaseZero or MD5-like website housing academic and technological research for new and developing technologies, links to social media and external innovative organizations, points of contact and collaborative tools associated by elements of the MAGTF, and linking roles and responsibilities of the MEF with the *Marine Corps Operating Concept* and MEF mission sets. Finally, capturing lessons learned focuses on providing papers, presentations, briefs, brainstorming sessions at the MIT lab, and attempting to link Marines with technology engineers to advance ideas or concepts. The lines of effort improve innovative awareness and exploit technologies for a more effective and efficient MEF to meet future operating requirements.

The MEF Innovation Campaign must define a rapid innovation process to support the geographically based, deploying MEF Marines, which reinforces and leverages the United States Marine Corps innovation ecosystem. The MEF Innovation Campaign's operational approach mirrors the business models of discover, define, develop, and deliver (figure 4). The discover and design stages provide *what* the strategy attempts to achieve, and the purpose for *why* the strategy is achieved. To be effective, innovation requires simplicity and focus on a specific, clear design application satisfying a MEF requirement.[50] The MIT lab's planning starts with a vision or MEF commander's guidance, which can either be affiliated with a consumer market or focused on an adversary, and then developing a needed product or solving a problem by understanding the *what*

Figure 4. The design thinking framework created by the Design Council (UK), which maps the design process into four distinct phases: discover, define, develop, and deliver, illustrating the divergent and convergent stages of the design process



Source: A Blueprint for Winning *(Arlington, VA: Defense Advanced Research Projects Agency, 2017).*

and *why*. Some of the answers may be defined by creatively employing aspects of design thinking with elements inherent to the *Marine Corps Planning Process*, MCWP 5-10.[51]

Conclusion

Whether the United States remains in another arms race with a near-peer competitor or fighting small wars around the globe, the MEF's innovation focus shapes the desired state of the opposition system versus competing with nodes of the observed system.[52] If the Marine Corps desires to use the MEF Innovation Design in the Fourth Industrial Revolution, the five innovation attributes employ global forces exploiting gaps in the adversarial system while harnessing the advancement in an industrial and innovative revolution.[53] However, globally dispersed forces need empowerment, equipment, and training with developing capabilities to maneuver and leverage intelligence assets, kinetic and nonkinetic conflicts, and information warfare from a combined arms and integration approach on the modern battlefield. Our context for combined arms changed from integrating firepower and mobility to the employment of intelligence assets, information warfare, electronic warfare, and surface and ground

fires to facilitate maneuver. This change enables innovation survivability on the modern battlefield.

The Italian airpower theorist Giulio Douhet wrote, "Victory smiles upon those who anticipate the changes in the character of war, not upon those who wait to adapt themselves after the changes occur."[54] The U.S. military maintains a superior edge regarding funding, global engagement, and technological capabilities. If technology drives the speed of the future of warfare, then appreciating design thinking's business model applicability to the MEF, via the MIT, shapes how the Marine Corps responds to uncertain operating environments during the next several decades. A change in thinking from a military perspective to an innovative strategist's perspective has the potential to transform how the Marine Corps develops programs, processes, and military strategy. Although technology shaped the outcome of previous wars, using the Pentagon's attributes of agility, integration, resiliency, information, and collaboration provides focal points for modernizing the MEF. Collectively, the warfighting innovation attributes foster a resilient and flexible deterrent with the capability to impose complexity and cost on adversaries while providing broader options for decision makers.[55]

Endnotes

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49. *A Blueprint for Winning*.
50. Drucker, *Innovation and Entrepreneurship*, 135.
51. *Marine Corps Planning Process*, MCWP 5-10.
52. Small wars include insurgencies and guerrilla conflicts, counterinsurgencies, terrorist movements, irregular warfare, peacekeeping, and humanitarian intervention. An *observed system* is a system in its perceived present state without the influence of external or internal disruption mechanisms. Conversely, a desired system is how the influencer wants the observed system to conform to their interests.
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with a high potential of disruptive effects. These technologies have the potential to continue to connect billions of people to the web, drastically improve the efficiency of business and organizations, and regenerate the natural environment through better asset management. Klaus Schwab, "The Fourth Industrial Revolution: What It Means, How to Respond," World Economic Forum, 14 January 2016.

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Seeking Alpha in the Security Cooperation Enterprise
A New Approach to Assessments and Evaluations

Captain James R. R. Van Eerden

Abstract: Despite the billions of dollars invested in the security cooperation enterprise each year, the Marine Corps and the Department of Defense (DOD) have failed to implement standardized metrics and processes for evaluating security cooperation engagements at the tactical level. Without such data, it is nearly impossible for the security cooperation enterprise to accurately assess progress in achieving national security objectives, such as partner nation basing access and partner force capacity building. Without clear signposts of progress, cooperation engagements will continue to be hampered by redundant or irrelevant training that limits the return on investment for the DOD and strategic U.S. partners.

Keywords: security cooperation, Marine Corps, Department of Defense, cooperation agreements, national security objectives, return on investment, data, metrics

In the realm of investment banking and equity markets, the term *alpha* is used to describe financial performance relative to standard market returns during a given period of time.[1] For investors, the process of "seeking alpha" requires discipline and careful attention to data and analytics patterns that can ultimately lead to a greater return on investment. Similarly, individuals responsible for managing defense spending should seek to implement standard methodologies

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and data-based decision-making processes, particularly in high investment areas like security cooperation. At times, the focus on new technological developments, such as artificial intelligence and 3D printing, has distracted from the human dimension of conflict and the "key role in building partner capacity" described in the *Marine Corps Operating Concept*.[2] While it is vital to continue developing disruptive technology for future warfare, it is equally important to pursue innovation through improvement of existing technology and processes.

Based on numbers provided by the Office of the Secretary of Defense for fiscal year 2019, security cooperation activity accounts for at least $10 billion in spending—a conservative estimate that does not include classified programs or drug-interdiction programs authorized under Section 127e and Section 284c of Title 10 of the U.S.C.[3] Each year, the Department of Defense (DOD) conducts 3,000–4,000 security cooperation engagements with more than 130 countries.[4] Despite the large investment of money and time in the security cooperation enterprise, the DOD has failed to implement a standard methodology for evaluating security cooperation activity at a tactical level. In light of this, the Marine Corps should implement a standardized, quantifiable, tactical level security cooperation assessment methodology to accurately measure the effectiveness of engagements with partner forces.

Security Cooperation Defined

Security Cooperation, Joint Publication (JP) 3-20, provides the following definition of *security cooperation*:

> Security cooperation (SC) encompasses all Department of Defense (DOD) interactions, programs, and activities with foreign security forces (FSF) and their institutions to build relationships that help promote U.S. interests; enable partner nations (PNs) to provide the U.S. access to territory, infrastructure, information, and resources; and/or to build and apply their capacity and capabilities consistent with U.S. defense objectives.[5]

The *Fiscal Year (FY) 2019 President's Budget: Security Cooperation Consolidated Budget Display* outlines seven categories of security cooperation activity, including military-to-military engagements, support to operations, and humanitarian and assistance activities, among others.[6] The security cooperation framework traditionally includes security assistance (SA), security force assistance (SFA), and some aspects of foreign internal defense (FID).[7] In the context of this article, the term *security cooperation* refers primarily to military-to-military engagements, where the U.S. military engages in training partner forces under the auspices of Title 10 and Title 22 authorities.

The important role of security cooperation in the future operating environment cannot be overstated. The *Summary of the 2018 National Defense Strategy of the United States of America* asserts that enduring military success is contingent upon "building long-term security partnerships" and upholding "our allies' own webs of security relationships."[8] In the current operating environment marked by great power competition, security cooperation will be a vital tool used to preempt high-end conflict and assure strategic access to basing, equipment, and intelligence resources. In short, security cooperation is an indispensable pillar of U.S. foreign policy, with the capability to influence all instruments of national power.

Overview of Doctrine and Policies

Though there is much current debate about cost-sharing measures between the United States and its allies, few national security experts would object to the importance of security cooperation. However, it is often difficult to articulate the metrics that define mission success. Perhaps the problem is best framed with a question: If indeed security cooperation is important, how does one measure the output from such activity to shape future planning and funding? This question is only partially answered by doctrine and directives at the joint and Service component levels.

Security Cooperation recommends that all combatant commanders should use an assessment, monitoring, and evaluation framework. However, the publication mistakenly identifies strategic-level assessments and evaluations as the only deficiency in security cooperation planning: "Because SC activities are dispersed and generally support long-term objectives, the impacts can be difficult to immediately measure above the tactical and operational levels (i.e., operational assessments and service or functional component-level evaluations)."[9] In January 2017, the Office of the Undersecretary of Defense for Policy published *DOD Instruction 5132.14: Assessment, Monitoring, and Evaluation Policy for the Security Cooperation Enterprise*, which further elaborates on the assessment, monitoring, and evaluation (AM&E) framework. The DOD instruction outlines the responsibilities of all relevant parties at the strategic level, including the Chairman of the Joint Chiefs of Staff, the geographic combatant commanders, and the functional combatant commanders. The instruction letter states that the "DoD will maintain a hybrid approach to management of AM&E efforts, whereby, in general, assessment and monitoring will be a decentralized effort based on the principles and guidelines established in this instruction and other directives, policies, and law."[10] In theory, this decentralized approach to assessments is preferable. The reality, however, is that Service components have failed to support the Office of the Secretary of Defense's AM&E framework with focused data inputs.

While the Marine Corps has successfully implemented operational assessments through the use of security cooperation engagement plans and capabilities-based assessments, it lacks the necessary tactical assessments to contribute to the higher-level AM&E structure. In general, the Marine Corps supports the implementation of assessments for security cooperation engagements. *Marine Corps Order 5710.6C*, *Marine Corps Security Cooperation*, which governs the conduct of security cooperation activity, suggests that integrated assessment teams are vital to an effective long-term strategy. The order also states that the purpose of assessments is to "provide maximum effectiveness."[11] In addition to the Marine Corps order on security cooperation, *Marine Corps Operations*, Marine Corps Doctrinal Publication 1-0, affirms the value of assessments. According to *Marine Corps Operations*, assessments not only provide a "basis for adaptation," but they also serve as a "catalyst for decision-making."[12] Based on this information, it would seem that the Marine Corps and the joint force have properly identified the need for security cooperation assessments, which prompts the question: What, if anything, needs to be changed about the current approach to security cooperation engagements?

Research Hypothesis

As a former theater security cooperation (TSC) coordinator for Special-Purpose Marine Air-Ground Task Force Crisis Response-Africa 17.1 (SPMAGTF-CR-AF 17.1), the author was not aware of any method to accurately measure the performance and effectiveness of security cooperation missions. After reviewing the after action reports submitted by previous teams, there was a noticeable scarcity of specific training data; higher headquarters and the Marine Corps Security Cooperation Group had not promulgated a standardized, quantifiable, tactical-level assessment methodology. Although the author's personal experiences indicate that security cooperation assessments lacked analytical rigor, additional independent research was used to validate the hypothesis that the Marine Corps lacked a standardized, quantifiable process for evaluating security cooperation missions at the tactical level.

Research Process

The research consisted of two parts: first, the author thoroughly reviewed the seminal doctrinal publications, directives, and policies relevant to the field of security cooperation to determine if an assessment methodology existed. This process entailed a complete review of 16 authoritative documents and articles. Second, the author completed a data-mining project to evaluate after action reports submitted to the Marine Corps Center for Lessons Learned (MCCLL). The data mining spanned six years of SPMAGTF-CR-AF data between 2010 and 2016, excluding 2011. The author's research included both unit after ac-

tion reports and MCCLL reports for security cooperation missions. The source content for the second part of the research project consisted of 19 after action reports, totaling 280 pages of material.

Summary of Findings

The first part of the research project involving the 16 authoritative source documents yielded no additional information about quantitative assessment methodologies. The second part of the research project yielded more instructive results:

- 32 percent of the documents did not provide a single reference to the words "assessment" or "evaluation"
- 68 percent of the documents mentioned the word "assessment" or "evaluation" at least once
- 38 percent of the documents that used the words "assessment" or "evaluation" used them in the context of developing a training schedule or assisting partner nation forces
- 20 percent of the documents explicitly mentioned using training and readiness standards as a baseline for evaluating partner nation forces
- None of the after action reports incorporated quantifiable data or a standard process for evaluating partner force performance and capability

The most salient conclusion from this data is that security cooperation leaders recognize the importance of assessments and evaluations in achieving successful outcomes with partner forces. However, the research also implies that security cooperation leaders have not fully incorporated quantifiable standards into the evaluation process, as evidenced by the lack of data and inconsistent assessment methodologies.

Research Conclusions

Despite the myriad references to assessments and evaluations in doctrine, policies, and mission after action reports, the analysis confirmed that the Marine Corps had not published or even developed a standardized, quantifiable, tactical-level assessment methodology for security cooperation engagements. Currently, the only feedback received by operational planners is subjective observations from team leaders and team chiefs in the form of after action reports. Marine Forces Europe and Africa (MFEA) headquarters provides limited guidance for developing the after action reports and quantitative data is not required. Most of the reports are replete with anecdotal information, where teams bemoan their lodging conditions or food options, rather than provide specific, action-

able data to inform future engagements and planning. This void in the feedback loop means that operational and strategic planners are left without the details necessary to complete their respective higher-level assessments.

A Proposed Solution: Hybrid Training and Readiness Assessment Methodology

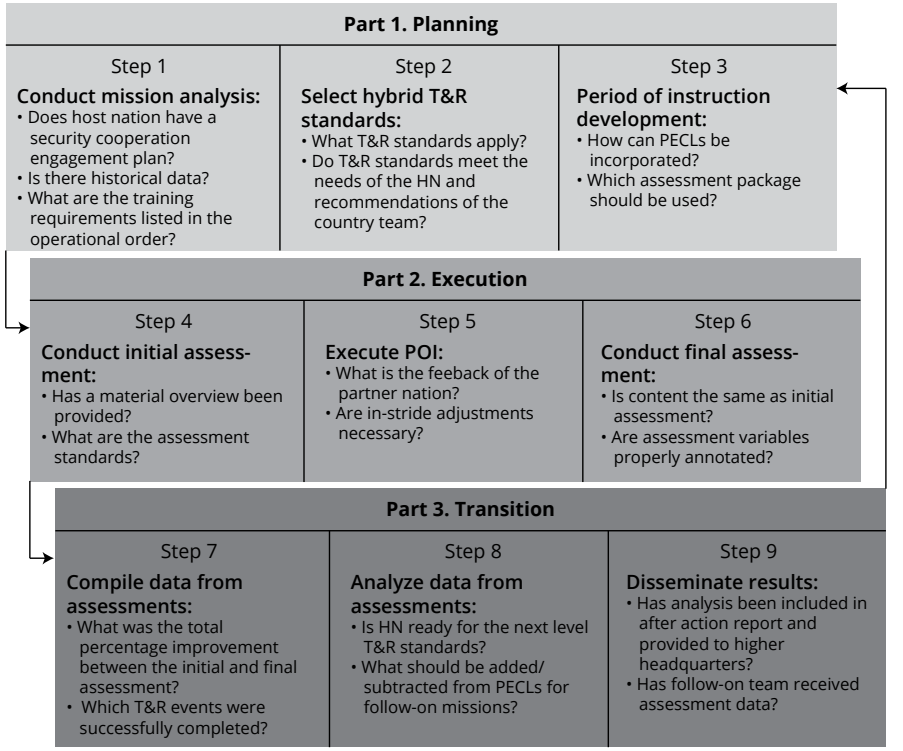
Galileo Galilei noted that one should always seek to "measure what is measurable, and make measurable what is not so."[13] Based on the previously mentioned research findings, the security cooperation enterprise has not succeeded in making security cooperation activities measurable at the tactical level. In light of this, the Marine Corps should adopt a hybrid training and readiness assessment methodology for future security cooperation engagements. The joint force should replicate this methodology to synchronize assessment efforts across the DOD.

The Hybrid Training and Readiness Assessment Methodology (hereafter referred to as the "methodology") was developed and implemented by the author during a SPMAGTF-CR-AF deployment in 2017 and was used during subsequent SPMAGTF-CR-AF deployments. The methodology was lauded by the SPMAGTF-CR-AF commander and reviewed by the Commandant of the Marine Corps in 2017. Senior staff members from the Center for Army Lessons Learned have requested to highlight the methodology as a recommended model for future partner engagements across the Department of the Army.

The methodology is a three-part process consisting of nine individual steps (figure 1). The three parts are *planning*, *execution*, and *transition*, which reflect the various stages of a security cooperation mission. Part one, *planning*, begins with the security cooperation team leaders and team chiefs completing steps one through three, which consist of mission analysis, T&R selection, and period of instruction development. Part two, *execution*, encompasses steps four through six that require an initial assessment, a period of instruction, and a final assessment. Part three, *transition*, includes steps seven through nine, which require TSC teams to compile data from their assessments, analyze the data, and then disseminate conclusions from the data. The outputs from part three feed back into part one as new inputs prior to reinitiating the mission analysis process. Each step of the methodology consists of several questions that should be answered before proceeding to the next step. This nine-step iterative process can be adjusted and tailored to meet the unique demands of each mission.

During part 1, the team leaders and team chiefs are dependent on the embassy country team and MFEA regional planners to relay the specific training requests of the host nation. Operational and tactical level staff must work together to compare Marine Corps T&R standards with the partner nation training requirements. By using Marine Corps T&R standards as a baseline

Figure 1. Hybrid training and readiness assessment methodology (nine-step process)



Source: Courtesy of the author, adapted by MCUP.

and adjusting the standards to meet the partner nation objectives, the security cooperation team employs a hybrid T&R approach, which is used over time to gauge the progress of the partner nation. During part 2, security cooperation team leaders will select one of three different assessment packages to perform the initial and final assessments. The type of assessment chosen by the team depends on the type of mission.

The first assessment option is a written test, which is preferable for short missions conducted in a classroom setting. This approach is not always ideal, because language barriers can inhibit clear test translation; additionally, some partner nation trainees are averse to formal testing. A second assessment option is a practical application, which is ideally suited for longer missions requiring extensive field skills and infantry tactics training. This assessment model should be designed similar to the combat endurance test at the Marine Corps Infantry Officers Course, with separate skills stations and rigorous physical fitness tests. The benefit of this approach is that it avoids the appearance of formal testing while providing greater flexibility for trainers to evaluate the performance of partner nation military personnel. The disadvantages of this approach are two-

fold: first, the practical application assessment introduces more subjectivity into the evaluation process; and second, it requires additional trainers and larger training facilities, both of which may not be readily available.

A third assessment option is the combined approach, which incorporates elements of a written test with a practical application. This approach is ideally suited for multifaceted security cooperation missions that require a combination of academic training and field skills. This third assessment option encourages trainers to generate both quantitative and qualitative mission data while catering to a wider variety of learning styles.

Conventional Training and Readiness Evaluation Process

The conventional approach to evaluating partner nation forces is centered on the Marine Corps Training and Readiness Standards and Performance Evaluation Checklists (PECLs). PECLs include conditions, standards, and event components, which are evaluated by trained instructors. During the author's deployment, the most common PECL used was a standard infantry patrolling checklist that included 15 event components (figure 2). During the course of an

Figure 2. Sample conventional performance evaluation checklist (PECL)

INF-MAN-5301: Fundamentals of Infantry Patrolling
CONDITION: Given a unit, attachments, an order, and an area to patrol from, while motorized, mechanized, or dismounted with or without assault support, and operating in the full range of environmental conditions
STANDARD: By conducting a squad sized patrol in support of mission objectives

EVENT COMPONENT	OBSERVED YES/ NO	S	I
1. Conduct planning	YES	2	
2. Task organize	YES	2	
3. Integrate attachments as required	YES	2	
4. Integrate fires	NO	-	-
5. Conduct tactical logistics	YES	2	
6. Prep for operations	YES	2	
7. Constitute a quick reaction force (QRF)	YES	2	
8. Supervise departure of patrols from patrol base	YES	2	
9. Conduct actions on the objective	YES		0
10. Execute immediate actions as required	YES	2	
11. Conduct tactical casualty care as required	YES	2	
12. Detain personnel if required	YES		0
13. Conduct information collection/TSE as required	NO	-	-
14. Conduct re-entry of patrols to patrol base	YES		1
15. Conduct post operations actions	YES		1
Totals		18	2
Average	65%		

UNTRAINED 0%-49%	PARTIALLY TRAINED 50%-79%	TRAINED 80%-100%

Grading Scale: S = Sufficient (2) I = Insufficient (1 or 0)
0 = Observed - failed, 1 = Observed - needs remediation, 2 = Observed - passed

Source: NAVMC 3500.44A, Infantry Training and Readiness Manual *(Washington, DC: Headquarters Marine Corps, 26 July 2012).*

Figure 3. Sample "hybrid" performance evaluation checklist (PECL)

INF-MAN-5301: Fundamentals of Infantry Patrolling
CONDITION: Given a unit, attachments, an order, and an area to patrol from, while motorized, mechanized, or dismounted with or without assault support, and operating in the full range of environmental conditions
STANDARD: By conducting a squad sized patrol in support of mission objectives

EVENT COMPONENT	OBSERVED YES/ NO	S	I
1. Conduct planning	YES	2	
2. Task organize	YES	2	
3. Integrate attachments as required	YES	2	
4. Conduct evasion and escape against hostile force	YES	2	
5. Conduct tactical logistics	YES	2	
6. Prep for operations	YES	2	
7. Constitute a quick reaction force (QRF)	YES	2	
8. Supervise departure of patrols from patrol base	YES	2	
9. Conduct actions on the objective	YES		0
10. Execute immediate actions as required	YES	2	
11. Conduct tactical casualty care as required	YES	2	
12. Detain personnel if required	YES		0
13. Conduct assembly and disassembly of AK-47 on the move	YES	2	
14. Conduct re-entry of patrols to patrol base	YES		1
15. Conduct post operations actions	YES		1
16. Conduct rocket battle drills during patrol	YES	2	
Totals		24	2
Average	61.5%		

UNTRAINED 0%-49%	PARTIALLY TRAINED 50%-79%	TRAINED 80%-100%

Grading Scale: S = Sufficient (2) I = Insufficient (1 or 0)
0 = Observed - failed, 1 = Observed - needs remediation, 2 = Observed - passed

Source: NAVMC 3500.44A.

evaluation, the trainer first marks "yes" or "no" next to the "observed" column on the checklist. As each event component is completed, the evaluator will determine if performance is "Sufficient" (S) or "Insufficient" (I). After determining the average score for each of the event components, the trainer assigns a grade of "untrained," "partially trained," or "trained." Most Marines are familiar with this evaluation process and are accustomed to using PECLs as a baseline for monitoring improvement. The problem with implementing a conventional approach to evaluations is that it ignores the nuances of host nation training requirements. The conditions, standards, and event components of traditional PECLs should be adjusted to reflect the requests of the host nation.

A Hybrid T&R Evaluation Process

Figure 3 represents an example of a hybrid PECL, which replaces event components 4 and 13 and adds event component 16 (hybrid adjustments are highlighted gray). The hybrid PECL provides a standardized template that is adjusted to meet the demands of the partner force.

First Lieutenant Robert Curtis used the methodology during a deployment with SPMAGTF-CR-AF 18.1. As the logistics combat element TSC coordinator, he experienced firsthand the utility of employing hybrid PECLs. According

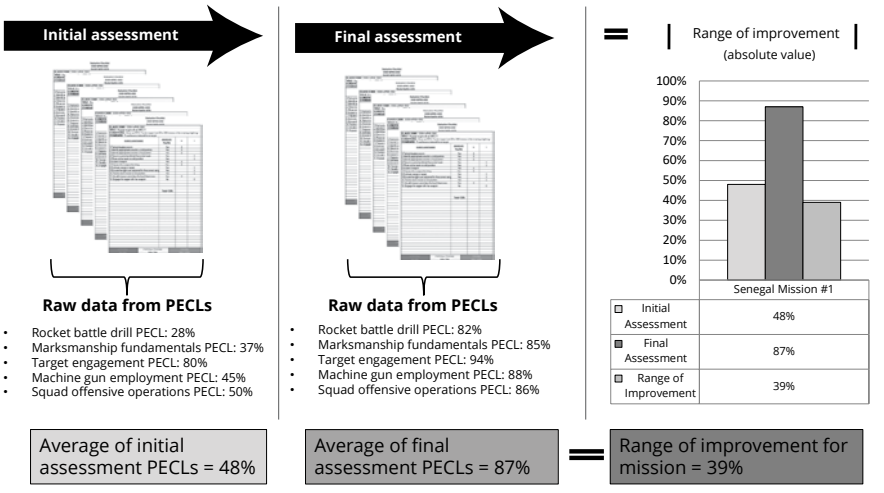
to First Lieutenant Curtis, "Using regular T&R standards is difficult because the partner nations are not equipped or organized like the Marine Corps; therefore, our standards do not always apply to them. Using hybrid T&Rs allows the teams to produce more focused and relevant assessments for the partner nation."[14]

Process for Generating Assessment Data

After completing the nine-step methodology, the security cooperation team will be able to produce valuable quantifiable data that will shape future engagements. To produce this data, team leaders will need to complete a simple formula (figure 4). First, the team leader will compile the results from the initial assessment and compute the average for each student who was evaluated on a written test, a practical application test, or a combined test. In the case of the assessment data provided in figure 4, the average score is 48 percent. The team leader will then compile the results of the final assessment—ensuring the same test is used for both the initial and final assessment—and compute the average of the scores using either a mean or median calculation model. In the hypothetical illustration below, the final assessment average is 87 percent. The team leader will then compare the initial assessment with the final assessment and derive the absolute value or range of improvement for the mission. In the example provided in figure 4, the total range of improvement equates to 39 percent.

The data presented in figure 4 is representative of one security cooperation

Figure 4. Formula for generating assessment data



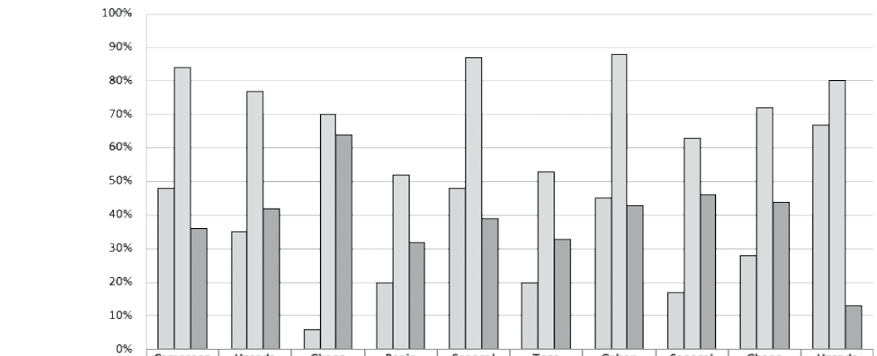
Source: Courtesy of the author, adapted by MCUP.

mission, so regional planners who are responsible for multiple missions should collate the assessment data in a bar chart or bar graph format to depict the range of improvement across all missions during a given period of time as seen in the data presented during the SPMAGTF-CR-AF 17.1 TSC missions (figure 5).

Arguments in Support of the Hybrid Training and Readiness Assessment Methodology

Perhaps the most compelling reason to enact the methodology is to promote fiscal accountability and responsibility within the Marine Corps and the DOD. Among the Services, the Marine Corps is known for its propensity to conserve scarce resources. In the early nineteenth century, Commandant Archibald Henderson popularized the long-held Marine Corps mantra of "fighting on the cheap."[15] Henderson successfully lobbied for Marine Corps involvement in the Seminole Wars (1817–18, 1835–42, 1855–58) and the Mexican War (1846–48) largely because he was able to convince the president that the Marine Corps could accomplish the mission with fewer resources than the Army.[16] A similar mentality persists in the modern Marine Corps. During a deployment in 2017, Marines with SPMAGTF-CR-AF saved approximately $700,000 in a $3,000,000 operational budget by implementing the aforementioned assessment methodology. Other Marine Corps units that employed the methodology during SPMAGTF-CR-AF rotations also garnered considerable cost savings. The data produced during these deployments equipped senior leadership with

Figure 5. Data captured during the SPMAGTF-CR-AF 17.1 TSC missions



	Cameroon Mission #1	Uganda Mission #1	Ghana Mission #1	Benin Mission	Senegal Mission #1	Togo Mission	Gabon Mission	Senegal Mission #2	Ghana Mission #2	Uganda Mission #2
Initial Assessment	48%	35%	6%	20%	48%	20%	45%	17%	28%	67%
Final Assessment	84%	77%	70%	52%	87%	53%	88%	63%	72%	80%
Range of Improvement	36%	42%	64%	32%	39%	33%	43%	46%	44%	13%

Data summary
- Average improvement across all 10 missions: 39%
- Uganda mission #2 had the highest initial assessment: 67%
- Gabon mission had the highest final assessment: 88%
- Ghana mission #1 had the highest average improvement: 64%

Source: Courtesy of the author, adapted by MCUP.

the information necessary to eliminate extraneous programs and increase overall efficiency. By broadly integrating the Hybrid T&R Assessment Methodology into all partner nation engagements, the Marine Corps will further establish its reputation as a force that is ruthlessly efficient and frugal.

In addition to promoting fiscal responsibility, the methodology will also enhance planning across the tactical, operational, and strategic levels of war. In a recent Rand Corporation study, researchers identified several challenges facing the DOD as it continues to implement the AM&E framework. One particularly daunting challenge mentioned in the report is the process of comparing tactical security cooperation activities with U.S. policy objectives and determining if the activities have fulfilled the objectives.[17] The authors of the study suggest that "a standardized [assessment, monitoring, and evaluation] AM&E regimen applied across activities helps policymakers and implementers make more informed decisions that maximize immediate outcomes and help ensure programmatic sustainability and impact in the longer term."[18] The report also mentions that assessments can provide important insight for planners: "If fully implemented, partner country capability/interoperability assessments have the potential to provide useful information to security cooperation planners and programmers who lack domain expertise or Service perspectives on what is needed from partner militaries."[19] Military planners are often criticized for their failure to harmonize the strategic, operational, and tactical levels of war. The methodology makes progress in achieving a more integrated approach to TSC planning.

Counterarguments

Despite the many benefits of adopting the methodology, there are also some drawbacks. One potential problem with the methodology is that it can create a culture of chasing the data, where security cooperation teams and partner forces are motivated by test performance at the expense of genuine teaching and learning. Although this challenge is worth consideration, it is not enough to overcome the need for assessments. When properly trained, security cooperation instructors recognize that assessments are only one aspect of effective education. A healthy educational culture is established by team leadership, and trainers must be willing to adjust the format and frequency of the assessments to prevent unhealthy obsession about data. One method for reducing the focus on assessments during partner force engagements is to ensure that the assessment results are anonymous. Reflecting on his time as a security cooperation team leader in Gabon and Ghana in 2017, First Lieutenant Brendan Gallahue summarized his approach to testing: "At the end of the initial assessment, we debriefed the group on how they performed and explained the average score for

the collective unit, without posting each individual's scores."[20] Security cooperation teams can mitigate an unhealthy assessment culture by promoting group-wide improvement and retaining close control of assessment results.

Another counterargument is that the Marine Corps lacks the capacity to fully train security advisors on more complex hybrid T&R standards. Purveyors of this point of view claim that the predeployment workup cycle is already limited for the SPMAGTFs and Marine Expeditionary Units (MEUs), and therefore units will not have the bandwidth to conduct ancillary security cooperation training. While some hybrid standards may require additional training, most of the hybrid PECLs include material that is familiar to conventional Marine Corps units. If more complex hybrid standards cannot be taught organically by individuals from a deploying unit, the unit can request individual augments to fill low-density skill sets. During previous security cooperation engagements, Marine units have successfully requested support from 2d Reconnaissance Battalion and 2d Combat Engineer Battalion to provide specialized skills training.

First Lieutenant Gallahue confirmed the feasibility of training security cooperation advisors and noted that his team was able to seamlessly integrate the methodology into their training plan. After his mission, First Lieutenant Gallahue observed that "using the Hybrid T&R Assessment Methodology actually made the mission execution a lot simpler than we anticipated. My team successfully built a training program around an initial assessment, where we established a baseline and culminated with a final exercise to measure the progress of our partners and gauge the effectiveness of the training."[21] The methodology is likely to cause some friction initially, but it will ultimately simplify the efforts of security cooperation trainers.

Summary

Anecdotal, experiential, and empirical evidence all suggest that the Marine Corps and DOD support the need for a tactical-level assessment methodology. Despite repeated mandates from Congress to account for the billions of dollars' worth of security cooperation expenditures, only marginal progress has been achieved. At this point, the return on investment for the security cooperation enterprise is unclear, at best. The Hybrid Training and Readiness Assessment Methodology is a tool that can radically shift the investment proposition of the enterprise from one marked by tepid returns to a position of maximum return. The methodology fills a critical role in connecting tactical, operational, and strategic planning while also promoting fiscal responsibility and accountability. Sherlock Holmes' famous aphorism summarizes the problem and the potential solution for what ails security cooperation efforts: "It is a capital mistake to theorize before one has data. Insensibly one begins to twist facts to suit theories,

instead of theories to suit facts."[22] Indeed, by leveraging facts and data, the security cooperation enterprise will transition from *seeking alpha* to at last *achieving alpha*.

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Automation and the Future of Command and Control
The End of *Auftragstaktik*?

Lieutenant Colonel Rosario M. Simonetti, Italian Army Marine, and Paolo Tripodi, PhD[1]

Abstract: The impact of new technologies and the increased speed in the future battlespace may overcentralize command and control functions at the political or strategic level and, as a result, bypass the advisory role played by a qualified staff. Political and/or strategic leaders might find it appealing to pursue preemptive or preventive wars as a strategy to acquire asymmetric advantage over the enemy. This article investigates the roots of this trend, connecting historical perspectives with implications that next-generation technology may have on command and control.

Keywords: command and control, technological innovation, mission command, automation

The impact of new technologies and the increased tempo of the future battlespace may overcentralize command and control functions at the political or strategic level. Political and strategic leaders might pursue preemptive or preventive wars as a strategy to acquire asymmetric advantage over the enemy, not because they must but because they can. As a result, senior leaders may be encouraged to bypass the advisory role played by their qualified staff and undermine the autonomy of lower level commanders. The advancement of technological systems may end mission command, *Auftragstaktik*.

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Donald E. Vandergriff defines *Auftragstaktik* as a cultural philosophy of military professionalism:

> The overall commander's intent is for the member to strive for professionalism, in return, the individual will be given latitude in the accomplishment of their given missions. Strenuous, but proven and defensible standards will be used to identify those few capable of serving in the profession of arms. Once an individual has been accepted into the profession, a special bond forms with their comrades, which enables team work and the solving of complex tasks. This kind of command culture . . . must be integrated into all education and training from the very beginning of basic training.[2]

This article explores the roots of this trend, connecting historical perspectives with implications that next-generation technology may have on command and control.

Technological innovation plays a critical role in the conduct of war. The adoption of new technologies in warfare has been instrumental in replacing roles traditionally played by humans. During the interwar period, between World War I and World War II, warfare was optimized to cope with greater distances and faster execution through increasingly complex machines. The armed forces general staffs became more sophisticated and complex to process a greater amount of information. The battlefield gradually moved away from the commander, while command and control, a critical function for warfare, moved toward automation.

Current military capabilities are the result of an evolutionary trend in which technology and information have constantly played a central role. With the introduction of *the network-centric warfare* (NCW) concept of operations, or the employment of networked forces at all levels, commanders can now access a network of sensors, decision makers, and soldiers, which provides shared awareness, higher tempo, greater lethality, and survivability on an almost global scale.[3] The development and adoption of new technologies has allowed political and strategic decision makers to control the battlefield in real time even at the tactical level. The impact of new technologies and the increased speed in the future battlespace may overcentralize command and control functions at the political or strategic level. The consequences might be detrimental to the conduct of military operations at the operational and tactical level. In addition, autonomous weapons and artificial intelligence are the next step toward the automation of warfare with critical implications for command and control.

In an investigation of command and control, the authors followed the approach taken by *Command and Control*, Marine Corps Doctrine Publication

(MCDP) 6, and used U.S. Air Force colonel John R. Boyd's OODA loop (observation, orientation, decision, and action) as, in the words of *Command and Control*, it "describes the basic sequence of the command and control process."[4] In addition, the OODA loop has an important role for effective decision making. In the authors' view, while the introduction of highly autonomous technologies has and will continue to have a significant impact on the observation (O), orientation (O), and action (A) phases, the decision (D) phase will continue to require a human "on the loop" to control the conduct of operations.[5] The adoption of new technologies will make the OOA phases much faster, and the decision phase will receive direct and immediate benefit from it, yet the ability to apply judgment and professional experience will remain a critical factor of such a phase. *Warfighting*, MCDP 1, rightly stressed that

> A military decision is not merely a mathematical computation. Decision-making requires both the situational awareness to recognize the essence of a given problem and the creative ability to devise a practical solution. These abilities are the products of experience, education and intelligence.[6]

Yet, the quest for reliable, accurate, and fast military options may remove humans from many processes and procedures. Indeed, machines might replace humans in many critical phases of the decision-making process. This possibility has raised some concerns among military practitioners and scholars. In the future of warfare, often described as a *hyperwar*, human decision making may be almost entirely absent from the OODA loop due to the near-instantaneous responses from the competing elements.[7] The description deals with the side effect of the enhanced speed caused by increased automation of the future operating environment: the inevitable and necessary compression of the OODA loop.

Doctrinal Aspects

The conduct of warfare is intrinsically linked to the translation of the commander's intent into actions. Commanders observe the surrounding situation, process the information, develop a plan, and execute it using the organizational structures and technological systems available. Indeed, how a battle is conducted is the commander's prerogative. The interrelation and interconnectedness between command and control is so critical that in almost all Western doctrines the two functions are always mentioned together. Command and control, therefore, is a critical element of a military leader's professional development. Military leaders understand that issuing an order comes at the end of a process through which they have gathered and analyzed information, assessed and organized resources, planned, communicated instructions, shared information,

coordinated, monitored results, and supervised execution. Finally, they assess the plan's effectiveness.[8]

Military doctrine and academic studies have provided several definitions of command and control. Martin van Creveld in *Command in War* wrote:

> I will use the word "command" [instead of Command, Control, and Communication] throughout in much the same way as people commonly writing out the term "management" to describe the manifold activities that go into the running of a business organization.[9]

Martin van Creveld assumes that control activities are intrinsic to the attributions of command. As a manager of a business gives purpose and direction to their commercial activities, so a leader must be able to do the same in the warfighting business. The United Kingdom's *Defence Doctrine* for the conduct of operations states, "Complex operations demand a Command and Control philosophy that does not rely upon precise control, but is able to function despite uncertainty, disorder and adversity."[10] The definition describes the fog of warfare and therefore deals with the uncertainty of a high level of control. Given the human, violent, and unpredictable nature of war, a level of uncertainty must be accepted and shall not limit the initiative at the tactical level.

In *Command and Control*, the Marine Corps considers command and control as a loop: "Command and Control are the means by which a commander recognizes what needs to be done and sees to it that appropriate actions are taken."[11] In the authors' view, the features of command and control as warfighting functions are: leadership, authority, resources, feedback, and mission objectives. For the purpose of this article, the authors refer to the U.S. *DOD Dictionary of Military and Associated Terms'* definition of command and control as the most effective: "the exercise of authority and direction by a properly designated commander over assigned and attached forces in the accomplishment of the mission. Also called C2."[12]

Roots of Modern Command and Control

The early development of modern command and control can be traced back to the Napoleonic Wars period and its effect on the French and Prussian military forces in the nineteenth century. However, it was during World War II that command and control became an important function of warfare. The 1920s and 1930s were critical, as new technologies, and the impact that such technologies had on military thinking, shaped the evolution of command and control. During this period, armies developed the ability to mobilize large masses of soldiers in a relatively quick time and military formations could engage the enemy from greater distances, while the operational, and to

a greater extent the strategic command, were increasingly more removed from the battlefield.

At the foundation of the mobilization of a fighting force, there were at least three critical factors that military professionals had to consider: the effect of speed and distance, the combined arms approach, and the role of information and communication. These three elements of modern warfare had a direct impact on command and control functions.

According to Williamson Murray and Allan R. Millett, innovation in the interwar period was characterized by, but not limited to, the development of amphibious warfare, armored warfare, strategic bombardment, and aircraft carrier development.[13] The common driver in each of these innovations was the pursuit of the ability to rapidly maneuver large armies to avoid the exhausting and costly trench warfare of World War I. Speeding up and broadening the battlefield had a direct impact on both leaders' and commanders' ability to remain in control of the tactical level of war. Scholars have identified the German approach as the most visionary and creative. A strong military and forward-thinking mindset was developed by insightful leaders, such as Major General Gerhard von Scharnhorst, Field Marshal August Neidhardt von Gneisenau, and Major General Carl von Clausewitz. They played a critical role in reforming the Prussian Army. General Helmuth Von Moltke the elder was probably the one that developed the most effective approach to deal with a vast battlefield. In Moltke's view, commanders should have the freedom to conduct military operations following general directives rather than detailed orders. As a result, Moltke was instrumental in the development of mission command. He strongly encouraged the development of independent thinking and action among subordinates.[14]

From the experience of the nineteenth century through the 1920s and 1930s, the German doctrine *Die Truppenführung* (troop leading) pushed decision-making authority to the lower levels of command.[15] Junior leaders were required to assume responsibilities, take the initiative, and exercise judgment. The German officer corps adopted a mission tactic command philosophy, the *Auftragstaktik*, and enjoyed a significant amount of autonomy at every level of command.[16] The adoption of this command philosophy has been instrumental in dealing with the faster pace of maneuver warfare in a geographically and technically extended battlefield and with the increased physical distance between the tactical and strategic commands. Such a new reality in the conduct of warfare required the delegation of control in favor of smaller unit commanders and leaders.

The interwar period saw also the development of a more effective integration of arms under a unified commander. At the beginning of the 1920s, General Hans von Seeckt, a strong advocate of the combined arms approach,

assumed command of the German Army. The German general moved away from the traditional vision of a mass army and replaced it with a more agile and combined formation capable of breaking through the enemy defensive lines by maneuvering and massing combat power at decisive points. He tested his innovative approach in frequent and realistic training exercises that were beneficial to improve tactical commanders' ability to appreciate the full potential and power of a combined arms approach to warfare.[17] Von Seeckt's professional intuition and groundbreaking vision led to the development of the German Army field service regulation *Führung und Gefecht der Verbundenen Waffen* (Combined Arms Leadership and Battle). German military leaders understood that the key to maneuver was the integration of all weapons, even at the lower levels of command.[18] The modern vision of the combined arms integrates different arms to achieve jointness and enable cross-Service cooperation in all stages of military operations. [19] To achieve such an ambitious objective, the German Army placed great emphasis on the education of the officer corps; officers were to learn insightful lessons from World War I.[20]

Two important technological innovations—the radio and the radar—changed the operating environment by integrating all arms and helping to monitor the battlefield even at a distance.[21] The German military quickly realized the potential that these new technologies offered to improve command and control systems in particular between the tactical and operational levels. The radio became critical to disseminate orders, share information, and make all the necessary coordination to maximize military efforts. This is a concept that remains critically valid today: the rapid sharing of information at all levels is essential for an effective conduct of maneuver warfare. In addition, the sharing of relevant, accurate information and facilitating collaborative planning assisted all levels of situational awareness; it was the progeny of the modern common operational picture.[22]

Contemporary Command and Control

The introduction of *Auftragstaktik* has made an impact on modern command philosophy. Mission command or mission tactics are the evolution of the *Auftragstaktik* concept emphasized in the *Doctrine for the Armed Forces of the United States*, Joint Publication (JP) 1, of "conduct of military operations through decentralized execution based upon mission-type orders."[23] However, the current approach to warfare built on technology-centric concepts is changing or at least complicating the proper application of mission command. Current warfare is characterized by, although not limited to, standoff precision attack, efficient platforms, and information dominance.

According to Ron Tira, current doctrines look at enhanced standoff and precision weapons to reduce the risk of loss, induce shock on the enemy, and

gain an asymmetrical advantage.[24] The standoff precision attack concept aims at creating enough distance between our center of gravity and the enemy outreach capacity—gaining valuable additional time—through the execution of multiple and synchronized actions (kinetic and nonkinetic) to achieve physical and cognitive effects on the enemy. The logical consequence is that most of the current military plans for conventional warfare are organized around a linear/phased approach. This approach seeks engagements from great distances and allows ground and maneuver forces intervention only when the enemy is weakened enough to not pose an unacceptable risk.

Generally, each military capability is built to be efficient in a particular environment or for a specific purpose. This method generates efficient platforms to deal with a rather narrow spectrum of types of warfare. As a consequence of this efficiency, often driven by technology, the decision-making process is influenced by the technology and equipment available rather than by commanders and their staff's problem-solving creativity. The risk associated with this approach is the adoption of a mindset that self-imposes limitations on the conduct of warfighting. Such limitations are driven by the technology available and operating concept linked to them. Moreover, the enemy could exploit the limits of the current system and bring the confrontation below the threshold of the force-on-force, undermining the technical advantage of developed countries.[25]

Another critical feature of current warfighting is information dominance. Strictly related to the reduction of uncertainty, the introduction of the internet has increased the capability to gain superior situational awareness either in peace or wartime. In August 1962, J. C. R. Licklider of the Massachusetts Institute of Technology (MIT) introduced the Galactic Network concept intended to enable social interactions through the global networking of a series of interconnected computers. Licklider became the first head of the computer research program at the Defense Advanced Research Projects Agency (DARPA) and continued that project for military purposes, which was the initiative for the foundations of the internet.[26] The distributed connection today allows not only voice and sound communication but also image transmission from and to every remote corner of the globe with high resolution. As a result, current technology has virtually reduced the communication distance between all levels of command. Global communication gives a commander the capability to directly observe events and interact with tactical agents on the battlefield with minimal delay or distortion. However, warfighters must be aware that "directed telescopes can damage the vital trust a commander seeks to build with subordinates."[27]

Despite the adoption of mission command philosophy, which provides the delegation of the authority at the lower level of command, command and control systems are technologically built to control in detail the battlefield from

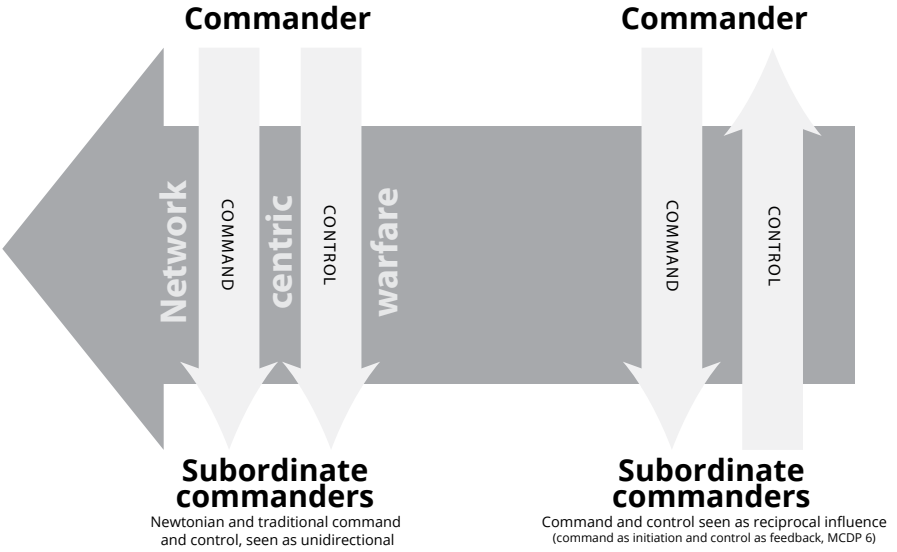
distant headquarters. As a result, they might leave less latitude and initiative to commanders and leaders at the tactical level. The comprehensive perspective of modern command and control systems are envisioned in the network-centric warfare (NCW). The term *network-centric warfare* broadly describes the combination of strategies, tactics, techniques, procedures, and organizations that a fully or even a partially networked force can employ to create a decisive warfighting advantage.[28] With the NCW operating concept, the U.S. defense forces in particular must pursue "the shift in focus from the platform to the network; the shift from viewing actors as independent to viewing them as part of a continuously adapting ecosystem; and the importance of making strategic choices to adapt or even survive in such changing ecosystems."[29] Current technologies have allowed development of the combined arms approach to a higher level. In fact, with the introduction of global communication and the advance in high-precision and standoff-weapons systems, all connected within the information domain, contemporary commanders can synchronize operations in different domains, using several weapon systems in an increasingly fast decision-making loop.

Yet, a commander's potential ability to communicate with almost all their subordinate units may change the commander's role from one of a coach, who gives their team guidance, to one of a chess player with direct control over the chess pawns. Improved battlefield insight provided by NCW allows commanders to grasp the battlefield much more precisely, quickly, and distantly. Technology has made the conduct of warfare, deceivingly, more certain and precise than before. It is believed that Clausewitz's fog of war can be minimized, redoubling acquisition efforts on technological and exquisite equipment.[30] The possible outcome of such a development is a return to a traditional command and control approach, in which both command and control might be seen as unidirectional rather than as a virtuous feedback loop. For example, the potential risk associated with this trend is the micromanagement of warfare with a detrimental impact on mission command philosophy (figure 1).

Another effect of the NCW is the compression of operations and levels of war. Given the option that operations could be potentially conducted from a remote station, such as a pilot of a General Atomics RQ-1 Predator flying their unmanned aircraft, there might be less appetite to involve ground forces in a conflict, and consequently there might be less need for delegation and relocation of operational headquarters on or close to the battlefield. Indeed, if the strategic command is virtually colocated with the tactical agents of the war, the operational level might disappear or become bypassed by the other two levels (figure 2.)

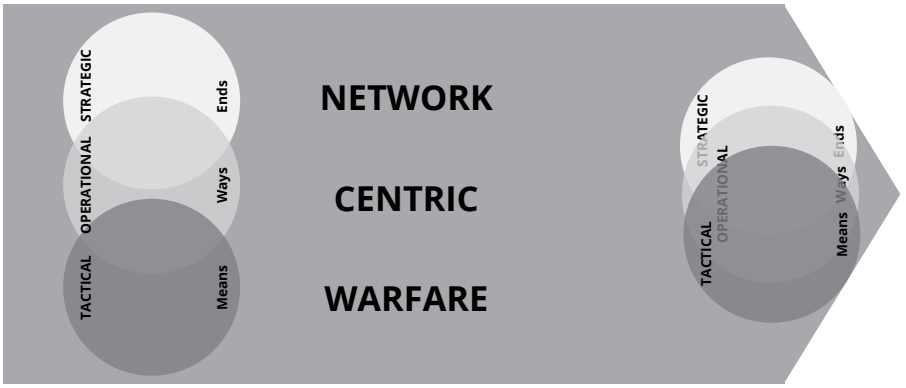
Trends between the interwar period and the current period identify discontinuity in command and control. Regardless of what doctrine advised and

Figure 1. Network-centric warfare and command and control functions



Source: Courtesy of the author, adapted by MCUP.

Figure 2. Network-centric warfare and levels of warfare



Source: Courtesy of the author, adapted by MCUP.

what the historical examples demonstrated, today there is a constant attempt to attain certainty and understand the battlefield before commitment of military forces.[31] Moreover, technologically driven solutions to deal with uncertainty are the best options available. The hyper integration of all means in the battlefield initiated by NCW is achieved not only with forces in the field but also by co-ordinating with a shared view of the battlefield. However, if all critical agents, from the squad to the geographic combat command see the same picture, there might be the desire to micromanage the force in the battlefield, disrupting the

virtuous cycle of feedback.[32] At every level of war, leaders aim to minimize the direct involvement of ground forces in the battlefield to reduce friendly losses while maximizing the enemy casualties. As during the interwar period when strategists promoted the mechanization of the battlefield to both improve the firepower and protect soldiers, today's emphasis on the automatization of warfare aims to limit or avoid completely the deployment of ground troops, at least during the initial phases of a conflict. This trend seems to be unstoppable and potentially dangerous, because it relies on the supposed perfection of the automated execution of a command.

The Future of Command and Control

As the world rapidly moves toward increasing automation, it has been suggested that a revolutionary breakthrough in warfare is about to happen, a discovery that "may even challenge the very nature of warfare itself."[33] The intensity of the dispute between advocates and opponents of the autonomous revolution share similarities with the debate generated by Italian general Giulio Douhet with his absolutist vision of air power in the 1920s. While Douhet believed that future wars would be fought and won by large aircraft, advocates of the disruptive role of autonomous weapons are confident that the race to achieve superiority in automation will eventually lead to a war fought without humans. On the one side, Paul Scharre in *Army of None: Autonomous Weapons and the Future of War* envisions the combination between a developed artificial intelligence and autonomous machines able to plan and execute military operations without any interaction with military operators.[34] On the other side, some authors believe that the development of a general artificial intelligence able to replace the human decision-making process is still far away.[35] Yet, advocates of autonomy in the battlefield continue to strongly promote their vision of warfare, as the absolutists of the air power did during the interwar period. If the next conflict will be conducted combining automation with the traditional human-led platforms and systems, the level of reliance on autonomous weapon systems will present a dilemma to the next generation of leaders.

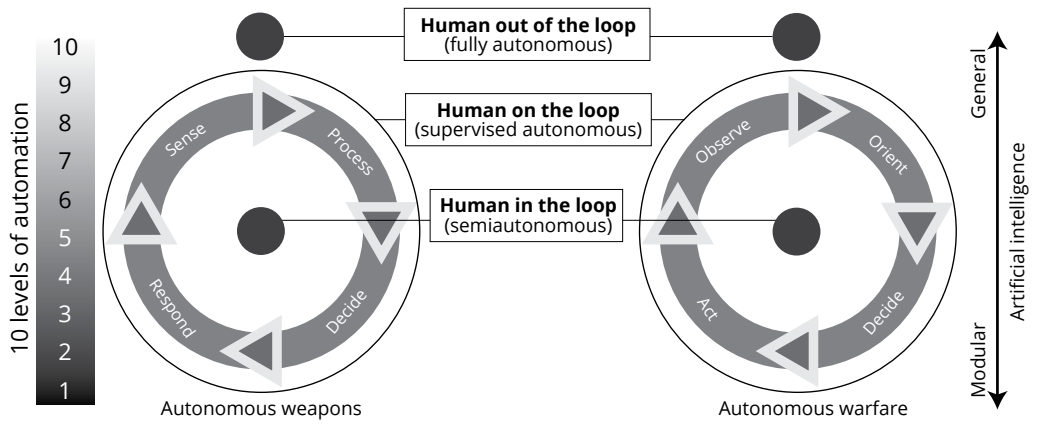
According to Merriam-Webster, *autonomy* refers to the right or condition of self-government.[36] However, self-government implicitly underlies the presence of someone else or something else that can influence autonomous actions. When the notion of autonomy is applied to the relation between human beings and weapon systems, the concept is less clear than it seems. The implication of self-governance and weapons spans theoretically from the automatic rifle to the U.S. Navy aegis (shield) combat system.[37] According to Paul Scharre:

> Machines that perform a function for some period of time, then stop and wait for human input before continuing, are often referred to as "semiautonomous" or "human in the loop."

> Machines that can perform a function entirely on their own but have a human in a monitoring role, who can intervene if the machine fails or malfunctions, are often referred to as "human-supervised autonomous" or "human on the loop." Machines that can perform a function entirely on their own and humans are unable to intervene are often referred to as "fully autonomous" or "human out of the loop."[38]

Scharre's definition provides three elements of interest. First, from the machine gun to the robot, every system has a given level of autonomy to perform a specific task whose complexity defines whether human intervention is in, on, or out of the loop. Second, the loop is the cognitive and physical process by which operators articulate their will to achieve an objective; it is the decision-making cycle that John Boyd has synthesized with the famous OODA acronym. Third, the definition recognizes the interaction between a machine and human being. Yet, the machine is "an apparatus using mechanical power and having several parts, each with a definite function and together performing a particular task."[39] Therefore, the machine is a system of elements. *Warfighting* describes war as a clash between opposing wills where each belligerent is not guided by a single intelligence because it is a complex system consisting of numerous individual parts.[40] To achieve full autonomy in warfare, the critical factor is the development of general all-encompassing artificial intelligence (AI) able to coordinate multiple modular artificial intelligences integrated in every subsystem of warfare.[41] As a result, with the sophistication of AI, the future of warfare may involve operations in which the human decision maker is almost out of the loop, thus fully autonomous (figure 3).

Figure 3. Parallelism between autonomous weapons and autonomous warfare



Source: Courtesy of the author, adapted by MCUP.

The idea of autonomous warfare carried out by autonomous systems raises critical concerns of ethical and existential nature. In 2014, Stephen Hawking warned us that "the development of full artificial intelligence could spell the end of the human race."[42] The competition among major powers is accelerating the race for the acquisition of autonomous weapon systems more powerful than their peers. China aims to use AI to exploit large troves of intelligence, with the objective of generating a common operating picture, thereby accelerating battlefield decision making.[43] Russia continues to pursue its defense modernization agenda, with the aim of robotizing 30 percent of its military equipment by 2025. In addition, Russia is actively integrating different platforms to develop a swarming capability, the autonomous and deliberate integration of sensors, kinetic, and nonkinetic platforms that will allow it to operate in absence of human interaction.[44] The U.S. Department of Defense has a more conservative approach to AI. The *Summary of the 2018 Department of Defense Artificial Intelligence Strategy: Harnessing AI to Advance Our Security and Prosperity* has directed the use of AI in a human-centered manner, in particular used to enhance military decision making and operations across key mission areas. This approach will improve situational awareness and decision making, increasing the safety of operating equipment, implementing predictive maintenance and supply, and streamlining business processes. In addition, the strategy states: "We will prioritize the fielding of AI systems that augment the capabilities of our personnel by offloading tedious cognitive or physical tasks and introducing new ways of working."[45] Considering all these approaches together, the trends are:

- automation of information gathering and situational awareness;
- enhanced robotization of the battlefield and integration of platforms;
- augmented decision-making processes to increase the tempo of machine execution of missions.[46]

In the near future, it is unlikely that a general artificial intelligence able to solve autonomously every problem in warfare will be effectively deployed in the battlefield and exclude humans entirely from the battlefield.[47] Current capabilities, for example the Navy's Lockheed Martin Aegis weapon system, can operate and in some ways outperform human operators, but only in specific domains. However, technological developments have enabled autonomous systems to coordinate under the supervision of humans and swarm against a given threat, as demonstrated by the U.S. Navy's Control Architecture for Robotic Agent Command and Sensing.[48]

At the tactical level, autonomous capabilities give clear advantages to whom-

ever will be able to deploy them. In a 2016 video, Semenov Dahir Kurmanbievich, a futurist and visionary Russian inventor, has tried to demonstrate in a fictional yet very realistic clip how autonomous weapons could easily destroy adversaries' conventional forces.[49] The main features of autonomous weapons in battle are a low signature, low visibility, low cost, absence of direct human involvement, high precision, increased durability, interconnection among tactical agents, self-repair, and adaptability. As a result, at the tactical level, it is possible to envision a tapestry of interconnected platforms that are able to deliver the same or greater fire power with less human and economic costs.[50] The Marine Corps is testing robotic war balls, an unmanned device that supports the establishment of the beachhead during the most dangerous phase of amphibious operations—the ship-to-shore movement.[51] These autonomous systems might help set conditions for a safer landing of forces by swarming and storming the enemy's defense systems ashore.[52] An attack of this kind can only be defended by systems that operate quickly, with autonomy and intelligence, accelerating the need for automation.[53]

Domain-specific AI will transform conflict, and like previous innovations in military capability, AI has the potential to profoundly disrupt the strategic balance. At the strategic level, AI may play two different roles. First, the realization of the most efficient and effective AI will be critical to achieve the asymmetrical advantage against competitors; therefore, it may redesign the balance of power on the global scale. Indeed, one of the objectives of the 2018 *National Defense Strategy* is to "invest broadly in military application of autonomy, artificial intelligence, and machine learning, including rapid application of commercial breakthroughs, to gain competitive military advantages."[54] Second, the race to field autonomous weapons in the battlefield may jeopardize civil-military relationships over the control of the development of AI. Businesses and industries in the sector have already surpassed the military world in the research and application of autonomous systems, raising concerns and tensions.[55] In this regard, the U.S. *National Security Strategy* recognizes the strategic impact of AI, calling for a shared responsibility with the private sector in those instances that can affect national security.[56]

Critical applications of AI and autonomous systems may serve to augment the ability to predict patterns and visualize potential threats.[57] An augmented operational planning team may develop courses of actions or test military contingency plans, providing unanticipated recommendations due to the unparalleled amount of information that an AI can process.[58]

It is likely that in the future the decision-making process will see the introduction of autonomous technologies that will significantly impact many facets of the OODA loop: the observation (O), orientation (O), and action (A) phases. It will, however, result in further centralization of the decision (D)

phase. The automation of armed conflict offers such clear opportunities as to represent the next asymmetrical advantage. In broader terms, autonomous systems are considered the solution for uncertainty, power projection in contested environments, and less dependency on human personnel. The relationship between humans and autonomous systems may change the dynamics of command and control functions. A traditional staff assessing the risk of a military intervention is influenced by imperfect information. Modular AI might help in the near future to analyze and assess risks, with a smaller percentage of error. Such technology is already available in the medical field, increasing diagnostic accuracy.[59] From a political perspective, a potentially risk-free operation with a limited domestic impact might make the decision to use military power easier and more likely to occur.[60]

In 2007, U.S. Marine Corps General James E. Cartwright predicted that "the decision cycle of the future is not going to be minutes. . . . The decision cycle of the future is going to be microseconds."[61] In the near term, engagement of forces will probably be made in split seconds for every entity that owns that capability. Future command and control architectures will see combined ground- and space-based sensors, unmanned combat aerial vehicles, and missile defense technologies, augmented by directed energy weapons. In addition, the human-based decision-making process will be affected by the data overload produced by the proliferation of information-based systems.[62] Given the ability to engage faster and with smaller systems, defenders will not be able to observe the activity, orient themselves, decide how to respond, or act on that decision. Attackers will try to place themselves inside the defender's OODA loop, shattering the adversary's ability to react.[63] The loop of action-reaction-counteraction that has informed the military decision-making process so far will become too fast and unpredictable for humans to manage in a traditional way.[64] At the strategic and operational levels, the centralization of the decision-making process might be the most favored to deal with a "flash war" and its required reactivity, the short time available, and the force dispersion.[65]

Autonomous agents can cope far better than human beings—and more efficiently—with huge quantities of information. Without susceptibility to cognitive biases, they are not affected by physical factors such as fatigue or to the adoption of human heuristics to make connections in data that may not be warranted.[66] At the strategic level, decision makers assisted by an AI able to offer recommendations may perceive the function of automated systems as an all-seeing oracle, which could result in replacing the advisory function of qualified staff.[67] The critical implication is the enhancement of two psychological aspects linked to the decision-making process. On one side, the oracle may augment the sense of agency of the decision maker, even if not directly experienced in warfare.[68] On the other side, it may supplant the arduous mental activities that

a critical decision demands, reducing the relevance of the experienced staff in favor of the speed of computer-based advice.

Autonomous warfare will be characterized by integration of systems, information dominance, amplified standoff weapon technologies, and a misleading perception of risk-free implications (e.g., reduced risk to friendly ground troops in a war waged by autonomous systems). Modular AI can be programmed to deal with a full range of strategic issues. It is not difficult to envision a tendency to escalation dominance with the aim to force the adversary to surrender.[69] All this can be highly destabilizing and might encourage preemptive attacks, as well as prompting developments in new forms of asymmetric warfare.[70] The instantaneous decision making implied in high-intensity operations, in cyberspace, and in the employment of missiles and unmanned vehicles moving at velocities exceeding the speed of sound have led to warnings about hyper war.[71] Clausewitz rightly noted,

> the maximum use of force is in no way incompatible with the simultaneous use of intellect. If one side uses forces without compunction, undeterred by the bloodshed it involves, while the other side refrains, the first will gain the upper hand. That side will force the other to follow suit; each will drive its opponent toward extremes, and the only limiting factors are the counterapproaches inherent in war.[72]

Conclusions

Technological innovations give an effective advantage to the ones who possess the technology. The important role of technological innovations during World War II, such as the radio, radar, tanks, and others is indisputable. Nevertheless, technological innovation in isolation will have a limited impact if it is not well integrated into an overarching culture and philosophy of warfare. During the interwar period, the German *Reichswehr* was able to capitalize on technological innovations by integrating them into a doctrine that pursued fighting at a greater distance, with faster execution, and through increasingly combined units of different arms. The German General Staff became a critical asset to cope with and properly process a great amount of information. The *Auftragstaktik*, the command philosophy of the *Reichswehr*, was improved to serve the concept of "short and lively" warfare.[73] But the idea of seeking "short and lively" campaigns was indeed a traditional approach in the German Army, and its roots went far deeper than during the interwar period. The strong German military culture played a primary role in the development of modern and effective tactics that gave German soldiers a significant advantage over their opponents at the beginning of World War II.

Indeed, the *Auftragstaktik* has influenced the contemporary mission com-

mand philosophy in many modern doctrines as the most effective approach to deal with the uncertainty of warfare.[74] With current military capabilities, commanders can get a technological and almost omniscient view of the entire battlespace with a near global reach. This very aspect informs the net-centric warfare. However, this all-seeing view might clash with the original idea of *Auftragstaktik*. The difference between the application of decisional autonomy or mission command in past and modern warfare could not be more striking. It is interesting to note that while the German *7th Panzer Division* in the invasion of France at the beginning of World War II enjoyed decisional autonomy, during the 2003 march up in Iraq, the 1st Marine Division's entire chain of command observed from afar the maneuver because the higher headquarters "wanted to know where Land Component units were."[75] In the latter case, the autonomy of the 1st Marine Division commander was a matter of choice of the upper command echelons. The NCW structure, in fact, could have allowed the detailed control of the fighting force, something not applicable to the German *7th Panzer Division* in World War II given its available technology. In military operations other than war, such as counterinsurgency operations in Afghanistan, the amount of control at the lowest level is even more critical. For example, in many cases, the targeting approval authority is the theater commander even if the tactical operation is performed by units at the squad and platoon level.[76]

Technology advancement is adopted to address military leadership's need for certainty, even though the defining problem of command and control that overwhelms all others is the need to deal with uncertainty.[77] This is an irreversible trend ingrained at every level of warfare. It may also be the result of a Western military culture eager to commit forces to fight quickly, precisely, and distantly but also be less prone to the indiscriminate use of violence to prevent excessive human casualties (friendly, enemy, or civilians). In this context, the natural likely result might be a return to traditional command and control, where both command and control are possibly seen as unidirectional rather than as a reciprocal influence. Moreover, if the strategic commander is virtually colocated with the tactical one, the operational commander may disappear or at least might be bypassed by the overlapping of the other two levels. The potential risk associated with this trend is the micromanagement of warfare at the expense of mission command.

The integration of autonomous weapons is a key aspect of future warfare. Automation augments the decision-making process and the tactical execution of military actions. Current technologies still need a human on the loop at least. Soon, the creation of effective autonomous systems, with humans nearly out of the loop, will have dangerous consequences at the strategic level and a possible detrimental impact on the balance of power. The possibility of a risk-free war

based on oracle-like advice from autonomous machines and tireless autonomous weapon systems might make the pursuit of preemptive and preventive war appealing as a strategy to acquire an asymmetric advantage over the enemy. Clausewitz warned that it is possible that such an approach might escalate the confrontation among competitors, rather than achieving a prompt surrender.[78]

The same idea of bias-free artificial intelligence is mistaken, invalidating overreliance on a perfect solution. Modular artificial intelligence and machine learning, the foundation of autonomous systems, are limited by the dataset that a human programmer has integrated in the development of the algorithm (therefore potentially biased from humans from the start). In fact, scientific articles caution the use of artificial intelligence in risk-related matters.[79] At the tactical level, important questions rise from an ethical standpoint. In an information-degraded battlefield, autonomous agents will have the delegation of the control of tactical actions, based on a programmed artificial intelligence that might diverge from the application of the just-war criteria. Political and strategic leaders will face critical ethical dilemmas, as allowing autonomous systems to perform their warfare tasks freely may result in an escalation of the uncontrollable (and possibly indiscriminate) use of violence. On the contrary, restraining the development and use of autonomous systems leaves opposing powers in a position of strategic advantage. The ability to balance the decision-making process between the indiscriminate use of automation or its blind confinement, therefore, can only be achieved through the advisory role of senior and experienced military leaders who will fill the gap between the oracle-like use of the autonomous systems and the personal human judgment of the political and strategic decision maker.

Endnotes

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Exploring Predictability in Armed Conflict

David E. McCullin

Abstract: This article proposes a direct relationship between complexity and predictability in a two-agent noncooperative zero-sum game (2XZSG). The author explores this proposition by modeling armed conflict as a 2XZSG and using case studies in armed conflict as the dataset for the systematic literature review. This article uses a multiple case study approach, systematically reviewing 13 case studies in armed conflict that yielded 156 references identifying four themes—environmental, human resource, operational, and supply chain constraints—that demonstrate a direct relationship between complexity and predictability. The data focuses on decisions made in particular battles and campaigns as well as the constraints that impacted decision making. By identifying those decisions and constraints, four themes emerged. These four themes are an innovation as a potential addendum to the war gaming methodology in the military decision making process (MDMP).

Keywords: game theory, complex adaptive systems, armed conflict, operational arts, war gaming, strategy selection

Introduction

Concepts Defined

The systematic literature review (SLR) is a well-established method of inquiry for social science research and is defined as an essential component of academic research.[1] It summarizes, analyzes, and synthesizes a group

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of related sources to identify gaps in the literature and create new knowledge. This study mirrors specific procedures and formatting of the SLR to ensure rigor and transparency to produce valid, reliable, and repeatable results.

This study defines *deliberate planning* in terms of simple constructs that describe planning as occurring when organizations take actions to influence future operations. According to David M. Reid, a wide body of consensus exists in the literature portraying planning processes by which organizations identify future opportunities. Other researchers agree that deliberate planning at the strategic level is widely applied. Reid states that identified complications causing a disconnect between strategic and operational planning typically occurs between the strategic and operational levels. These are the constructs employed in this article.[2]

For the purposes of this discussion, a *two-agent noncooperative zero-sum game* (2XZSG) refers to a competitive situation where two independently acting agents seek to maximize their payoffs and minimize their losses relative to the other agent in the game. This means that any gain by one agent is forfeited by the other agent. This study employs the concept of a *two-agent turn-based stochastic game* (2TBSG) as explained by Thomas Dueholm Hansen and Ramsus Ibsen-Jensen, in which the characteristics of the game are turn-based rounds of actions; reactions; and counteractions, also called strategies.[3]

Each round of a 2XZSG produces a final state resulting from a finite set of actions. In any given round, each player attempts to minimize costs and maximize payoffs. These characteristics define armed conflict as a 2XZSG. In this context, combatants are players who initiate combat operations (i.e., rounds of the game where actions produce an end state) that result in victory (i.e., maximizing payoff with minimum cost) or defeat (i.e., maximizing cost with minimum payoff). In this context, armed conflict is framed as a stochastic game in recognition of the fact that the finite set of actions in each round are associated with probability. But determining the probability of an action in this context is an intuitive process based on supporting evidence rather than a pure mathematical solution.

In this study, *complex adaptive systems* are employed as defined by six seminal authors in complex systems theory.[4] According to Benoit Morel, Rangaraj Ramanujam, Cesare M. Scartozzi, Andreas Ortmann, Leonidas Spiliopoulos, and Le Zhang, complex adaptive systems have three main characteristics: a large number of interacting elements such as people, places, and situations; feedback mechanisms that adapt the system by competition or gaming; and emergent properties that are empirically verifiable.[5] *Complex systems theory* refers to a research perspective used to describe the different facets of complex systems based on the characteristics of the system studied, the analytical tools used, and the

dominant paradigms that characterize the system.[6] In this case, the system studied is armed conflict as a 2XZSG occurring in the complex adaptive system of international relations; the analytical tool is constraints analyses that identify predictable strategies; and the paradigm is armed conflict as an extension of politics to manage conflict. Because the complexities of this paradigm create constraints that limit strategy selection in armed conflict, a measure of predictability is added to armed conflict.

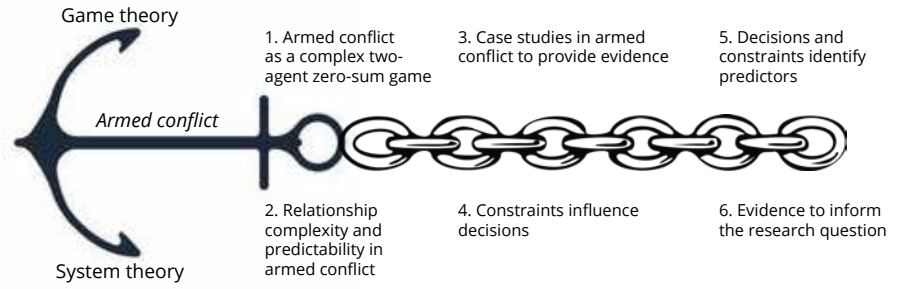
Bounded rationality refers to the idea that the limits of the human mind are challenged by the complex nature of obtaining, screening, and processing information and the process of interpreting that information for decision making. According to Herbert A. Simon, decision makers are capable of rational decision making until overwhelmed by the complexities within a system that limits human capabilities. At this point, rationality gives way to the decision maker's cognitive capability limitations, which is typically information the decision maker preconceives or rationalizes and is not based on evidence.[7] This definition also relies on the concept of *confirmation bias*, in which decision makers favor information consistent with their beliefs while downplaying information that is inconsistent with their beliefs.[8]

The *theory of constraints* is defined as having origins in manufacturing but impacts many other applications that are involved in continuing improvement processes. Constraints are also framed in terms of duration and sequencing within a system. Eliyahu M. Goldratt explains that the theory of constraints is the basis for defining change as continuously improving performance. He also argues that constraints limit system performance.[9] Mahesh Gupta and Joseph Kline identify and manage constraints with a five-step process: 1) find the system limits; 2) decide how to make full use of the system limits; 3) offer full support to those decisions; 4) break the system limits; and 5) continue to identify new constraints.[10] These are the constructs employed in this article.

The approach for this study was to rely on the author's experience as a former planning practitioner and incorporate the author's new path as a scholar to conduct an inductive study on advanced strategic and operational planning to innovate the war gaming process in the MDMP and to provide the basis for further research in deliberate military planning.

The author's experience as an operational planner led to the proposition that complexity limits choice, and that limited choice in a game increases predictability. In strategic planning, the focus on constraints provides an alternative perspective, allowing commanders to inform decision from a new perspective. To explore that hypothesis, this article uses an SLR to examine the relationship between complexity and predictability in zero-sum games using a multiple case study approach. The model for this exploration is based on armed conflict

Figure 1. Conceptual logic chain



Source: Courtesy of the author, adapted by MCUP.

framed as both a complex adaptive system and a two-agent zero-sum game. This model will be explained in detail in the conceptual framework section and is depicted in figure 1.

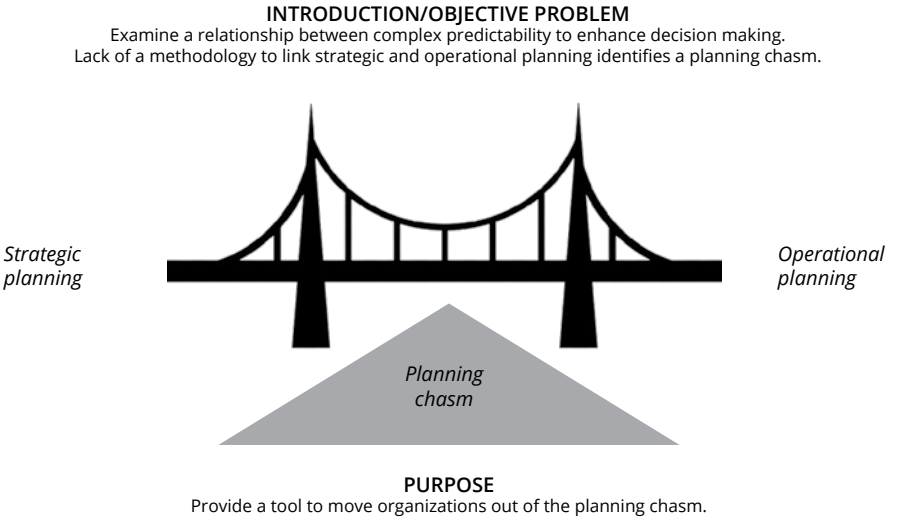
Problem Statement

This study addresses a chasm between strategic and operational planning. The strategic and operational planning process often becomes static following the completion of a strategic plan for lack of a process to execute the goals and objectives of that plan, which creates a chasm between the two planning levels. In military planning, operational arts practitioners bridge the chasm between strategic and operational planning using a deliberate process that analyzes the actions; reactions; and counteractions, or wargaming strategy selection processes, of the agents in the game.

Organizations lacking a wargaming strategy selection processes fall into the chasm between strategic and operational planning and are forced to react to the obstacles impeding the completion of their goals and objectives rather than anticipate how to manage them (figure 2). Such a disconnect demonstrates the need for an implementable wargaming strategy selection processes. This study examines examples of armed conflict to offer planners an evidence-based approach to bridging these two types of planning. It also offers military operational arts practitioners an enhancement or alternative to deliberate planning processes specific to wargaming.

Excluding the introduction and background, this study contains four major sections. The first discusses the rigor and transparency associated with identifying the literature used in this appraisal. The second illustrates the quality of the literature using a weight of evidence framework. The third focuses on the coding and synthesis of the data from the identified sources. Finally, the fourth offers implications and recommendations.

Figure 2. Planning chasm model



Source: Courtesy of the author, adapted by MCUP.

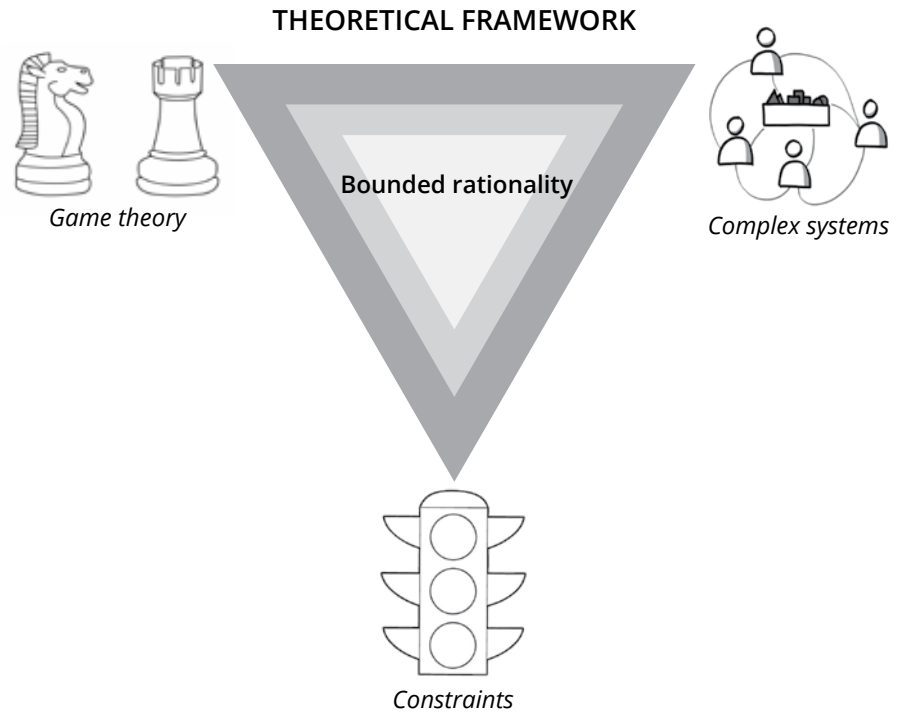
Background

Theoretical Framework Constructs

The theoretical lens for this study draws from the constructs of four established theories: game theory, complex systems theory, bounded rationality, and the theory of constraints (figure 3). Game theory frames armed conflict as a 2XZSG, the basics of which involve decision-making agents with opposing objectives, according to John von Neumann and Oskar Morgenstern.[11] Another component of a 2XZSG is equilibrium, which, according to Mihai Alexandru Suciu, Gaskó Noémi, and Lung Rodica Ioana, occurs when game agents' payoffs are impacted by the decisions of the other game agents.[12] A third component is cost. Hansen and Ibsen-Jensen explain that each agent's objective in a 2XZSG is to select strategies that maximize gains and minimize costs because each agent's gain is an opposing agent's loss.[13]

In this context, complexity theory frames armed conflict as a complex adaptive system with self-organization. Change is an integral part of complex adaptive systems because it keeps the system functioning through feedback loops, which act as adaptations to bring the system into a new steady state with new forms of organization.[14] In armed conflict, it is often the case that an engagement takes an unanticipated turn that is subsequently addressed by innovation, which then becomes the new doctrine, as is the case in complex adaptive systems. The theory of constraints frames the concept of predictability in complex systems.

Figure 3. Theoretical framework model



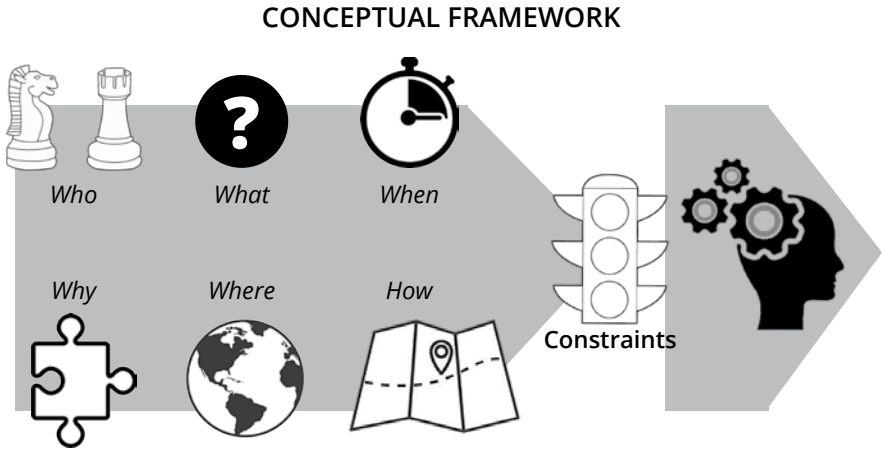
Source: Courtesy of the author, adapted by MCUP.

Shelja Jose Kuruvilla explains that the theory of constraints was originally a manufacturer's application, developed by Eliyahu M. Goldratt, that has evolved to employ concepts, principles, solutions, tools, and approaches designed for ongoing improvement using feedback loops similar to what occurs in complex adaptive systems.[15] In this study, constraints are defined as instruments that identify predictable strategies in armed conflict. This study also discusses constraints as mechanisms that initiate innovation in armed conflict.

Conceptual Framework

Developing, staffing, mobilizing, adapting, and controlling the many interacting subsystems required to afford a nation or state the ability to engage in armed conflict makes armed conflict a complex adaptive system. As with any complex adaptive system, armed conflict incurs self-organizing subsystems that manifest as battlefield innovations. Additionally, the actions, reactions, and counteractions that occur in armed conflict classify it as a 2XZSG, where opposing agents attempt to enhance their payoffs at the expense of their opponents' payoffs through strategy selection (figure 4). The who, what, when, where, and how

Figure 4. Conceptual framework



Source: Courtesy of the author, adapted by MCUP.

represent decisions; the traffic signal signifies constraints and innovation; and the human thinking icon represents predictability emerging from constraints.

This framing provided three advantages that facilitated data collection and analysis in this study. First, armed conflict is extensively covered in books, periodicals, and film documentaries, which provided a vast repository of case studies. Second, the use of case studies in armed conflict enabled the identification of decisions or gaming associated with executing campaigns and battles. Third, those case studies facilitated the analysis of constraints that influenced the decisions made. The SLR of sources on armed conflict, the identification and analysis of decisions and constraints, and the discovery of emerging themes provide evidence that defines the relationship between complexity and predictability in a 2XZSG.

Research Question

This research question is developed using the Population, Intervention, Comparison, Outcome, and Context (PICOC) guide from the Center for Evidence-Based Management's *Guideline for Rapid Evidence Assessments in Management and Organizations*:[16]

- **Population:** strategic planners engaging in zero-sum games, seeking payoffs that advance their agency relative to a competing agency.
- **Intervention:** an alternative methodology for considering strategy selection in zero-sum games.
- **Comparison:** the current process for strategy selection in de-

liberate planning where the two-agent zero-sum games employed do not consider constraints that limit strategy selection. Comparatively, the existence of predictors in strategy selection afforded by complexity offer alternative considerations.

- **Outcome:** a tool for decision support in deliberate planning.
- **Context:** strategic planners and corporations planning counteractions resulting from an initial action and an agent's reaction.

Research Question: By viewing armed conflict as a complex adaptive system and a two-agent zero-sum game, what will a systematic review of case studies in armed conflict reveal about a relationship between complexity and predictability?

The criteria for inclusion is as follows:

- Studies relating to armed conflict.
- All case studies related to battle or campaign analysis.
- A systematic review of case studies.
- Open-ended dates of publication to present for meta-analyses and for primary studies.
- Analysis of the effects of decision making on organizational outcomes.
- Analysis of how decisions were impacted by constraints and what patterns, if any, were identified.

The criteria for exclusion is as follows:

- Studies in languages other than English
- Studies without a nexus to battle or campaign analysis.
- Studies or data not relevant to the PICOC.

The impetus for this study was preparing a manuscript as a precursor to the author's dissertation, which will also explore the relationship between complexity and predictability in 2XZSGs. The literary repository informing the dissertation has been under development for more than a year and is therefore the same repository used for this study. The dissertation repository includes more than 100 sources that were collected using specific search terms (table 1).

The overall data collection strategy was to implement a pull approach with a building block method. According to Eric Barends, Wendy Carroll, Blake Jelley, and Denise Rousseau, a *pull approach* refers to a five-part process that starts with a research question followed by a literature search, a critical appraisal of research, an approach to applying evidence, and the application of that

Table 1. Search strategy

Specific search terms	Sources	Connectors
Case studies in world wars	13,517	
Case studies World War I; World War II	600	
Case studies in war	41,887	
Case studies in war AND	1,639	And: the battle of

Source: Courtesy of the author.

evidence.[17] The *building block method* occurs as each search string informs and refines the following string, narrowing the range of sources until the final selections are made. The strategy used in this study was to bolster the author's existing dissertation repository with specific search strings and to narrow the field of literature with inclusion and exclusion criteria and random selection, ultimately choosing between 15 and 20 case studies. Supporting data for theoretical and conceptual frameworks were also needed, and additional search strings were designed to ensure that the data was available.

Machine learning facilitated the final selection of literature to review. The machine learning algorithms programmed into the search engine sorted the selection pool in terms of relevance in descending order, making the top of the list the best place to select relevant sources. The inclusion and exclusion criteria were then applied to the first 50 case studies in the search results list to select the final 20 sources (table 2).

Data Extraction

The data extracted from the case studies informed the research question and supported its theoretical and conceptual frameworks. Data was collected by reading the scholarly articles and extracting relevant references. Each case study covered a separate battle or campaign, which also represented a separate complex adaptive system and 2XZSG. Each case was reviewed to identify two factors: 1) a decision relating to executing a battle or campaign, and 2) the constraints that influenced that decision.

Critical Appraisal and Data Synthesis

This section explains the scoring of each case study by a *weight of evidence* framework, which was used to conduct the SLR for quality.[18] The case studies were evaluated by criteria designated as weight of evidence "A," "B," "C," and "D." "A" is defined as generally appropriate research methods; "B" as methods appropriate to the specific research question; "C" as evidence appropriate to the research question; and "D" as an overall assessment. A numerical scale was ap-

Table 2. Final data set of case studies

Author	Title and year of publication
Abbey, Josh	"Two Blockades and a Battle: The Significance of the Battle of Jutland" (2018)
Alexander, Martin S.	"After Dunkirk: The French Army's Performance against 'Case Red,' 25 May to 25 June 1940" (2007)
Anderson, Ross	"The Battle of Tanga, 2–5 November 1914" (2001)
Armstrong, Michael J., and Steven E. Sodergren	"Refighting Pickett's Charge: Mathematical Modeling of the Civil War Battlefield" (2015)
Bechthold, Michael	" 'One of the Greatest Moments in My Life': Lessons Learned on the Canadian Battle of Normandy Foundation Battlefield Tours" (2005)
Bishop, Benjamin W.	*Jimmy Doolittle: The Commander behind the Legend* (2015)
Gann, Timothy D.	*Fifth Air Force Light and Medium Bomber Operations during 1942 and 1943: Building Doctrine and Forces that Triumphed in the Battle of the Bismark Sea and the Wewak Raid* (1993)
Grattan, Robert F.	"Strategy in the Battle of Britain and Strategic Management Theory" (2005)
Haulman, Daniel L.	"Before the D-Day Dawn: The Performance of the Troop Carriers at Normandy" (2014)
Hone, Trent	" 'Give Them Hell': The U.S. Navy's Night Combat Doctrine and the Campaign for Guadalcanal" (2006)
Murray, Jennifer M.	"The Rebellion's Reality Check" (2019)
Neiberg, Michael S.	"The Evolution of Strategic Thinking in World War I: A Case Study of the Second Battle of the Marne" (2011)
Philpott, William	"The Anglo-French Victory on the Somme" (2006)
Salmi, Derek M.	*Slim Chance: The Pivotal Role of Air Mobility in the Burma Campaign* (2014)
Sellick, Gary	" 'They Were Marched Almost Day and Night': The Effects of Sleep Deprivation on the Southern Campaign of the American Revolution" (2016)
Sica, Emanuele	"June 1940: The Italian Army and the Battle of the Alps" (2012)
Stockings, Craig	"The Anzac Legend and the Battle of Bardia" (2010)
Taylor, John	"Hitler and Moscow, 1941" (2016)
Vassie, John, and Byung Ho Choi	"Simulation of Normandy Invasion on 6th of June, 1944" (2018)
Winton, Harold R.	"Airpower in the Battle of the Bulge: A Case for Effects-Based Operations?" (2011)

Source: Courtesy of the author.

Table 3. Critical appraisal (weight of evidence)

Author	A	B	C	D
Abbey, Josh	2	2	2	2
Alexander, Martin S.	2	2	2	2
Anderson, Ross	2	2	2	2
Armstrong, Michael J., and Steven E. Sodergren	2	2	2	2
Bechthold, Michael	3	2	3	3
Bishop, Benjamin W.	2	3	3	3
Gann, Timothy D.	1	2	3	2
Grattan, Robert F.	2	2	2	2
Haulman, Daniel L.	2	2	1	2
Hone, Trent	3	3	2	3
Murray, Jennifer M.	1	1	1	1
Neiberg, Michael S.	3	3	3	3
Philpott, William	2	2	2	2
Salmi, Derek M.	3	2	3	3
Sellick, Gary	3	3	2	3
Sica, Emanuele	3	2	2	3
Stockings, Craig	3	2	2	3
Taylor, John	2	2	2	2
Vassie, John, and Byung Ho Choi	1	1	2	2
Winton, Harold R.	3	2	3	3

Source: Courtesy of the author.

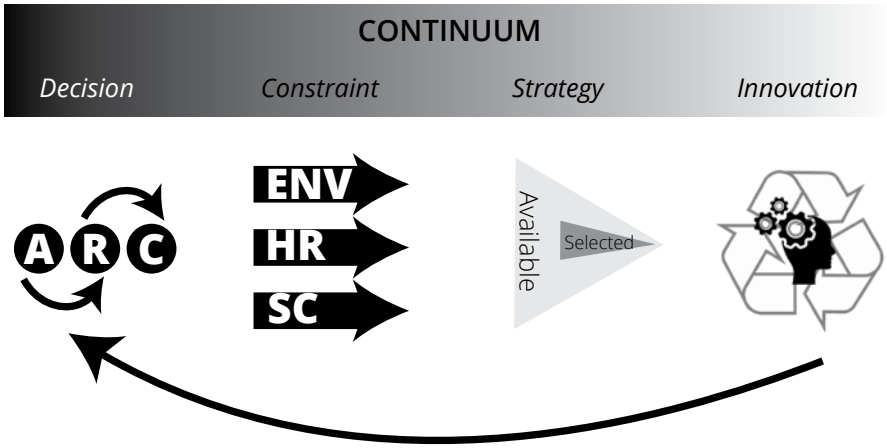
plied to assess each weight of evidence category for all sources. The scale ranges from 1 to 3, where 3 represents the highest quality and 1 represents the lowest (table 3).

Synthesis

The coding and synthesis employed in this SLR resulted in a total of 295 references being extracted from the 20 case studies, which were then translated into four themes representing identified constraints. Altogether, 149 references to environmental constraints came from 14 case studies; 42 references to human resource constraints came from 17 case studies; 58 references to operational constraints came from 17 case studies; and 46 references to supply chain constraints came from 17 case studies.

Environmental, human resource, and supply chain constraints uniquely interrelate with one another, identifying predictable strategies and influencing

Figure 5. Operational constraint continuum



Note: A = actions; R = reactions; and C = counterreactions.
Source: Courtesy of the author, adapted by MCUP.

operational constraints. Operational constraints emerge from game decisions and circumvent environmental, human resource, and supply chain constraints with some operational innovation. This means that operational constraints emerge during a battle or campaign—an example being when new equipment faces outdated tactics, such as the employment of machine guns against a horse cavalry charge. This can be illustrated as a continuum (figure 5).

Operational constraints often result in some game-changing innovation that challenges current doctrine. Supply chain constraints emerge from logistical issues that range from concept through production to deployment. These issues are usually known, recognized, and incorporated into doctrine, and they also influence operational constraints that inspire innovation. Human resource constraints are those involved with fielding soldiers with the required skill sets that are task-organized for their assigned mission. This stretches from recruitment to deployment at the location where they engage in combat operations.

The first case study, describing Allied paratroopers in the invasion of Normandy during World War II, demonstrates how predictability emerges from constraints. Each theme is a compilation of constraints, which lends predictability to the war gaming strategy selection process. There is no particular order of importance or hierarchy among these themes, but as the examples that follow will prove, an interdependence among them is observed where the constraints of one theme impacts others. For example, the English Channel represents an environmental constraint in that crossing it merits considering factors such as distance, weather, and tides. It also involves supply chain constraints such as developing vehicles capable of navigating the distance, weather, and tides and

human resource constraints of moving people with the necessary task-organized skill sets and capabilities to a location where they can be effective.

Case Study Illustrations

This section uses three case studies from World War II to provide a general example of how the 20 sources selected for this study were used to analyze decisions, identify constraints, and illustrate the emergence of predictability and innovation. The three case studies that will be subsequently described involve Allied paratroopers in the invasion of Normandy, the Siege of Bastogne during the Battle of the Bulge, and air mobility in the Burma campaign. These case studies illustrate the impact of environmental, human resource, operational, and supply chain constraints on limiting strategy selection in a 2XZSG.

Allied Paratroopers in the Invasion of Normandy

As told by Daniel L. Haulman in "Before the D-Day Dawn: The Performance of the Troop Carriers at Normandy," on 6 June 1944, 820 aircraft dropped more than 13,000 Allied paratroopers on the Cotentin Peninsula in northern France ahead of the main landing on the beaches of Normandy.[19] The paratroopers' mission was to seize Sainte-Mère-Église, a hub of communication that included a causeway, which led to another D-Day objective—Omaha Beach. The drop, however, was not executed as planned. Approximately 80 percent of the paratroopers landed within 8 kilometers of their intended drop zones, which left them in makeshift command and control scenarios that endured for three days, after which time the Allied airborne divisions were able to reconstitute under their designated chains of command.

This description of airborne operations during the Normandy invasion illustrates how constraints influenced decisions and the predictability that emerged. The most obvious constraint was environmental—how to attack across the English Channel—which influenced both the Allied invaders and German defenders alike. The use of a large airborne force as a precursor to the main landing effort was an operational innovation designed to mitigate the environmental constraints associated with an attack across the channel. Aside from an amphibious crossing, an airborne assault was the only practical course of action to circumvent the environmental constraint, making it a predictable strategy.

Unsurprisingly, supply chain constraints guided the decision to capture critical transportation infrastructure that enabled battle sustainment. Specifically, as the troop airdrop was executed off target, the mission of seizing Sainte-Mère-Église increased in importance to keep lines of communication open. The capture of Sainte-Mère-Église would enable the Allies to circumvent supply chain constraints and allow them to continue their offensive in German-

occupied France from a logistical standpoint. Because of the supply chain constraints identified, the capture of communication infrastructure hubs became a predictable strategy.

An additional constraint occurring as a result of the airdrop was a human resource constraint. Because the majority of the paratroopers did not land in their intended drop zones, a human resource constraint was created, since they were not task-organized with the required skill sets or at the locations where they were required to complete the task at hand. This prompted a subsequent operational constraint in that the chains of command were disassociated. However, commanders on the ground innovated by reconstituting into makeshift units to complete the mission. Because of the human resource constraint resulting from the inaccuracy of the troop airdrop, the predictable strategy was to delay reconstitution of units by designation and create temporary units to continue the mission.

The Siege of Bastogne during the Battle of the Bulge

Harold R. Winton's "Airpower in the Battle of the Bulge: A Case Study for Effects-Based Operations?" demonstrates how constraints lead to predictability in strategy selection in 2XZSGs.[20] As Allied forces moved from the beaches of Normandy across France and the Low Countries toward Berlin, they captured the town of Bastogne in Belgium. In the meantime, German forces planned a counterattack. Although the German offensive was anticipated by the Allied high command, there was no consensus as to where it would occur. Prior to the Battle of the Bulge, the Allies had advanced through France and Belgium on a wide north-south front with the forward edge of the battle area stretching from the Netherlands to Switzerland. On 16 December 1944, German forces launched their counterattack, pushing the Allies back and creating what appeared as a bulge on the Allies' situational map. The German offensive left the U.S. 101st Airborne Division surrounded at Bastogne for seven days, after which time it was relieved by elements of the U.S. Third Army.

Bastogne was significant as a hub for land and sea lines of communication, which are major enablers for circumventing environmental, human resource, and supply chain constraints that prevent the dispatching and free flow of personnel and equipment to sustain combat. Eight main roads leading through the difficult terrain of the Ardennes Forest passed through Bastogne, and the town also offered the best access to a major seaport at Antwerp, Belgium. Both the Allied and the German forces recognized the importance of Bastogne for these reasons. Because the Allies held Bastogne immediately prior to the Battle of the Bulge, environmental, supply chain, and human resource constraints were placed on the German forces, which denied them an environment where they could move freely. This, in turn, prevented them from dispatching human re-

sources and establishing a supply chain to enable their warfighting capabilities.

Operationally, the Germans had lost Bastogne to the Allies in combat. Theoretically, they had forfeited Bastogne in a 2XZSG of armed conflict. Because of the environmental, human resource, and supply chain constraints placed on the German forces, their available strategy was limited to a counterattack at Bastogne. Although the actual time and location of the counterattack were not known by the Allies, Bastogne was the predictable location because it would enable the Germans to circumvent those identified constraints. According to the theory of constraints, constraints are associated with a longer duration before they are circumvented and a shorter duration after they are circumvented. Therefore, the longer the Germans waited to counterattack, the more constrained they would become in terms of time and space between the advancing Allied front and Bastogne. This made the counterattack imminent as opposed to delayed. The actions, counteractions, and reactions among the German and Allied forces thereby illustrates armed conflict as a 2XZSG occurring in a complex adaptive system where predictability emerges from complexity.

Air Mobility in the Burma Campaign

Derek M. Salmi's *Slim Chance: The Pivotal Role of Air Mobility in the Burma Campaign* demonstrates how a single battle became the catalyst for the emergence of a major shift in military doctrine.[21] The Second Battle of Arakan marked the second Allied offensive in the Arakan Province of Burma against Imperial Japanese forces. This case study specifically illustrates an operational innovation that emerged from a 2XZSG in a complex adaptive system. In this example, the elements of the complex adaptive system are the environment, time, and the opposing Allied and the Japanese forces. In terms of environment, Burma is twice the size of Great Britain and nearly twice the size of Japan, spanning almost 420,000 square miles of jungle, hills, mountains, and swamps. The monsoon season lasts from May through October, and the country generally exists without main supply route networks. Finally, the Allied and Japanese forces were arrayed in an environment conducive only to jungle warfare.

After nearly two years of successes and defeats traded back and forth between the Allies and Japanese, the Second Battle of Arakan began in February 1944. In their movement to contact the enemy, the Allies were outflanked by the Japanese, who surrounded them and established roadblocks that diminished the Allied supply chain. The Japanese high command anticipated an attempted Allied withdrawal before they could close in and destroy the Allies. Rather than withdraw, however, the Allied forces dug in, forming a 1,000-square-yard defensive perimeter with interlocking fields of fire. Fairly consistent with their doctrine stipulating that forces should deploy with enough supplies to last 10 days—in actuality, they deployed with enough for just 7—the Japanese moved

in for what they considered a rapid victory. Because their roadblocks diminished the Allied supply chain, the Japanese assumed the Allies would soon deplete their stores of ammunition and rations and be forced into capitulation. But while the roadblocks had weakened Allied resupply efforts, the Allies used modified aircraft to drop 60 tons of supplies into their defensive box perimeter daily. These innovations allowed the Allies to accomplish two critical factors attributable to their success: first, they were able to attrite the Japanese forces, who ultimately ran out of rations and ammunition; and second, they were able to fix their location around the box perimeter, allowing time for the arrival of reinforcements. These innovations resulted in new doctrine on air supply.

This study has proposed a direct relationship between complexity and predictability in a 2XZSG and explored this proposition by framing armed conflict as a complex adaptive system and a 2XZSG. The data was extracted from case studies in war where command decisions are recognizable. As demonstrated in the three case studies above and the SLR synthesis, identifying constraints can reveal predictable strategies. This both informs the research question and indicates a direct relationship between complexity and predictability in a 2XZSG.

Limitations

This study has provided evidence of a positive relationship between complexity and predictability in a 2XZSG with four themes. Based on these results, organizations without a war gaming strategy selection process can select strategies based on an analysis of environmental, human resource, operational, and supply chain constraints to create the basics of a war gaming strategy selection process. Although this basic 2XZSG approach will move an organization away from the planning chasm, this study does not account for three important factors. First, the numerous applications of 2XZSGs that occur throughout society in our daily dealings with one another and are not executed by planning practitioners were not considered. Second, the predictive themes identified in this article overlap with one another, seemingly influencing decisions with a level of interdependency that was not measured or explored. Third, adverse selection theory is an additional lens through which to view supplementary research on this topic.

Implications for Further Research and Recommendations for Practice

This study uses the constructs of 2XZSGs, complex adaptive systems, and armed conflicts as a conceptual model to explore how complexity limits strategy selection and adds predictability to gaming. To demonstrate implications and make recommendations, the following example of a combat scenario will be explained and subsequently deconstructed for general management application.

Corporate strategists should treat planning as a 2XZSG and a complex adaptive system by evaluating their planned actions, reactions, and counteraction in terms of environmental, human resource, operational, and supply chain constraints to identify predictable strategies that support their decisions. In the Bastogne case study, the mission of the Allied forces was to maintain a warfighting capability by holding the town. To do this, they needed to mobilize people and equipment over time and space. The planning for this change could be accomplished by analyzing the constraints relating to planned actions, competitor's reactions, and subsequent counteractions to look for predictable strategies and make decisions.

Four recommendations resulted from this study, three of which center on the previously identified limitations. The first is to reframe the problem statement to apply to numerous applications of game theory occurring in society rather than solely to the chasm between strategic and operational planning. The second is to further develop the four themes to explore whether or not the resulting codes will function independently or overlap as identified in this article. The third is to add adverse selection theory to the existing theoretical framework constructs to explore how asymmetric information impacts strategy selection by using constraints analysis. Finally, the fourth is to develop a conceptual model for war gaming strategy selection process with an applied constraints analysis. A conceptual model will allow the development of a Constraints Analyzing War Gaming Strategy Selection Process (CAWGSSP) to be tested against the basic Nash equilibrium prisoner's dilemma game in which agents attempt to enhance their payoffs relative to opponents' payoffs through strategy selection.[22] These recommendations will contribute to the growing body of knowledge associated with game theory.

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Protectors without Prerogative
The Challenge of Military Defense against Information Warfare

Christopher Whyte, PhD

Abstract: This article considers the unique threat of information warfare and the challenges posed to defense establishments in democratic states that are typically legally limited in their ability to operate in domestic affairs. This author argues that military strategy on information warfare must be informed by understanding the systems of social and political function being targeted by foreign adversaries. Looking to theories of political communication, the author locates such understanding in describing democracies as information systems whose functionality resides in the countervailing operation of key social forces. Defense establishments would do well to develop greater analytic capacity for prediction of attack based on such societal—rather than strategic—factors and incorporate these predictions into efforts to shape adversary behavior in cyberspace, the primary medium via which information warfare is prosecuted today.
Keywords: information warfare, cyber, democracy, persistent engagement, subversion

In following professional conversations and punditry on national security in recent years, it would be hard to escape the conclusion that information warfare and political interference—often enabled and augmented by offensive

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cyber operations—has rapidly become one of the most pressing threats facing Western democracies. Since at least 2013, nearly two dozen countries across the West and the former Soviet sphere have been victims of interference operations conducted by the Russian Federation.[1] These campaigns, substantially prosecuted via the manipulative use of social media platforms, troll farms, and fabricated news content, have targeted all manner of sociopolitical process—from preelection and referenda debates to issue-specific political marketing efforts—and have often included the application of other elements of state power, including cyber operations, human espionage, dark money, and limited military force.[2] The Russian Federation is not the only world power to have turned to political warfare augmented by sophisticated digital methods with such gusto. The People's Republic of China, the Islamic Republic of Iran, Syria, and the so-called Islamic State have all prosecuted political warfare principally via digital platforms and often augmented by cyber means against Western polities with increasing intensity and sophistication during just the past few years.[3]

Beyond simply the rising tide of information operations enabled by the internet, interference operations wherein information is weaponized to disrupt democratic social and political processes are concerning because near-term developments promise to make them both more robust and accessible. Machine learning techniques used to create deepfake media content, where fabrication is immensely difficult to distinguish from reality, for instance, is not only worrying because of the fidelity of the fake news product.[4] The underlying algorithms involved are adversarial, which means that attempts to make better tools for analyzing the authenticity of video or imagery—even utilizing machine learning approaches to do so—will simply strengthen the fabricated production over time.[5] Moreover, the software needed to create deepfakes is becoming more widespread, with applications to produce reasonable quality fake productions even now available for little to no cost in easy-to-access web stores. In short, information warfare is, by the very nature of the technologies that now enable it within the modern global media environment, likely to become a *more* common feature of international affairs even as Western states take steps to defend against and deter unwanted foreign interference.

This article considers the unique threat of information warfare and the singular challenges posed to defense establishments in democratic states that, while tasked to secure national interests and ensure the integrity of the polity, are typically legally limited in their ability to operate in domestic affairs. Even more so than has been true with the pivot toward greater effectiveness in defining the mission of national militaries that are increasingly operating in the cyber domain, the specter of broad-scoped influence operations dictates an expansion of the national security enterprise that can be difficult to onboard. For example, the term *information warfare* is often used by military practitioners to

simply refer to the range of security actions—from military deception efforts to electronic warfare and sensor manipulation—that involve the employment of information as the principal tool of active engagement.[6] In the digital age, many practitioners have written of information warfare and cyberspace explicitly in terms of countercommand/control warfare, wherein the value of offensive use of the internet is in those distinct opportunities for disruption or manipulation of the military control cycle.[7] By contrast with such usage, the references to information warfare made in the remainder of this article reflect a colloquial pivot toward the description of broad-scoped psychological operations (psyops) that blend the use of different elements together to influence information systems less tangible than servers and computers—those of democratic process.

For state militaries, this shift in the form of information warfare threats is problematic. Arguably the most significant obstacle for defense planners lies in the fact that most democracies legally distinguish between the role and responsibilities of military forces versus law enforcement, intelligence entities, and other elements of civilian government. Given the manner in which the attack surface of a country inevitably encompasses diverse elements of civil society, private industry, and civilian government with influence operations, such constraints can be limiting.[8] Hardening of the attack surface of democracies must inevitably emerge in large part from partnerships between civil society and civilian government, with militaries operating in support. And yet, militaries cannot simply take points from civilian authorities. After all, interference operations often portend direct consequences for military power and often take the form of hybrid strategies that involve the blended use of military force alongside other activities.[9] How then should defense establishments strategize to deter such malicious foreign behavior?

Even as they consider their posture and strategy for dealing with information warfare threats, most military analysts remain woefully unclear on the nature of the threat being faced.[10] Simply thinking of information warfare as being leveraged in influence operations to disrupt democratic discourse and cause instability awards no explanatory capacity for strategists that are interested in understanding what kind of punitive measures and defensive actions might impose greater cost on foreign adversaries than others. In short, if the specter of information warfare seen in recent years is not paired with an appropriate understanding of the function of the systems being targeted, then defense officials cannot effectively design deterrent plans that effectively reduce the promise of continued interference from abroad. This is especially the case given those characteristics of modern influence operations that make them such an appealing strategy to begin with, namely that they are cheap, deniable, and exist below the threshold of violence. As such, this article addresses the notion that militaries in democratic states are both constitutionally and operationally limited in their

ability to address the threat of information warfare from belligerent foreign powers, offering both theoretical context and subsequent recommendations for military planning.

The remaining sections of this article offer insights to help alleviate this gap in thinking on information warfare in the context of prospective military strategies for defense and deterrence in democratic societies. In the first section, the author offers a perspective on the form and function of such operations informed by literature in the political communications field of studies, describing democracies as information systems that have discrete information assurance processes that information warfare campaigns aim to disrupt. The article then describes the evolving threat of such campaigns in the context of a dynamic game often used by computer scientists to describe information security within complex information systems. Finally, the article addresses the question of defense strategy in an age of advancing techniques for interference and uses the foregoing analysis to suggest opportunities for when military force might be successfully applied to shape adversarial behavior below the threshold of armed conflict in this form. Specifically, recent developments in cyber conflict doctrine in the United States are offered as context for the discussion.

Understanding "Democracy Hacking": A Communications Perspective

Information warfare is the manipulation of information to gain strategic or battlefield advantage over opponents.[11] The term *information warfare* is often used interchangeably with others such as *political warfare*. Though there are some differentiations one might make between the terms, both invite thought of activities that fall outside the realm of declared hostilities between states. Indeed, political warfare involves the full range of mechanisms of state power *other* than—though sometimes inclusive of—military power to secure national interests in international affairs. George F. Kennan called political warfare "the logical application of Clausewitz's doctrine in time of peace . . . the employment of all means at a nation's command, short of war, to achieve its national objectives." This includes operations that "range from such covert actions as political alliances, economic measures, and white propaganda to such covert operations as clandestine support to friendly foreign elements, black psychological warfare and even encouragement of underground resistance in hostile states." The purpose of political warfare is to augment state positioning and capabilities in the forum of high level international engagement by, among other things, enhancing the credibility of threats, exerting lateral pressures, and addressing the micro-foundations of state power.[12]

In the digital age, information warfare has thus far generally been viewed—rightly so—in terms of the attack surface of network-enabled information and

communications systems.[13] In the past, this has made substantial sense because the ability of adversaries to manipulate the value of information, alter informational conditions, disrupt or subvert communications channels, and generate uncertainty in victims has substantially emerged from considerations of design and usage of those underlying platforms. Whether the decision-making target is a military or civilian political one and that decision making largely relies on the function of internet-enabled infrastructure—from sensors employed on the battlefield to data stored in computers and code that makes them work—that infrastructure becomes singularly significant insofar as most potential attack vectors can be found.

With recent campaigns aimed at "election hacking" or "democracy hacking" that have so fully captured the attention of Western security establishments in recent years, the significance of such systems' security features and mechanisms is secondary.[14] After all, the attack surface of political systems emerges from the processes that allow the normal operation thereof.[15] Conceptually, this realization does not imply a fundamental shift away from assessing vulnerabilities to information warfare on informational grounds for analysts. It simply implies a different set of empirical criteria that pertain to the relative effectiveness of strategies aimed more generally at societal processes than at specific organizational or battlefield communications systems.

The Strategic Logic of Digital Age Disinformation Operations

Democracies are information systems.[16] As an extensive literature in political communication and international relations holds, democracies variably employ mechanisms that move popular discourse—and, subsequently, public and foreign policy—toward moderate outcomes.[17] To be clear, democratic discourse does not naturally lead toward truth or fact. The process of debating significant issues that are handled and interpreted across a wide array of perspectives does, however, tend to moderate participant views and allow for the emergence of prudent undertones that thereafter influence policy.

Mechanically, democracies rely on a series of countervailing institutions that assure the proper function of the information environment.[18] In traditional treatments of the marketplace of ideas in democracies, these institutions include state leaders; elected officials and representatives; experts; other popular influential voices; the statements of official intelligence sources; and a robust, independent watchdog media ecosystem.[19] Taken together, these elements ensure that information pertinent to any particular issue under debate is sufficiently handled, dissected, and framed so as to allow for Bayesian updating, or updating the process by which someone updates the probability that a hypothesis is accurate as more information becomes available to them (i.e., when individuals reconsider their position or beliefs based on new evidence), and

decision making among the broader population. The system only breaks down when one of these mechanisms fails to behave normally, which is what occurred during the debate leading up to the 2003 Iraq War, where the George W. Bush administration inflated the threat of Iraqi weapons of mass destruction and elected legislators were too unwilling to go against the patriotic feeling of the nation in the year and a half following the 11 September 2001 attacks to push back against uncertain facts.

In reality, these institutions are only themselves significant to the function of democracies as information systems insofar as they assure the handling and integrity of information four distinct ways. Whereas much classical literature in the political communications field assesses that democratic functionality is substantially about ensuring diversity of voices in a given environment, this is only one element of the challenge. Certainly, the quality of information provided to broader debate processes matters a great deal. Democracies thrive and observe prudent discursive and policy outcomes, particularly when accurate and extensive information is available to the public and to interpreters thereof. For this reason, even "spin" media that politicizes facts for one or another perspective to aid an agenda is not undesirable in democracies; under normal conditions, such information handling should ultimately contribute to the overall health of debate as citizens encounter more diverse perspectives on established information.

However, the function of the system also requires handling of information in ways that allow for attribution of the information's origins. For democracies to work, it has to be reasonably easy to figure out whose voice is actually behind the publication of information, at least within reason. Even where corporations or political action entities sponsor advocacy or advertisements, there should be restrictions on the use of capital for political activity sufficient to ensure that the median voter could discover the source of information via a reasonable amount of additional information search. This requirement parallels information assurance requirements commonly applied in design science for computer systems in that democracies do not have to be free from any form of manipulation, such as political spin or special interests' influence; rather, it simply has to be possible for such tampering to be discoverable or exposable. If this is not the case, then it becomes difficult to fundamentally assure the quality of underlying information being handled in popular debates.

The function of democratic information systems also relies on effective safeguards of the credibility of information. This manifests in two ways. First, and clearly related to the attribution requirement above, it is necessary that democratic populations trust that discourse *is* discourse. In other words, it is critical that citizens believe their speech is not artificially being manipulated. Here, the best way to think about this requirement may be to consider the case of vibrant civil society discourse around significant issues in China, wherein

much popular debate emerges as the result of astroturfing.[20] In that case, the aim of Chinese authorities is simple—to simulate a relatively free civil society landscape so as to dissuade social forces from unrest.[21] In democratic systems, it is critical that broad-scoped discourse remain credibly free from outside control, lest policy not reflect popular sentiment. And, second, it is similarly necessary that citizenry believe that all points of view—with exceptions only at the extreme fringes of societal norms and beliefs be allowed. If trust in the freedom of citizens to express themselves cannot be sufficiently maintained, then voices required to help moderate discussion may cease normal operation and skew the outputs of democratic processes.

The weak points of democratic societies are the sum of those mechanisms whose operation is critical to ensure the quality, origination, credibility, and freedom of information. Sophisticated disinformation and propaganda campaigns target those mechanisms of functionality so as to prevent both social and political processes from functioning normally. When those processes *do* cease to function normally, one might expect discursive outcomes to differ significantly from what would be seen under "normal" operating conditions. Naturally, with any individual campaign, there is context in the parochial machinations of the adversary. Vladimir Putin's vendetta against the candidacy of Hillary R. Clinton clearly flavored the effort of the Internet Research Agency (IRA) and affiliated cyber threat actors in interference efforts targeting the 2016 American election season. However, the best way to understand the different tactics developed and strategies employed is by understanding the landscape of vulnerabilities of the system under attack, in this case the democracy of the United States.

Given that framework, the element of the information revolution that has up until recently been placed front and center in analyses of information warfare upgraded by the internet—the development of infrastructure that underwrites core functions of global society but that is fundamentally insecure—becomes a secondary consideration. Of greater relevance to the conduct and prospects for influence operations in the digital age is the construction of new systems of information generation, which allows the presentation and dissemination of information that today allows for easy distribution without traditional media gatekeepers.

For prosecutors of information warfare, the implication herein is twofold. First, diffusion of the mechanical function of democratic information environments means new attack vectors for disinformation efforts. This is particularly relevant given that the potential for such interference has been until recently—and arguably remains so up to the point of writing—dramatically unrealized, even given the construction of an entire command structure for combating cyber threats and the promulgation of a new strategic posture in cyberspace, which is discussed below. Second, the coupling of new media systems that offer

users direct access to a diverse ecosystem with the rise of commercial owners of such mediums of discourse means unique opportunities for the subversion of the process. In recent experiences with so-called democracy hacking across Europe and North America, this reality has played out in the sophisticated manipulation of new media functions aimed at influencing discourse in national populations. As recent work has concluded, fake content deployed in platforms such as Facebook were targeted to specific audiences using in-built advertiser tools provided by the company.[22] Moreover, directed influence efforts on Twitter, Instagram, and YouTube were designed with the function of redistribution algorithms in mind. Tweets were optimized so as to stand a greater chance of appearing as a suggested result for users with certain social or political inclinations. Fake new content would be published with clickbait titles and, at least sometimes, benefited from click fraud that raised the chances of broader viewership.[23] In these ways, armed in some instances with the stolen data products of cyber intrusions, the IRA and other entities were able to attempt interference and to sell disinformation to democratic polities writ large.[24]

Byzantine Failures of Democracy

Why is disinformation enabled by the internet such a seemingly intractable problem for Western states to deal with? From one perspective, of course, one might argue that the diverse smorgasbord of relevant actors that must coordinate to defend against such threats is the problem, one that authoritarian states do not have in as meaningful ways. This article argues that such issues are preceded by another, however. Simply put, from technology companies to numerous media entities, those stakeholders whose collaboration would ensure an ability to combat sophisticated foreign information warfare efforts are not themselves—at least, not all—necessarily aware of the role they play as mechanical elements of democratic process. Though a company such as Google is certainly aware that manipulation of search algorithm fundamentals by malicious parties to seed sensational content is broadly problematic, it is likely that there is no direct acknowledgment that such problems are most directly rooted in the company's role in assuring normal democratic discourse. The result is a dissonance wherein corrective policies on the part of the company, such as those efforts made by Google to deweight websites in search results based on low traffic, PageRank scores, and more since 2018 reflect an interest in the removal of disruptive content rather than removal of content that aids the subversion of marketplace mechanisms.[25] Left unaddressed, this dynamic makes the national security interests and coercive mechanisms within a state secondary to the interests of business, political advocacy, and other social causes. The challenge for Western states is, as this section illustrates via reference to a seminal game theoretic model employed by information security experts, to better design in-

formation assurance mechanisms that limit the likelihood that such dissonance will manifest.

As noted above, democracies are complex systems wherein functionality is determined by mechanisms for assuring information. The role and importance of these mechanisms differs depending on how a democracy is structurally designed and works in practice. Given a parliamentary system of government, for instance, the voice of significant cabinet members may constitute a more relevant reference point for the general public than might be the case with presidential or hybrid majoritarian systems. Likewise, where regulatory power is deeply embedded in bureaucratic establishments—such as in the immense federal institutions in democratic states such as Brazil that have been labeled a form of "bureaucratic authoritarianism"—such figures might similarly play a role as a countervailing mechanism of democratic discourse that might be considered unusual elsewhere.

More than simply understanding which people, organizations, and institutions matter in any one given system, however, it is important to remember that these mechanisms—bureaucrats, experts, executives, media entities, etc.—enable certain functional conditions that allow for this structuring of democratic society to work as intended. As described above, the moderating function of democracies emerges from the reasonable provision of capacity to ensure the origination, credibility, quality, and freedom of information in the environment. We might generalize these requirements of proper system function as consensus on what information, in a functional sense, is. The traditional mechanisms described by the classical theory of the "marketplace of ideas" are merely the corollaries of such provision.

This article has laid out the function of democracies as information systems because it is insufficient to simply work from past examinations of information warfare as an activity that disrupts discourse or is constructed around situation-specific goals (e.g., favoring one candidate over others). Those works have laid a valuable groundwork but do fail in being flexible insofar as they often overgeneralize about the static significance of certain people or institutions, such as American presidents. Some studies have acknowledged that changes to the information environment due to exogenous shocks like war or technological innovation can change the behavior of particular countervailing institutions of democratic process.[26] Remarkably little work, however, has thought to emphasize the notion that democratic functionality rests on the underlying conditions of information assurance in democracies, which mechanically present in the actions of certain social and political forces. Subversion of the interests and motivations of such forces, which is traditionally thought of only where war or some other outside context is encountered, endangers the normal operation of the political system as a whole. Modern digitally enabled information warfare

threats constitute such a prospective subversion but do not manifest in such obvious fashion as the exogenous concerns typically written about by scholars.

This theoretical clarification is critical to unpack the nature of risks involved in democracy hacking such that a better perspective on relevant military strategy might be obtained. Though the direct outcomes of Russian efforts to interfere in the United States during the 2016 presidential election remain unclear at the time of writing, the dynamics of the broader effort are evidence enough that new internet-enabled services and methods for communicating impact the ability of the system to reach consensus on the integrity and functional utility of information. In the past half-decade in the United States and elsewhere, the design and management of new media service platforms created a new space in which the system could be hacked. Specifically, these conditions created a recently underrealized space wherein interfering with the mechanical elements of democratic information assurance that ensure a reasonable consensus on the underlying nature of information is more possible than it has ever been. Because pre-internet communications mediums concentrated control of information presentation in the hands of certain institutional gatekeepers, potential failure of the marketplace could reasonably be said to come down to one of a few deviant outcomes, including the blatant dereliction of duty of the watchdog media or executive threat inflation. These new information conditions—meaning not only the now-decades-old appearance of the internet, but the more recent revolution in social media services and platforms built to work on the internet—change that calculus.

Perhaps the best illustration of how they have changed the dynamics of communication platforms is the paradigmatic example of the Byzantine Generals Problem game that is used by computer scientists and others to describe the security challenges inherent in designing fault-tolerant systems. In the game's scenario, multiple generals lead armies that must work together to successfully attack a city. If all armies attack simultaneously, their assault will succeed; if not, the fraction that attacks will fail and the remainder will not be able to succeed in the future. The critical task before the general of each army is one of communication. They must guarantee the integrity of the message they send to their counterparts so as to be sure that their own attack will not end in failure. In part, the challenge is one of developing the means to communicate effectively—using codes, trusted couriers, or novel methods of transmission, for instance, to better secure messages. More broadly, however, the challenge is the same socio-psychological issue identified by realists in the problem of other minds. How can one ensure that there are not traitors of one kind or another among the other generals? Such an individual might lie about their intended action, may tamper with messaging being forwarded to other commanders, or may lie because they themselves believe another actor is untrustworthy. If that

problem cannot be overcome, then the entire enterprise is vulnerable to what is known as a "Byzantine" fault, wherein the system breaks down but in ways that are not easily detectable and seem arbitrary to the victim.

The Byzantine General's Problem, at least in the terms of the on-paper representation of the scenario facing the different armies' commanders, is unsolvable. Within the confines of the game, there is simply no way to guarantee the integrity and privacy of messages in such a way as to satisfy the suspicious (by necessity) minds of each general. Moreover, there is no way to guarantee knowledge of where the system has failed. Much like the bargaining theory of war, however, the point of the game is to emphasize the difficulties and subsequent implemental requirements for those seeking to design well-functioning information systems. A Byzantine fault-tolerant system is one that remains dependable during some system failure even where there is uncertainty about where or how the failure has manifested.[27]

Traditionally, democratic information systems—idealized classically in the concept of the marketplace of ideas—are remarkably resilient. Above almost anything else, subversion of the proper information functions of democratic societies is difficult at scale. This is because of the manner in which broad-scoped, diverse popular participation and contestation is traditionally directed through limited channels over time in the form of a relatively small constellation of media outlets reporting the words of important political voices, celebrities, and experts. In particular, because the function of democracy does not require perfect information but rather a reasonable enough consensus understanding of the value of information to spur moderating effects, defense against Byzantine failure is generally possible as electorates observe, dissect, and update their understanding. As a resultant, the only failures that democracies are commonly prone to are those wherein a prominent mechanism of information assurance ceases to function, such as when executives falsify or sensationalize information.

In the recent experience of the United States with foreign-based, cyber-enabled information warfare, the important role of quiet countervailing institutions and an executive proxy in then-presidential candidate Donald J. Trump, whose rhetorical approach to politics embraced sensationalism cannot be overlooked. Nevertheless, it seems clear that the design and use of modern internet-enabled media platforms, coupled with a limited ability by relevant stakeholders and citizenry to attribute and validate information consumed thereon, are the critical factors that make the threat of information warfare in the digital age novel.

The ability of meddling foreign threat actors to covertly enter domestic conversations via use of fake accounts, to spread false narratives and facts in a manner that is generally hard to track for the average citizen, and to strategically inject information to counter the moderating effect of time on national delib-

erations create an attribution challenge for the marketplace of ideas that opens space for Byzantine failures of the system. Moreover, regardless of whether or not such failures took place as a result of Russian information warfare from 2014 onward, it seems clear that a lack of oversight on the manner in which design characteristics of new information dissemination platforms and the unfamiliarity of elites and media actors with discourse channeled through such mediums particularly magnify the potential for their occurrence. Simply put, though the failure of traditional marketplace mechanisms is still substantially needed for major disruptions to democratic process to occur, the confluence of circumstances brought about by new environmental conditions clearly create new space within which information attribution and subsequent assurance is unprecedentedly difficult.

Countering Information Warfare: The Defense Establishment Perspective

This short article has made two simple arguments. First, the targeting strategies of sophisticated information warfare campaign should not be understood in terms of the specific platforms, voices, or issues that are victimized. Rather, they should be informed and contextualized by understanding of the democratic process. This argument is not a controversial one. After all, the first step in any threat mitigation effort is to understand how the force being employed impacts the function of the targeted system, whether that system is a computer, a military organization, or an entire national political apparatus. Here, it is simply the case that scholars and practitioners have largely avoided—surprisingly—the immense body of knowledge generated within the communications and political science fields of study that offer perspective on how democracies handle and use information to reach prudent deliberative outcomes.[28] By understanding the potential vulnerabilities of Western democracies as mechanisms that are more or less significant to the task of assuring the quality, origination, credibility, and freedom of information, defense planners are better situated to develop both defensive and deterrent solutions to the threat of information warfare.

Second, the article has argued that the unique threat posed by counterpopulation information warfare (i.e., the integrity of societal information processes are being targeted) is not only a function of novel attack vectors and a diffuse attack surface, but of the dissonance that organically emerges among actors in civil society and private industry when there is no recognition of the link between their interests and their functional position within the marketplace of ideas. In other words, such circumstances, which are more readily brought about given new internet-enabled dynamics of societal interaction, make it hard to see failures of the system actually *are* failures of the system. This, of course, adds to the challenge of national defenders insofar as the case-specific challenges of modern

information warfare are not simply complex but also sometimes undetectable.

These dynamics suggest two distinct operating criteria for military forces interested in deterring threats of information warfare from organized foreign adversaries such as the Russian Federation, Islamic State, and the People's Republic of China. Naturally, as mentioned in the introduction, most Western states face a challenge in meeting the requirements of such an imperative that is not shared by counterpart institutions in authoritarian countries in that national law tends to limit the ability of militaries to take those domestic actions that would be of use in this particular case. Instead, military forces must be employed to aid domestic law enforcement and intelligence entities in their missions insomuch as national statutes permit. In many cases, this will involve resource sharing that does not violate the requirement of most national constitutions across North America and Western Europe that armed forces cannot operate offensively in the homeland.[29]

In other cases, this might involve joint training with civilian government agencies, the sponsorship of education programming, and more—some of which already exists. Indeed, military institutions that have often led in developing new educational curricula and methods of training large populations stand to be effective as standard-bearers for national efforts to further make Western populations resilient to the effects of information warfare. If information war is not simply a set of new tricks and tactics practiced by belligerent foreign powers, but rather the manifestation of an entrenched commitment by malicious actors to manipulate as a pillar of modern great power conflict, then the institutions of national security must lead by example even where they cannot directly specific elements of the national defense. Moreover, another distinct opportunity for greater military involvement in defensive efforts vis-à-vis information warfare would be in cases where new platforms and infrastructure—perhaps even some currently in private hands—are designated as critical assets for national security purposes, thus opening the doorway for the direct provision of technical and operational expertise. These actions, however, fall beyond the scope of the following suggestions.

First, efforts to deter digital threats using cyber operations and related instruments of state power would do well to incorporate an understanding of the information assurance mechanisms of democratic process described in brief above into targeting strategies.[30] As of 2018, the United States' approach to combating digital threats changed in a significant fashion with the promulgation of a strategy for cyberspace that calls for "defending forward."[31] The strategy, which many democratic partner nations are now adopting in some fashion, defines *cyberspace* as a domain of persistent engagement where adversaries are constantly interacting.[32] Given this dynamic, the traditional trappings of deterrence theory do not seem to strictly apply. Restraint and a strong notion of sov-

ereign territory are concepts ill-suited to threats that manifest via the internet, necessitating a domain-specific alternative. By defending forward, the United States now aims to shape adversary behavior by consistently engaging digital threats wherever they are found, particularly when they can be engaged beyond American networks. The idea, not indistinct from the strategy of deterrence by punishment with cyber-specific characteristics, is to force and reinforce preferred modes of digital interaction with adversaries such that other threat mitigation efforts—such as the diplomatic construction of norms of nonaggression in online conflict—are considered instead of an ever-expanding information warfare race in the cyber realm.

Naturally, given the manner in which modern information warfare emerges mainly from the spread of the internet and the possibilities of web technologies, it has been suggested that a strategy of deterrence similar to that now being practiced with cyber conflict should apply. Indeed, it seems obvious that the line between the two is substantially blurred given the degree to which cyber operations are sometimes used to augment influence campaigns.

The analysis in the sections above imply, perhaps more than anything else, that an effective military posture on information warfare should reference analytics on what specific actions most threaten the several information-assuring mechanisms of the marketplace of ideas. Counteroffensive cyber operations intended to set behavioral red lines on whether acceptable information warfare practices, for instance, might be employed where a bot campaign is employed rapidly and at scale to stoke doubts about the statements made by national political candidates for executive office, but not when those same bots attempt to spread clickbait malware to their follower base. The idea of such a strategy is not to eliminate the practice of interference operations, but to shape the behavior of foreign adversaries such that their efforts are unlikely to be effective. By imposing costs specifically around actions linked to core functional mechanisms of the system under attack (i.e., the democracy itself) militaries can effectively enhance the potential of other defensive efforts, such as industry attempts to harden social media platforms against fake news infiltration or diplomatic attempts to build constraining norms against political warfare.

Second, the above analysis suggests that the response tempo of Western efforts to deter hybrid threats—particularly those encountered in cyberspace—should be governed by analysis of how foreign adversaries use cyberspace for information warfare, irrespective of detectability of specific operations underway. A significant fear of strategic planners who supported a more defensive posture for the United States in cyberspace through 2018 was that cyber aggression might lead to escalation in hostilities with other countries across other domains.

The logic behind defending forward holds that escalation is not particularly concerning, particularly because tactical actions can be designed so as to lever-

age strategic gains.[33] Counteroffensive cyber operations that are not determined by incidence of foreign aggression but rather by probabilistic analysis of the likelihood that cyber power is being employed in aid of information warfare should be embraced as an acceptable and expected outcome of the prevailing line of thinking. Not only does such punitive action—employed clearly against targets linked to information warfare efforts—help mitigate the challenge of Byzantine failure as an inevitable condition of being targeted for interference by foreign adversaries, but it also reinforces disapproval of certain approaches over and above incident-specific reactions.

Conclusions

Few threats to national security loom as large in the eyes of defense strategists and scholars as the specter of political warfare augmented by advancing information technologies. In recent years, cyber operations have enhanced deft manipulation of the algorithmic underpinnings of modern media platforms to reinforce and project attempts to sell prejudice, skew opinion, and coerce and distract democratic populations. In the future, it is a certainty that information warfare will continue to prove a significant challenge. Undoubtedly, recent manifestations of political warfare appear to have caused such widespread alarm in part because the space was previously underrealized. Going forward, however, it seems likely that advancing smart systems for producing fabricated content and for shaping the informational inputs made available to democratic populations will widen that space and invite further foreign interference in Western sociopolitical processes.

For defense establishments, addressing the threat of modern information warfare aimed at entire populations is a daunting one, not least because the expanded attack surface of democratic states does not align with the statutory limitations placed on many military institutions vis-à-vis their defensive mandate. Nevertheless, addressing such challenges is possible. This article has argued that the analytic foundation on which military perspectives on hybrid threats are formed must diversify to combat emerging threats. Understanding information warfare aimed at entire populations demands greater in-depth understanding of the function of those political and social systems being targeted. Such understanding then lends itself to an ability to more effectively gauge the categories of threat and types of incidents that can be targeted under the auspices of deterrent strategies to impose costs and reduce—if not the actual incidence of information warfare efforts by multiform foreign threat actors—the potential for *meaningful* interference in the process of democratic governance.

Endnotes

1. Way and Casey document nearly two dozen such operations undertaken by the Russian Federation since 2014. Additionally, Martin, Shapiro, and Nedashkovskaya similarly code 53 distinct influence campaigns undertaken by several countries across 24 target nations between 2013 and 2018. See Lucan Ahmad Way and Adam Casey, "Russia Has Been Meddling in Foreign Elections for Decades. Has It Made a Difference?," *Washington Post*, 5 January 2018; and Diego A. Martin, Jacob N. Shapiro, and Michelle Nedashkovskaya, "Recent Trends in Online Foreign Influence Efforts," *Journal of Information Warfare* 18, no. 3 (2019): 15–48.
2. Franziska B. Keller et al., "Political Astroturfing on Twitter: How to Coordinate a Disinformation Campaign," *Political Communication* 37, no. 2 (2020): 1–25, https://doi.org/10.1080/10584609.2019.1661888; Brandon C. Boatwright, Darren L. Linvill, and Patrick L. Warren, *Troll Factories: The Internet Research Agency and State-Sponsored Agenda Building* (Leipzig, Germany: Resource Centre on Media Freedom in Europe, 2018); Sandor Fabian, "The Russian Hybrid Warfare Strategy—Neither Russian nor Strategy," *Defense & Security Analysis* 35, no. 3 (2019): 30825, https://doi.org/10.1080/14751798.2019.1640424; and David Filipov, "The Notorious Kremlin-linked 'Troll Farm' and the Russians Trying to Take It Down," *Washington Post*, 6 October 2017.
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5. James Vincent, "Deepfake Detection Algorithms Will Never Be Enough," Verge, 27 June 2019.
6. Martin C. Libicki, *What Is Information Warfare?*, Strategic Forum No. 28 (Washington, DC: Institute for National Strategic Studies, National Defense University, 1995).
7. For instance, Martin C. Libicki, *Information Dominance* (Washington, DC: Institute for National Strategic Studies,National Defense University, 1997).
8. *Attack surface* refers to the sum of vulnerable points of a given target system.
9. See Andrew Monaghan, "The 'War' in Russia's 'Hybrid Warfare'," *Parameters* 45, no. 4 (Winter 2015): 65; Alexander Lanoszka, "Russian Hybrid Warfare and Extended Deterrence in Eastern Europe," *International affairs* 92, no. 1 (2016): 175–95, https://doi.org/10.1111/1468-2346.12509; Bettina Renz, "Russia and 'Hybrid Warfare'," *Contemporary Politics* 22, no. 3 (2016): 283–300, https://doi.org/10.1080/13569775.2016.1201316; and Christopher S. Chivvis, *Understanding Russian "Hybrid Warfare" and What Can Be Done About It* (Santa Monica, CA: Rand, 2017), 2–4, https://doi.org/10.7249/CT468.
10. As argued, for instance, in Peter Pomerantsev, *This Is Not Propaganda: Adventures in the War Against Reality* (New York: Hachette Book Group, 2019). Pomerantsev argues that the notion of Russian "information war" is commonly put on a pedestal by strategic thinkers and military operators, particularly during the past several years, as a set of tactics and methods rooted in Cold War-era thinking about media manipulation and tricks. And yet, what is clear in much scholarship and in many developments since at least 2016 is that information warfare is remarkably deeply ingrained in Russian (and other states') efforts to secure national interests and export favorable worldviews, to the

point where defensive efforts demand the strategic countering of such efforts rather than the operational mitigation of irritating interference.

11. For seminal descriptions of information warfare, see Dorothy E. Denning, *Information Warfare and Security* (Reading, MA: Addison-Wesley, 1999); Roger C. Molander, Andrew Riddile, and Peter A. Wilson, *Strategic Information Warfare: A New Face of War* (Santa Monica, CA: Rand, 1996), https://doi.org/10.7249/MR661; and Martin C. Libicki, *Conquest in Cyberspace: National Security and Information Warfare* (New York: Cambridge University Press, 2007), https://doi.org/10.1017/CBO9780511804250.
12. See "Policy Planning Staff Memorandum," 4 May 1948, *Foreign Relations of the United States, 1945–1950, Emergence of the Intelligence Establishment* (Washington, DC: Government Printing Office, 1948), document 269.
13. It is important to note here that the author in no way claims that political interference or information warfare aimed at population-level manipulation is a new phenomenon. Foreign-induced political subversion is a strategy found in history as far back as Louis XIV's influence campaigns prosecuted in central Europe ahead of his military conquests. In the modern era, both the People's Republic of China and the Russian Federation have extensively sought to export their models of political process or otherwise favorably shape foreign societal dynamics in line with national interests with influence operations.
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19. See, for instance, A. Trevor Thrall, "A Bear in the Woods?: Threat Framing and the Marketplace of Values," *Security Studies* 16, no. 3 (2007): 452–88, https://doi.org/10.1080/09636410701547915; and A. Trevor Thrall, "Framing Iraq: Threat Inflation in the Marketplace of Values," in *American Foreign Policy and the Politics of Fear*, 192–209.
20. For the purposes of this discussion, astroturfing refers to organized activity intended to create a false impression of a widespread, spontaneously arising, grassroots movement in support of or in opposition to something (e.g., political policy) but in reality, was initiated and controlled by a concealed group or organization (e.g., corporation).

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29. In the United States, the relevant statute in this regard is the Posse Comitatus Act of 1878 that prohibits the use of active duty military personnel to "execute the laws" passed by Congress to regulate domestic society. Though there is some argument about what the restriction entails in terms of prospective advising capacities of the national military, there have historically been remarkably few exceptions to the prohibition on domestic operation. Two incidents that stand out are the use of military personnel for law enforcement duties in Louisiana following Hurricane Katrina (2005) and in the Los Angeles riots (1992), both of which were allowed for under the Insurrection Act of 1807. The Posse Comitatus Act also exempts the Coast Guard, the use of military assets for drug trade interdiction, the deployment of National Guard units by state authorities, and the execution of surveillance missions for national security purposes. Though this final point might be prospectively a basis for more elaborate military operation within domestic networks for national security purposes, no such argument has yet been advanced either in prose or practice to date. See Charles Doyle, *The Posse Comitatus Act and Related Matters: The Use of the Military to Execute Civilian Law* (Washington, DC: Congressional Research Service, 2000); William C. Banks, "Providing 'Supplemental Security'—The Insurrection Act and the Military Role in Responding to Domestic Crises," *Journal of National Security Law & Policy* 3, no. 1 (2009): 39–94; and Shane McGrane, "Katrina, Federalism, and Military Law Enforcement: A New Exception to the Posse Comitatus Act," *Michigan Law Review* 108, no. 7 (2010): 1309–40.
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Fit for Future Conflict?
American Strategic Culture in the Context of Great Power Competition

Jeannie L. Johnson, PhD

Abstract: U.S. strategic planners seeking to achieve the upper hand in ongoing and future conflict with near-peer adversaries will derive significant advantages from a thorough understanding of American strategic culture and its inherent blind spots. Studied self-awareness will make it less likely that U.S. adversaries can exploit deficits in traditional U.S. defense practices and may inspire an investment in skills, tactics, and diplomatic approaches that innovate beyond the American strategic culture comfort zone. New U.S. strategies are needed in the current era of ideological competition driven by Russia and China's use of digital technologies to undermine democratic governance and grow the world market for data surveillance-based authoritarianism.

Keywords: strategic culture, future war, great power competition, cultural analysis, lessons learned, irregular war, information operations, digital authoritarianism, digital surveillance, Russia, China

Introduction

Great power competition across the early years of the twenty-first century has been characterized by increasingly refined tools of subversive statecraft. Future competition with U.S. adversaries, including war,

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will comprise a fast-evolving and wide-ranging arsenal of tactics aimed at circumventing U.S. power assets and undermining American influence on the world stage.

Successful engagement in twenty-first century great power competition, whether in combat zones or cyber arenas, will be substantially aided by a clear-eyed understanding of the United States' traditional habits of mind and practice and the ways in which these stack up against the evolving strategies and operational devices of our adversaries. U.S. military and diplomatic toolkits are stocked with a number of reflexive problem solving devices, not all of which are a good fit with twenty-first century threats. Confronting the nimble, often indirect and unorthodox tactics of our enemies will require creativity and innovation. As U.S. adversaries advance against perceived vulnerabilities in our typical repertoire of security responses, outwitting them will require conscious scrutiny of our own internal habits of cognition and behavior.

The field of strategic culture examines the ways in which national public culture and the various organizational cultures of a country's defense, intelligence, and diplomatic institutions impact the formation of its foreign and security policy. The effectiveness of contemporary U.S. adversaries is enhanced by their studied understanding of American strategic culture—the ways in which both American national culture and the organizational cultures of the U.S. security community advance or inhibit innovative thinking; the range of policy actions perceived to be both effective and permissible; the order of action warfighters default to in approaching an enemy; and the acts below the threshold of war that are likely to stymie U.S. institutions that are left without a clear script for action. Near-peer competitors have already chalked up significant wins in the cyber domain, information operations, proxy warfare, and in expanding their own spheres of influence by exploiting weaknesses in the playbook of the American national security enterprise.[1]

To achieve the upper hand in twenty-first century great power competition, the U.S. defense establishment should seek to know the strengths and vulnerabilities of its own strategic culture at least as well as American adversaries who are actively studying it. Neglect of deliberate and careful cultural analysis —both of American cultural patterns and of the culturally patterned security reflexes of adversaries—will leave the United States two steps behind near-peer powers who have made it their business to understand the cultural narratives driving U.S. policy and the cultural norms shaping the thinking of populations that both the United States and its competitors seek to influence.

The bursts of investment in cultural analysis made by the U.S. defense establishment have tended to be in the midst of fighting wars rather than in advance of them and have not survived much past the termination of conflict. In recent years, the idea of cultural analysis has become curiously and

unfortunately intertwined with that of counterinsurgent warfare. This is ironic given that the birth of strategic culture as a field of study came from scholar-practitioners who were crafting U.S. nuclear policy vis-à-vis the Soviet Union, then the superpower of the day. A giant of first-generation strategic culture scholarship, Colin S. Gray, observed dangerous deficits in U.S. cultural knowledge throughout the Cold War era. Although most U.S. policy makers recognized that the strategic behavior of adversaries (and allies) was culturally "different," that recognition only "very rarely moved the U.S. government in its conduct of affairs to take explicit account of the effects of those differences upon policy goals and methods."[2] Failure to do so meant poor policy decisions rooted in inaccurate and often mirror-image conceptions of adversary thinking and behavior.[3] Serious investment of the sort Gray recommended—taking explicit account of cultural differences and their effects on policy goals and behavior—is the purpose of analyzing strategic culture.

American national culture combines features of identity, preferred templates for action, distinctive values, and perceptions of the world shaped by the American experience. The subculture of the U.S. military expands on and reinforces many dominant American traits and introduces some its own. This combination of strategic culture traits exists because they have rewarded the American community, or at least significant subcommunities, with success in formative moments of the national experience. Making sense of these salient traits within American strategic culture requires thorough study of the United States' unique history; and yields valuable insights on the future contexts of great power competition for which U.S. preferred action templates are, and are not, an effective match.

The particular features of American strategic culture discussed here represent habits of mind and behavior in the American way of life that have been identified with consistency by scholars, ethnographers, historians, and foreign observers of the American condition across the last 100 years of U.S. warfighting.[4] The United States is characterized by a large and diverse population and houses myriad subcultures with distinct identities, norms, value orientations, and perceptions of the world. Some of the resulting cultural inclinations tend to weigh more heavily than others in American foreign and security policy decision making and in the habits of American warfighters across combat theaters. It is important to note that, while a given trait may qualify as being persistently within the American repertoire, its influence on thinking and behavior is likely to ebb and flow in response to contextual factors. This is key. Cultural influences do not provide a clear-cut script for action but do tend to bound our beliefs about the range of effective and appropriate options available in a given situation. For the purposes of military planning, the result can be strategically suboptimal: security practices and tactics that are a clear match with organizational

or national identity and practice are privileged over potentially more effective policies that fall outside the strategic culture mainstream.

This article does not attempt to be comprehensive in cataloging the various features of American strategic culture or the full historical contexts from which they derive. Rather, the purpose is to critically examine a few cultural traits that have proven particularly problematic when applied to U.S. operations abroad and are likely to be exploited by great power competitors in the present and immediate future. Illuminating these traits serves at least three key purposes:

- Studied self-awareness makes it less likely that dedicated adversaries can exploit blind spots in American security thinking and action.
- Recognizing gaps in the U.S. strategic culture repertoire—skills and competencies in which the United States has underinvested as a consequence of investing in preferred modes of action—may prompt budget and training shifts to address those gaps.
- Clearly identifying the cultural roots of some preferred security practices may prompt strategic planners to reexamine their effectiveness and suitability with increased scrutiny before applying them to the field of great power competition.

Three scenarios within the arena of great power competition will provide useful models for examining key aspects of American strategic culture thinking and practice: future war with a near-peer power; proxy conflict played out by, with, and through third-party partner forces; and authoritarian advances in ideological warfare made possible through the use of sophisticated digital technologies.

Preparing for Future War: Battling a Near-Peer Power

When considering the prospect of future peer-to-peer conflict, the good news is that American strategic culture is rife with raw enthusiasm for preparing for conventional war. It is, however, a very particular vision of conventional war. A significant amount of scholarly work has documented the United States' preferred way of war favors wars of annihilation against conventional enemies that can be accomplished in short time frames by employing lavish firepower in "an aggressive hunt for the main body of the foe."[5] The several prominent voices who have challenged this characterization focus on the U.S. military's wealth of historic experience with unconventional ways of war and the ability of its fighting force to adapt and competently execute them.[6] These irregular warfare experiences, however, have not shifted the conventional preferences that dominate U.S. strategic culture.[7]

The U.S. Army has considerably more practice with unconventional warfare than the conventional sort but has maintained a steady march toward excellence in conventional form and function since its frontier days. Even while fighting Native Americans that they considered to be "master[s] of guerrilla warfare," the U.S. Army failed to cultivate doctrine, training, or any professional literature that would reflect lessons learned in its struggles against the continent's indigenous people.[8] Internal battles with local tribes were "beneath the soldiers' vocation."[9] As the Army's irregular fights at home and abroad multiplied, the frequency of practice did little to dispel the general disdain toward low-threshold, often inconclusive missions. Robert M. Cassidy, in his historical study of U.S. peacekeeping and counterinsurgency experiences, quips: "It is somewhat ironic, revealing, and disquieting that an institution with more history and experience fighting irregular conflicts of limited intensity than total wars without limits, would have its core culture so profoundly influenced by [William T.] Sherman, [Emory] Upton, and the World War II experience."[10]

Preference for conventional conflict is not terribly unusual for a national military—there is significant advantage in being able to recognize one's enemy by virtue of their uniform. Conventional conflict is particularly attractive to the United States as a superpower, however, as it plays to key U.S. strengths in materiel kit, logistical dominance, and technological superiority.[11] Preference notwithstanding, future U.S. conflict with a great power competitor is likely to be muddied with nontraditional elements of hybrid warfare and be fought with local partners across the territory of some unfortunate third party. Without a conscious decision from strategic planners that the past will not be prologue, U.S. operations will likely fall along the traditional pattern characterized by Eliot A. Cohen in which "[the] American proficiency at imparting technical skills is matched only by American insensitivity to local conditions."[12]

Reliance on Technological Overmatch

Technological superiority has long been the signature of modern American combat form, and yet strategic warnings against an overreliance on technology have been sounding for some time.[13] Williamson Murray cautions that "[t]he greatest danger for the United States in the coming century is that the American military will possess self-satisfied, intellectually stagnant cultures that believe they have found the technological lodestone."[14] It is interesting that Murray made his claim in the same year that the now infamous Millennium Challenge 2002 exercise seemed to prove it. Set up as a war game to test some of the technologies designed to support the Pentagon's network-centric approach to warfare, the game was won almost before it began by the inventive low-tech tactics of Lieutenant General Paul Van Riper. Leading the team representing the enemy, Van Riper killed his own radio communications in favor of mo-

torcycle messengers and light signals, then fitted patrol boats, pleasure boats, and small aircraft with missiles and explosives. His preemptive kamikaze attack neutralized 16 Navy ships and "killed" thousands. For all intents and purposes, the game was over. Frustrated by Van Riper's low-tech and unsportsmanlike methods, the game's orchestrators called for a scripted do-over in which Van Riper's enemy force was forced to follow a set protocol, which allowed it to be decimated by high-tech U.S. forces.[15] The means of war privileged in the Millennium Challenge 2002 serve as an extreme example of the American preference for dominating through technology rather than human ingenuity—a vulnerability that could be exploited by near-peer competitors who are already actively leveraging warfighting shortcuts to close the gap between the military strength of the United States and their own forces.

Furthermore, American technological superiority may soon be eroded as a distinct advantage. Near-peer powers are quickly catching up to some of the Pentagon's most sophisticated assets, which means that even proxy fights are likely to be fought with their sponsor's far more advanced weaponry. In addition, the entry threshold for military technology continues to drop, enabling traditionally weak or nonstate actors, including lone-wolf individuals, to punch at an increasingly higher technological weight.[16] Even America's most sophisticated technological platforms, such as the Lockheed Martin F-35 Lightning II, are vulnerable to the advancing cyber expertise of a growing number of belligerents. The networked cyber systems that provide the F-35's much vaunted data-rich view of the battlefield also renders this platform particularly vulnerable to indirect hacks through one of its supporting systems.[17]

The growing utility of additive manufacturing (3D printing) also erodes some of the logistical advantages traditionally wielded by the United States and will complicate future strategies to interdict weapons. In not-so-future conflict areas and civilian zones, a significant number of armaments will be manufactured in real time and on-site.[18] In this increasingly technologically leveled arena, the great power that best understands the human terrain across which it is fighting will possess advantages in increasing friction for its enemy and decreasing it for itself. Cross-cultural competence skills, informed by an understanding of regional history, will be key warfighting assets.

Underinvesting in Cultural Competence

Despite these stakes, a deeply internalized commitment to the education and training necessary to achieve proficiency in cultural analysis will not come easily to the American defense establishment, in large part because it is not valued in the wider national community that it serves and from which its personnel are drawn. Americans have inherited a number of habits of mind that successfully advanced the prosperity of a young immigrant nation but have led to an

undervaluing of cultural and historical analysis within U.S. strategic culture. A forward-leaning optic and near dismissal of the past is a habit of mind documented across the American population from its earliest days. D. W. Brogan, a British observer of American culture writing in 1944, argues that American pioneers came by this trait honestly. Very little of their survival depended on a study of Old World history. The forward-looking and problem-solving approach required in the making of America took "extraordinary energies" and cultivated a peculiarly American attitude, which refrains from looking back.[19] Writing 20 years later, Stanley Hoffmann was more blunt, arguing that the American obsession with progress has resulted in a perspective that is the equivalent of "historical virginity."[20] Americans value novelty over tradition and often point out change in their local settings as markers of progress.[21] A quip attributed to the quintessential American problem solver, Henry Ford, sums up this mentality: "History is more or less bunk. It's tradition. We don't want tradition. We want to live in the present and the only history that is worth a tinker's dam [*sic*] is the history we made today."[22]

Contemporary scholars of American strategic culture and ways of war argue that "ahistoricism" continues as a serious deficit within U.S. decision-making circles.[23] An American public that is largely uninterested in historic knowledge tends not to prioritize it when electing officials.[24] Public figures are rewarded instead for experience-based common sense and forward-looking ambition.[25]

Americans live in comfortable ignorance about other lands due to a combination of both cultural insularity and native enthusiasm about the American way of life. Samuel P. Huntington argued in 1957 that insular thinking is deeply rooted in American philosophies of liberalism, which focus inward on domestic affairs and largely ignore the foreign sphere.[26] Oliver M. Lee argues that this trend has continued to the present day. The American brand of individualism focuses first on the self, then in concentric circles moving outward—family, local community, and to some extent the nation. Little interest is reserved for the wider world beyond.[27]

It is perhaps no surprise, then, that research conducted by Edward C. Stewart and Milton J. Bennett, authors of the seminal classic *American Cultural Patterns*, finds that most Americans possess "a cultivated ignorance of other nations," harboring biases that assume mutual similarity and gross oversimplifications.[28] This mindset neither a product of malice nor is it terribly unique to Americans; but it is particularly consequential when it dominates the foreign and security policy decision making of a world superpower.

For both of the United States' primary great power competitors—Russia and China—Phase Zero preparation includes a studied understanding of the populations subjected to their influence operations. Russia's media and information operations outlets, for instance, invest significant effort in understand-

ing the political and social landscape of intended targets. The resultant cultural intelligence yields success in exploiting social sensitivities and grievances within the domestic populations of its competitors while steadily building communities of trust that will be more receptive to Russian messaging.[29] In addition, English language classes are mandatory and American history classes are encouraged across many Chinese and Russian educational institutions.[30]

Looking forward, U.S. forces may reasonably expect that they will be fighting a near-peer power across theaters in which the adversary has already made significant inroads with the population. Understanding the depth and breadth of American disinterest in other cultures and recognizing it as a byproduct of historic national experience may enable strategic planners to identify and override instincts that put cultural training first on the chopping block when defense budgets experience stress. The cultural priming that consistently underprioritizes cultural education and training in the U.S. defense establishment is not only poor strategic practice; it is a potentially serious liability in the face of looming conflict with culture-smart adversaries.

By, With, and Through: Great Power Competition and Proxy Warfare

Great power competition short of war—known variously as gray zone warfare, hybrid warfare, political warfare, and asymmetric warfare, among other labels—is intrinsically revisionist, whether employed by great power competitors or by nonstate actors. These actors seek to shift the status quo in ways that would harm U.S. interests without triggering a direct confrontation with its military forces.[31] Some of the core takeaways for advancing and protecting U.S. interests in gray zone competition echo the points of the previous section: investments in understanding local contexts and culture will yield strategic advantages. The relationships the U.S. forges with local partners will be key to achieving U.S. objectives. Leaders within the U.S. special operating community are clear about the population-centric nature of gray zone mission sets already underway, and pursue these almost exclusively by, with, and through partner forces.[32]

In addition to prioritizing language and culture training, U.S. strategic planners and warfighters engaged in gray zone warfare will also benefit from a clear-eyed recognition of a few U.S. strategic cultural predispositions. These include a hyperorientation to problem solving, a devotion to effort optimism—the belief that through hard work one can achieve anything—and an obsession with quantitative metrics of success that are likely to impact the success of relationships with local security forces and the host populations from which they are drawn.

Americans as Human Do-ings

In the early 1990s, a Russian student—fresh from the recent collapse of the Soviet Union—arrived at the college campus in Utah where the author was a junior instructor. After several weeks of enthusiastic welcoming and well-intended congratulations from her American peers ("How does it feel to be free?!"), she volunteered to give a comparative presentation on Russian and American culture. Her presentation began with the blunt statement, "Americans are not human beings." She continued with: "Americans are human *do-ings*. They don't know how to *be*." Her pithy, jarring, and strikingly insightful assessment of American culture tracks with the observations of historians and ethnographers, and echoes primary themes across U.S. military doctrine.

Problem-solving is key to American identity—being a problem-solver is both a requirement for most occupations and an admired personal trait. For Americans, it is also perceived to be the primary purpose of human activity.[33] The military puts this impulse on steroids. The bias for action championed by U.S. Marines is one in favor of problem solving. Former Air Force pilot John R. Boyd's OODA (observe, orient, decide, act) loop tempo, which forms the core of the Corps' warfighting doctrine, is the ability to solve problems at a faster rate than the adversary to gain the initiative. Within this doctrine, overreaction can be forgiven—"errors by junior leaders stemming from overboldness are a necessary part of learning." But inaction cannot: "[O]n the other hand, we should deal severely with errors of inaction or timidity."[34]

As human do-ings, Americans are comfortable with trial and error as a learning method and tend to venerate heroes who epitomize the innovative and action-oriented problem solving from the frontier past.[35] An American's sense of identity is rooted in their occupation: one is what one does.[36] With a value orientation firmly fixed on demonstrated activity, Americans tend to exude "busy-ness" as a status symbol. The fast pace of American life ("hurry sickness") is not new to this century or to the previous one. As early as the 1830s, Alexis de Tocqueville remarked on the excessive rushing about in American life.[37] Two hundred years later, Americans remain incessantly on the move.[38] Marines capitalize on American haste and take it further. Tempo and raw speed in the delivery of lethal effects is a core attribute of Marine combat doctrine: "Speed is a weapon."[39]

The American preference for fast action means that tasks that require patience, restraint, and caution run counter to preferred American instincts. Working at the pace of local forces to execute key operations or with local officials responsible for civic action projects, the delivery of humanitarian aid, or the establishment of functioning governance can tax the patience of American diplomats and military forces. In response, Americans typically set a deadline. Americans possess near mythical regard for deadlines as a means for increasing

efficiency and accelerating progress, and they expect others to do the same.[40] When the threat of a deadline is insufficient to fast-track local action, the result is often a breach in the local relationship in favor of the efficiency of doing it ourselves. When the achievement of U.S. strategic objectives involves local sustainment of security measures or public services, the preferred American pace tends to backfire.

The action-orientation of U.S. forces may also result in blind spots for military intelligence. Americans assign status based on demonstrated personal achievement and look for it in local leaders, a habit of mind that may cause them to overlook the import of key influencers within relationship-based societies who derive status from other sources, including family ties, religious position, or knowledge of local history.[41] In addition, impatience with the time required to research and assess the complex sociocultural angles of problem sets can leave American intelligence officers and planners easy prey to peddlers of single-solution concepts.[42]

Effort Optimism and the Engineering Fix

The action orientation of U.S. problem solvers is fueled by a particularly attractive trait within the American ethos—an unsinkable optimism. Expectations for success permeate American life and U.S. national security documents.[43] Brogan points out that an outsized belief in one's own abilities and the possibility of success against long odds were the survival tools of the continent's earliest European settlers; intrepid enough to brave life in the New World, their optimism became a national brand. Within the "religions of economic and political optimism" Brogan observed, "dissent, especially continuous pessimistic crabbing" was "near to treason."[44] Scholars across the decades have continued to note this theme, citing "effort optimism" as a key American value.[45]

Colin S. Gray points out the implications for foreign and security policy: "[I]t is quintessentially American to be optimistic and to believe that all problems can be solved, if not today, then tomorrow, and most probably by technology."[46] The result, Gray cautions, is an American formula that can substitute optimism for hard-nosed analysis: "The problem-solving faith, the penchant for the engineering fix, has the inevitable consequence of leading U.S. policy, including its use of armed force, to attempt the impossible."[47] Leonard Mason's review of a significant body of anthropological work on American culture provides support to Gray's claim. Accustomed to a history of success in mastering the physical environment, Americans "are equally confident that undesirable social conditions can be remedied just as easily and are confused when such proves not to be the case."[48]

In the gray zone warfare context, applying an effort-optimism engineering fix to training partner security forces can result in extreme frustration on the

part of U.S. forces and a concomitant souring of its relationship with local partners. American cognitive patterns emphasize linear thinking and causal chains in which situations are diagnosed as a series of isolated, solvable problems rather than as a web of complex dynamics and relationships.[49] This orientation creates an exaggerated sense of control over the environment and a perception of independence from the decisions and actions of others.[50] Operating through this lens, U.S. forces tend to fixate on their own training efforts as key to crafting effective local fighting forces rather than examining indigenous "will to fight" factors over which they may have limited control.[51] In publications assessing local security force failings in Iraq, U.S. Marine officers focused on improving their own training regimen as a remedy to lackluster indigenous fighting spirit rather than engage in serious analysis of their recruits' incentives to fight for what American's perceived as core objectives. Disappointing performance was attributed to improper training—a situation that could be remedied with education, hard work, and resources—not examined as a manifestation of local circumstances and incentives. Myopic analysis of this sort—fueled by a can-do spirit—does not help alleviate frustration with local force performance or produce the insights necessary to build or repair strategically important relationships.[52]

When competing for influence against an aggressive power like Russia, whose military doctrine holds a core place for preemptively and continually shaping the "cognitive battlespace" of contested areas, an overdeveloped focus on the delivery of excellent training as the key to successful local partnerships risks underestimating the effectiveness of targeted influence operations aimed at shaking the commitment of partner forces and populations.[53] Strategic and operational leaders may further be tempted to assume that increased U.S. efforts or resources offer a direct, linear solution to winning back the loyalties, or at least shared interest, of local partners from strategic adversaries' encroachment. Unfortunately, this blind spot is only compounded by the American proclivity for measuring operational success, including engagement with proxy forces, in numbers.

Obsession with Quantification

The compelling need to quantify the world, and experiences within it, is deeply rooted in the American psyche. Stewart and Bennett point out that the "[c]riteria that define success and failure [in the United States] are statistically measured, as are amounts of work, levels of ability, intelligence, and quality of performance." The number of minutes spent with a U.S. president typically conveys the importance of their guest to the press.[54] Americans find comfort in quantification because behavior that is quantified becomes objectified and is perceived as amenable to human control.[55]

In the foreign and security policy arena, measuring the successful growth of strategic relationships, the stabilization of fraught societies, and progress toward political objectives can be difficult, so Americans often default to the aspects that can be most easily counted. Even in population-centric warfare—where relationships are key—enemy dead and weapons confiscated are two typical measures of operational success. Pressed for other measurements, U.S. forces often report on American *inputs*—the number of hygiene kits distributed, lengths of road built, cash distributed, and patrols run—treating them as successes in their own right, as evidence of strategic progress regardless of whether these inputs have significantly advanced the political goals they are meant to achieve. The same pattern is repeated for partner security training. Reports to military superiors emphasize the countable aspects of foreign internal development: number of local forces participating, hours spent on marksmanship, drills run, and certificates of completion signed.

U.S. Marines have the particular fortune of possessing the most excellent piece of modern doctrine in print. *Warfighting*, Marine Corps Doctrinal Publication 1 (MCDP 1), addresses a number of American default settings, including the passion for countable things, and issues the appropriate caution: "Although material factors are more easily quantified, the moral and mental forces exert a greater influence on the nature and outcome of war."[56] Moral and mental forces—the cognitive realm—sit at the center of twenty-first century contests of influence. Aspects of the cognitive realm are difficult to measure and the complexity of the task may tempt commanders to continue to default to superficial indicators—American material inputs or the efforts of its own forces—when assessing the health of partner relationships or the efficacy of U.S.-supplied training. Without a concerted effort to forge new assessment tools, American habits of practice are destined to remain dangerously sophomoric and unreliable as strategic indicators.

Creative and reasonably credible measures of strategic progress in population-centric warfare settings are not only possible; some have already been field tested in pockets of the U.S. force. During the initial years of the Iraq War, Marines defaulted to measuring mission progress by counting insurgents killed and weapons found, but as the counterinsurgency campaign matured and Marine officers in al-Anbar Province saw success in their outreach to tribal leaders, they recognized that their standard reporting metrics would neither capture the progress they were making nor incentivize the right kind of effort from the warfighters under their command.[57] These officers implemented innovative measurements that tracked more reliable indicators of strategic progress: the number of recruits volunteering for American training and the volume of intelligence offered by the population. Colonel Julian Dale Alford proved even more creative: while commanding in al-Qaim, he ordered his Marines to tally

the number of dinner invitations they received. Dubbed "eats on streets," his count acted as a barometer for the rapport being built with the community.[58]

Meaningful measures of operational and strategic success are particularly critical in the blurred battlespaces of gray zone conflict. The United States remains engaged in sharp conflict with Iran's proxies across the Middle East—an aspect of gray zone competition unlikely to abet in the near term. It will be through local partners that the United States seeks to achieve its objectives and roll back Iran's ambitions for regional hegemony. Tehran's patient cultivation of proxy forces that share its worldview, and support for social-welfare institutions that curry support from the wider public are gray zone obstacles already significantly entrenched.[59] Confronting Iran's agenda in the region will require analytical tools that widely account for local conditions, complex loyalties, popular worldviews, and incentives that resonate with local partner forces. Measuring success against this complex landscape requires surmounting American instincts to default to superficial quantitative metrics. Ben Connable, in a thoughtful piece written for the Rand Corporation, offers a selection of alternative assessment models that are both qualitative and quantitative in nature and leverage the wealth of lessons learned across recent U.S. experience with population-centric warfare.[60] His analysis and findings demonstrate that despite its traditional proclivities, the United States is in a particularly advantageous position, given its wealth of experience in partnering with local forces during both active conflict and in peacetime to advance beyond its quantitative-centric default setting and forge qualitative assessment tools that advance U.S. metrics for assessing local loyalties and will to fight.

Great Power Ideological Competition: Authoritarian Ambitions

A third frontier over which the future of great power competition is likely to play out is in the contest of ideology, as the U.S. model of democratic governance faces increasing pressure from the proliferation of authoritarian and protoauthoritarian regimes. Strategic competitors solidifying their own unilateral rule at home will continue to seek to exploit domestic turmoil abroad and leverage political and economic upheaval to expand their own spheres of influence through well-developed weaponized narratives and psychological warfare campaigns undermining Western and Western-leaning governments.[61] Regimes seeking to stabilize governance at home may be attracted to the promise of advanced Chinese surveillance systems designed to augment state control of citizen behavior. American cultural presets—particularly an evangelical enthusiasm for American-style democracy and a deep faith in the power of material generosity to accomplish strategic goals—represent dangerous blind spots that may prevent U.S. decision makers and strategic planners from identifying or

properly weighting great power competitors' advancing efforts to promote authoritarianism abroad and undermine the foundations of U.S. leadership and democratic governance across U.S. allies and partners.

Blind Spots in the American Zeal for Democracy

Although messianic tendencies toward exporting American political processes and values tend to be a hallmark of U.S. foreign policy today, early twentieth-century Americans were not so sure about their portability. Europeans were viewed as "not yet ready" for American-style democracy and Central and South Americans were regarded as not sufficiently civilized.[62] As the American experiment in democracy gained momentum in power and status, its population came to see its virtues as universal and its adoption as inevitable.[63] Moved by this perceived eventuality, it became part of the American default setting to proselytize the American model at every opportunity.[64] Americans want to extend to others those virtues prized in their own culture: a democratic setting that advances individual worth, justice, and fair play, and offers the chance to realize the American dream—individualism, equal opportunity, and the right to pursue happiness.[65]

For Americans, it is difficult to conceive of a future in which authoritarianism emerges as the dominant international model. American policy makers and the public alike regard movements toward democratic governance to be an ineluctable and natural process of political evolution, one that will continue to mend relations between nations and result in international prosperity and stability. The normal march forward for humanity is believed to be advancement toward a better life for a consistently expanding percentage of the global population.[66] The basic sentiments that underpin this American view are captured in academic literature as "modernization theory," which held sway as a dominant paradigm in the 1950s and 1960s and made a modest comeback in the social sciences of the 1990s. As noted by Francis Fukuyama, "If one were to sum up the Americanized version of modernization theory, it was the sunny view that all good things went together: Economic growth, social mobilization, political institutions, and cultural values all changed for the better in tandem."[67] Although modernization theory has fallen into ill repute within the scholarship of the academy, the basic tenets of this theory remain alive in the mental models of America's leaders and its citizens. Movement away from, rather than toward, democratic practice is perceived as out of the natural order and are difficult for Americans to anticipate, consider probable, and adequately prepare to accomplish. Washington reacted to Moscow's 2014 invasion of Crimea, for instance, with shock and outrage that Russia would engage in an act "on the wrong side of history."[68]

One of the consequences of these combined assumptions is an ethnocentric

tendency toward viewing the populations of undemocratic regimes as "underdeveloped Americans" who have been stymied in some way in their natural progression.[69] Americans believe that if liberated from their dictators and given the material resources to build a new life, the natural inclination of most people would be to gravitate toward democracy. American support for wobbling partner governments, therefore, has relied heavily on American material generosity and the deployment of its military force: two approaches that are not without their successes in history, but are likely to fall short in an era of technology-driven incursions against democracy.

Material Fixes to Immaterial Problems

Leaning on its default setting for the engineering fix, U.S. policy makers tend to perceive struggling partner governments as a problem to be fixed or, if the government has been pushed out in a regime change, an item to be built. U.S. nation-building efforts surge forward with native optimism, undiluted by a knowledge of history that would reveal the limits of a foreign power in doing so. Consequent failures tend to be explained in the American mind as products of insufficient resources or insufficient U.S. effort.[70]

Limited in their understanding of other cultures, Americans tend to lean on instincts of material generosity to forge relationships and provide support to governing structures. Drawing from the rich economic treasure of the United States, diplomatic and military personnel dispense humanitarian aid, build schools, and improve infrastructure to advance democracy and indigenous life. Anthropologists Edward T. and Mildred Reed Hall hold up the United States as genuinely distinctive in this regard, declaring that American material generosity is "matched by no other country we know."[71] Through gifts of resources and infrastructure, Americans aim to win friends over to the virtues of democracy and accelerate the social and economic progress required for stability. Brogan, among others, tracks the origins of the American fixation on material advancement to the Protestant Reformation and its spread through American religious circles. The result was a cultural conflation of prosperity and virtue.[72] Belief in the positive morality of material success propelled the American economy forward, enabling robust economic growth and unparalleled logistical excellence. Americans typically measure their own national health through daily tracking of fiscal and material indicators.

Material investments are often deeply appreciated by the populations who receive them and in some critical cases have achieved the strategic objective of shoring up democracy. The material investments of the 1948 Marshall Plan were not insignificant in the effort to strengthen fragile democracies in post–World War II Europe, a model that continues to resonate with Americans today. The U.S. experience since that era has resulted in some negative lessons learned

concerning the savvy application of material resources. Resources aimed specifically at the population—medical services, food supplies, hygiene kits, soccer balls, and the like—produce sincere gratitude when addressing a local need. A lush dispersal of funds and projects, however, can have unintended, counterstrategic effects. In some cases, the more generous the dispersal of goods, the more destabilizing the effects may be. A sudden injection of resources can create destabilizing winner/loser dynamics, fuel corruption, inadvertently supply the underground economy that feeds disruptive actors, destroy the fledgling profitability of local businesses, and even create perverse incentives among key actors to maintain a status quo of insecurity to remain on the receiving end of a steady flow of funds.[73]

Furthermore, when these investments are made without regard for local preferences or the ability of local resources to sustain the project beyond a U.S. force presence, they stand as a testament to wasted effort, or worse, harm local dignity and have a souring effect on U.S. relationships. A Marine captain of the Vietnam era offered sage insight concerning the overwhelming material gifts he saw being dispersed around him: "Generosity which cannot be returned breeds hostility, not affection."[74] The fixation on winning local gratitude rather than amplifying local dignity can also lead America's citizens to become disillusioned and resentful when they believe their material gifts and well-meaning efforts are not appreciated.[75] These negative sentiments can become vulnerabilities exploited at home by the political opposition, often resulting in a swell of public opinion to cut aid short and abandon the regime to its own devices.[76]

As recent U.S. efforts in nation-building have made clear, it is the character and policies of the host government—not the resources or will of foreign forces—that is most determinative in winning the political support of the wider population and establishing the political legitimacy necessary for democratic governance. American forces can neither "gift" democratic legitimacy to a dysfunctional or unpopular indigenous government, nor are its material investments sufficient to supply freedom from violence and stability in everyday life.

The combination of these American default settings—an assumption of the natural magnetism of democratic governance, and a belief in material benefits as the surest means to get there—are currently being challenged by the United States' most powerful competitors. Two of the most critical threats to democratic leadership are Russia's determined efforts to undermine Western-style governance through hostile social manipulation and China's advancing export of digital authoritarianism.

Great Power Challenges to U.S. Leadership and the Democratic Model

Russian efforts to sow discord, cast doubt on the legitimacy of democratic gov-

erning structures, and manipulate attitudes within targeted populations has been explored widely in literature and falls under a number of labels. Rand authors Michael J. Mazarr et al. make a sound case in favor of "hostile social manipulation" as an umbrella term that captures the core Russian intent. As this team of researchers carefully documents, the wide variety of Russian attempts to manipulate the attitudes and thinking of foreign populations has resulted in a mixed record. In the case of the United States, it is unclear whether recent Russian attempts to shape the American cognitive realm did much more than modestly accelerate attitude trajectories already in motion.[77]

Russia's mixed record and willingness to fail in repeated forays of trial and error may cause Western analysts to miss a critical takeaway: Moscow has clearly demonstrated both national will and national long-term investment in mastering the art of manipulating the cognitive realm. Russia's whole-of-society approach to improving its hostile social manipulation tactics promises to become even more worrisome as its security professionals, corporate mavens, and entrepreneurial civilian contractors refine their approaches through new technological platforms. Emergent digital technologies, including increasingly advanced uses of machine learning and artificial intelligence, have the potential to anticipate audience preferences and fine-tune Russian messaging for maximum impact against particular demographics. Russia's determination to triumph in information operations is firmly fixed; for Moscow, success here is considered existential. Russia has long viewed U.S. public narratives—including those promoting human rights, democracy, and a U.S.-led global order—as conscious attempts to undermine and overturn the Russian regime. Dominating the cognitive domain, in its view, is the only way to protect the longevity of the Russian state.[78]

American confidence in the self-evident benefits of its own governing paradigm combined with a historically unfounded certainty regarding democracy's inherent stability may inhibit U.S. public investiture in the research, personnel, technologies, and defense focus necessary to protect democratic governance at home and provide something beyond token material support to partners abroad. Defense professionals pursuing information operations on behalf of U.S. interests acknowledge that their mission is understaffed, under budgeted, and regarded by leadership as peripheral to more serious U.S. defense objectives. They, alongside the scholars tracking the growth and development of the Russian information offensive, sound consistent warnings regarding the potential strategic consequences of continuing in this vein.

An American whole-of-society approach that would mirror the effort being mounted by Moscow is not likely to be created in the near term. Bridges between the public and private sector would need many more connective planks than currently exist—and more than perhaps *should* exist in a healthy democ-

racy. Nevertheless, smaller steps toward protecting the domestic infosphere and countering Russian aims are possible. U.S. leadership in both the public and private sectors would benefit from examining the characteristics of those populations outside of the United States or those demographics within it that have proved particularly resilient to Russian efforts to sow discord and undermine faith in democratic institutions. Public investment in understanding what went right in these circumstances and which lessons might be learned and duplicated represents a reasonable first step. Exploring the fundamental components of resilient communities—a subject that has captured interest within pockets of both the U.S. public and private sectors—and the range of effective means to strengthen resilience where it is lacking will provide insights that advance U.S. thinking on the types of support that may be offered to partner nations. Investments of this sort cannot come too soon; attaining domestic stability is a priority for most all governing regimes, and China is offering a high-tech authoritarian remedy.

U.S. confidence in the basic attractions of the democratic model across the globe may be inhibiting the ability of political and corporate leaders to fully appreciate and react to the implications of China's evolving social credit system (SCS)—a set of pilot programs that employ sophisticated technology to track, surveil, and impose positive or negative consequences in response to the micro-activities of its citizenry. China's SCS technological package has the potential to become a lucrative export, and if used by autocratic customers with the same deft skill that China has employed, it will quash internal protest movements and significantly advance the longevity and stability of authoritarian regimes.

China's diverse digital dictatorship toolkit is not the only one of its kind, but it is the most advanced. China's internal use of "dataveillance" systems reaches into small details of daily life—awarding citizens higher individual social credit scores for volunteer work and donating blood, drops in scores for jaywalking, playing music too loud, or walking a dog without a leash—to shape public behavior.[79] Access to public services including transportation, financial loans, and advanced education are contingent on appropriately high social credit scores. American assumptions that such invasive practice would meet with revolt are misplaced. Most Chinese citizens accept the trade-off and value what they perceive to be the promotion of honest dealings in society.[80] The lack of backlash from within China has allowed Beijing to market the attractions of its dataveillance platforms to its widening circle of economic partners, particularly through the Belt and Road Initiative. The foreign proliferation of this technology has consequences for human rights and for U.S. leadership: it represents a global movement away from philosophical alignment with narratives of democracy and closer to those promoted by Beijing.[81]

When considering policy that might counter the growing threats to de-

mocracy, it is worth noting that the record of human history indicates a strong preference for stability and predictable living over concerns about personal liberty. Regimes struggling with domestic chaos or bouts of violence—even those who are friends of the United States—may welcome Chinese advances in digital authoritarianism as a means of getting their houses in order. The application of dataveillance authoritarianism by new national customers in Africa, the Middle East, and beyond may not meet with the stiff resistance the United States expects if it is seen as effective at subduing disruptions to everyday life. The normalization of this technology has implications for international standards and the long-term viability of the democratic model. As China emerges as both the peddler and trendsetter in the tools of digital governance, its leadership in artificial intelligence and the digital age may pose the most serious threat to U.S. global leadership yet.

Conclusion

Competition with great power adversaries is unlikely to play directly to American strengths. It is being played against shrewd adversaries who are well acquainted with American advantages in warfighting as well as the deficits and vulnerabilities that history has opened to view. The salami-slicing tactics pursued by global competitors such as Russia and China—sometimes referred to as "exploiting ambiguities in deterrence"—are designed to take advantage of America's short attention span, four-year political cycle, and strong tendency to look to traditional measures of military power as reassurance for the continuance of American hegemony.[82]

The focus of the U.S. defense and security community on great power competition threatens to feed a preexisting penchant for conventional war that is too narrow in vision to adequately prepare the force for the next round of conflicts. Future war against a conventional foe is likely to take a strikingly unconventional form if fought across the population of a third-party nation. Recognizing our own cultural presets with more clarity will provide advantages in thinking strategically about civic as well as military action on the ground, prioritizing meaningful measures of progress toward long-term strategic goals, and avoiding the pitfalls of overestimating the salience, or existence, of U.S. technological overmatch vis-à-vis near-peer adversaries. Harvesting the ready-made lessons from the last two decades of U.S. warfighting and building on these to successfully advance the local relationships with partners and allies that are critical to U.S. global success will require investments in history, culture, and lessons learned in irregular warfare—all efforts that will require a new set of best practices currently outside the comfort zone of American strategic culture.

Perhaps most importantly, the United States must lean forward in anticipating and countering efforts to undermine the society of democratic nations

that form the scaffolding of the post–World War II international order. U.S. global leadership depends on its ability to model the advantages of democracy and to effectively convey strength and resilience to partner nations that are being actively courted by U.S. competitors. The American model remains an experiment—one that requires a citizenry educated to spot malign foreign influence operations at home and diplomatic and security practices that inspire a wide circle of friends and alliances abroad.

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How U.S. Government Policy Documents Are Addressing the Increasing National Security Implications of Artificial Intelligence

Bert Chapman[1]

> *Artificial intelligence is the future. . . . Whoever becomes the leader in this sphere will become the ruler of the world.*
>
> ~Vladimir Putin[2]

Introduction

This article emphasizes the increasing importance of artificial intelligence (AI) in military and national security policy making. It seeks to inform interested individuals about the proliferation of publicly accessible U.S. government and military literature on this multifaceted topic. An additional objective of this endeavor is encouraging greater public awareness of and participation in emerging public policy debate on AI's moral and national security implications.

Artificial intelligence has played a historically significant role in U.S. military policy for multiple decades. An early demonstration of artificial intelligence's interest in the academic community was a 1956 meeting on this subject at Dartmouth College in Hanover, New Hampshire, organized by a mathematics professor named John McCarthy. He maintained that this meeting was intended "to proceed on the basis of the conjecture that every aspect of learning or any other feature of intelligence can in principle be so precisely described that a machine can be made to stimulate it." A 1972 Naval Weapons Laboratory report discussed the role of automatic theorem proving on computers and the role algorithms can play in problem solving, while acknowledging that the time when intelligent machines will do most of the work being done by humans is far away. Subsequent decades have seen the growing sophistication of technology in civilian and military applications, increasing the ability of machines to

perform human tasks. This period also resulted in artificial intelligence obtaining increasing importance in U.S. national security policy making in publicly accessible literature produced by civilian and military agencies.[3]

Statutory Definition of Artificial Intelligence

The John S. McCain National Defense Authorization Act for Fiscal Year 2019 defines artificial intelligence as:

1. Any artificial system that performs tasks under varying and unpredictable circumstances without significant human oversight, or that can learn from experience and improve performance when exposed to data sets.
2. An artificial system developed in computer software, physical hardware, or other context that solves tasks requiring human-like perception, cognition, planning, learning, communication, or physical action.
3. An artificial system designed to think or act like a human, including cognitive architectures or neural networks.
4. A set of techniques, including machine learning, that is designed to approximate a cognitive task.
5. An artificial system designed to act rationally, including an intelligent software agent or embodied robot that achieves goals using perception, planning, reasoning, learning, communicating, decision making, and acting.[4]

Artificial intelligence has experienced ebbs and flows in public attention with a recently released U.S. government commission report acknowledging it is receiving renewed popularity for multiple reasons:

- The unprecedented availability of big data;
- More powerful computing, particularly use of specialized graphics processing units, which are suitable for parallel computations by neural networks;
- Ubiquitous mobile connectivity, enabling AI technologies to be easily embedded and portable while managing data within the cloud; and
- Dramatic improvements in machine learning algorithms, especially those involving deep learning.[5]

This resurgence in governmental interest in AI is reflected in multiple recent publications from civilian governmental and military agencies.

Presidential and Executive Office of the President Documents

This section examines the variety of U.S. civilian and military agencies producing AI national security policy making documentation. It begins with documents from the president and White House offices, such as the National Security Council (NSC) and National Science and Technology Council, which can be regarded as representing presidential administration policy aspirations. These materials reflect the complexity of this public policy arena in areas such as executive orders, laws, regulations, and budgetary allocations. They also examine potential competition between agencies and relevant congressional oversight committees. The competition typically involves determining which of these entities will have control of various segments of U.S. AI national security policy making and the monetary and staffing assets needed for effective implement of these programs.

June 2019 saw the White House's National Science and Technology Council release *The National Artificial Intelligence Research and Development Strategic Plan: 2019 Update*, updating a 2016 version of an *Artificial Intelligence Research & Development Strategic Plan* produced by this office. Strategic objectives stressed in this document include making long-term investments in AI research, including developing scalable AI systems and fostering research on human-like AI; understanding and addressing AI's ethical legal and societal implications; ensuring the safety and security of AI systems, including enhancing verification and validation and securing against attacks; and better understanding national AI research and development workforce needs.[6]

Increasing the lethality of U.S. military forces and responding to resurgent conventional and nuclear threats from revisionist powers such as China and Russia has been a hallmark characteristic of the Donald J. Trump administration's national security policy documents. The 2017 *National Security Strategy of the United States* stressed:

> To maintain our competitive advantage, the United States will prioritize emerging technologies critical to economic growth and security, such as data science, encryption, autonomous technologies, gene editing, new materials, nanotechnology, advanced computing technologies, and artificial intelligence. From self-driving cars to autonomous weapons, the field of artificial intelligence in particular is progressing rapidly.[7]

Executive Order (EO) 13859, issued by President Trump on 11 February 2019, stressed that the United States must maintain leadership in AI. It emphasized the necessity of a concerted effort to promote technological and innovation ad-

vancements. Additional EO emphases included protecting American technology, economic and national security, civil liberties, and privacy while enhancing national and industry collaboration with allied foreign partners.[8]

In response to EO 13859 multiagency reporting requirements, the Department of Commerce's National Institute of Standards and Technology issued *U.S. Leadership in AI: A Plan for Federal Engagement in Developing Technical Standards and Related Tools* on 10 August 2019. This treatise called for developing technical standards for advancing effective, reliable, robust, and trustworthy standards. These include data sets in standardized formats, including metadata for training, validation, and testing of AI systems; tools for capturing and representing knowledge and reason in AI systems; fully documented cases providing a range of data and information about specific AI technologies, standards, and best practice guides used in decision making and deploying these applications; documented cases proving a range or data and information about specific AI technologies, standards, and best practice guides used in decision making and deploying these applications; and metrics to quantifiably measure and characterize AI technologies.[9]

On 30 August 2019, the Office of Management and Budget issued the Trump administration's memorandum "Fiscal Year 2021 Administration Research and Development Budget Priorities" (1 October 2020–30 September 2021), which outlined research and development budget priorities. The American security section of this document stressed the importance of investing in research and development to deliver advanced military capabilities to meet emerging threats and protect American security. These capabilities include offensive and defensive hypersonic weapons, resilient national security space systems, and modernized and flexible strategic and nonstrategic nuclear deterrent capabilities. The American leadership in the industries of the future section highlights departmental and agency prioritizing basic and applied research spending consistent with EO 13859—emphasizing AI, quantum information science, and computing and strengthening workforce capability in these areas.[10]

Artificial intelligence research and development spending requests among civilian government agencies for fiscal year (FY) 2020 was $654.4 million, according to a 10 September 2019 document from the White House's National Science and Technology Council. The National Institutes of Health and the National Science Foundation accounts for $448.1 million of this amount.[11]

Another emerging sculptor of the national security implications of artificial intelligence for the U.S. is the National Security Commission on Artificial Intelligence (NSCAI). Established in 2018 by the FY 2019 National Defense Authorization Act, Congress directed NSCAI to examine U.S. competitiveness in artificial intelligence, machine learning, and other associated technologies related to national security. It was tasked with developing means and methods for

the United States to maintain technological leadership in national defense and security technologies, and monitor international cooperation and trends and developments and competitiveness, including foreign artificial intelligence and machine learning investments related to national security. The NSCAI found ways of fostering greater emphasis and investment, stimulating academic, private, public, and collaborative investments related to national security, including workforce and education incentives for attracting and recruiting leading talent in artificial intelligence and machine learning disciplines, such as science, technology, engineering, and math programs. It evaluated risks involving U.S. and foreign country advances in military employment of artificial intelligence and machine learning, including international law of armed conflict, international humanitarian law, and escalation dynamics. The NSCAI implemented means for establishing data standards and incentivizing sharing of open training data within national security and defense data industries and studied the evolution of artificial intelligence and appropriate mechanisms for managing national security and defense technology.

NSCAI released an initial report in July 2019, an interim report in November 2019, and is scheduled to release its final report in November 2020.[12] Interim report findings express concern that AI developments are linked to emerging strategic competition with China and broader global geopolitical developments. These concerns include that the United States' role as the world's preeminent innovator is threatened, and that strategic competitors and nonstate actors will use AI to threaten Americans, our allies, and national values. Another concern is that AI-enabled capabilities may be used to threaten critical infrastructure, amplify disinformation campaigns, and wage war.[13]

Consensus judgments on AI's national security relevance presented in NSCAI's interim report include the inherent endurance in AI-enabled autonomous systems, which can provide round-the-clock overhead reconnaissance and vast data quantities to give decision makers options about prioritizing maintenance needs or selecting which forces or equipment to send into battle. The U.S. government is not leveraging basic commercial AI to improve business practices and save tax dollars. Departments and agencies must modernize and become more effective and cost-efficient, and national security agencies need to rethink AI-ready workforce requirements, including extending knowledge of AI-relevant technologies through organizations, instilling training on ethical and responsible AI development at every level, and increasingly using modern software tools. Military and national security agencies need to improve their recruiting and incentives for top AI talent and American research universities and other research institutes need to be aware they are vulnerable to foreign exploitation and influence from strategic competitors like China; AI presents significant military interoperability challenges.

The United States and its allies must coordinate early and often on AI-enabled capabilities or military coalition effectiveness will suffer; U.S. diplomacy should explore possible AI cooperation with China and Russia on promoting AI safety and its impact on strategic stability. Federal law enforcement agencies should only use AI in ways constitutionally consistent with individual privacy, equal protection, nondiscrimination, and due process. There is widespread concern over Chinese use of AI surveillance to persecute Uighurs and religious groups, along with concern that U.S. institutions with Chinese ties are building these systems. The United States should take steps to prevent U.S. entities from unknowingly abetting such abuses through strong export controls, disclosure requirements, and economic sanctions.[14]

Defense Department Documents: Autonomous Policy

Assessing the national security implications of AI is becoming increasingly present in multiple Department of Defense (DOD) policy documents. A June 2016 Defense Science Board study on autonomy made multiple recommendations to DOD for enhancing autonomous policy capabilities. Representative samples include military chiefs integrating technology insertion, doctrine, and concepts of operations by ensuring early experimentation uses alternative sources and informs employment doctrine. DOD components should also develop an autonomy-literate workforce, and immediate action must be taken to counter adversary use of autonomy. The Defense Advanced Research Projects Agency (DARPA) and other organizations should adapt existing intelligence, surveillance, and reconnaissance screening and data tools. The Air Force's Dynamic Time Critical Warfighting Capability and the Marine Corps and DARPA should develop and experiment with a prototype heterogeneous, autonomous unmanned aircraft systems support team including 10 or more unmanned aircraft. Finally, DARPA should develop autonomous systems detecting large-scale intrusions on the internet of things by passively and remotely monitoring bulk network traffic and identifying aggregate indicators of compromise hidden within the flood of ordinary traffic.[15]

Adopted in 2012 and amended in 2017, *DOD Directive 3000.09, Autonomy in Weapons Systems*, reflects official DOD policy on weapons systems autonomy, such as autonomous and semiautonomous weapons systems designed to allow commanders and operators to exercise appropriate levels of human judgment over the use of force. They must also complete engagements in a timeframe consistent with commander and operator intentions and, if unable to do so, terminate engagements or seek additional human operator input before continuing the engagement. Policies should be sufficiently robust to minimize failures that could lead to unintended engagements or to loss of control of the system to unauthorized parties and provide clear procedures for trained opera-

tors to deactivate system functions. Persons authorizing the use of, or operating autonomous and semiautonomous weapons systems, must use appropriate care in accordance with the law of war, applicable treaties, weapon system safety rules, and applicable rules of engagement.[16]

DOD has established a Joint Artificial Intelligence Center (JAIC) as the focal center of its AI strategy. Institutional objectives include accelerating AI-enabled capabilities, scaling departmental-wide AI impact, and synchronizing DOD AI activities to expand joint force advantages. Specific examples of this include rapidly delivering AI-enabled capabilities to address key missions, strengthening current advantages, and enhancing emerging AI research and development efforts with mission needs, operational outcomes, user feedback, and data. Other objectives include establishing a common foundation for scaling AI's overall DOD impact, leading strategic data acquisition, and introducing unified data stores and other attributes. Furthermore, JAIC will facilitate AI planning, policy, governance, ethics, safety, cybersecurity, and multilateral coordination, attracting and cultivating world-class team expertise on AI capability delivery and creating new accelerated AI learning experiences throughout DOD professional education and training levels.[17]

The unclassified summary of the 2018 *National Defense Strategy* emphasizes that the emerging international security environment is impacted by rapid technological advances, including a relentless drive to develop new technologies such as advanced computing, "big data" analytics, AI, autonomy, robotics, directed energy, hypersonics, and biotechnology. This work stressed that DOD "will invest broadly in military application of autonomy, artificial intelligence, and machine learning, including rapid application of commercial breakthroughs, to gain competitive military advantages."[18]

On 6 February 2019, DARPA announced the creation of the Guaranteeing AI Robustness Against Deception (GARD) program. This endeavor develops new generation defenses against adversarial deception attacks on machine learning models. Current defense efforts are structured to protect against specific predefined hostile attacks while remaining vulnerable to attacks outside design perimeters when tested. GARD seeks to expand machine learning defense by developing broad-based defenses addressing numerous possible attacks in a given scenario. Three foci of GARD include:

- Developing theoretical foundations for defensible machine learning with a lexicon of new defense mechanisms based on them;
- Creating and testing defensible systems in divergent setting ranges; and
- Constructing a new testbed capable of characterizing machine learning defensibility relative to threat scenarios.[19]

U.S. Military and Intelligence Artificial Intelligence Spending

There are various estimates of U.S. military spending on artificial intelligence. On 7 September 2018, DARPA said it will spend up to $2 billion advancing AI during the next five years as part of a "Third Wave" campaign intended to develop machines capable of learning and adapting to changing environments.[20] A commercial database claimed DOD spent $7.4 billion on AI, big data, and cloud computing in FY 2017, with this total expected to reach $18.82 billion by 2025. Target areas of this increased AI spending include warfare platforms, cybersecurity, logistics and transportation, target recognition, battlefield health care, combat simulation and training, threat monitoring and situational awareness, and AI and data-information processing. The website Breaking Defense reported on 18 September 2019 that JAIC would see its budget double to more than $208 million with probable significant increases after 2021.[21]

A recent *Naval War College Review* assessment on emerging military spending on AI maintained that the Air Force allocated $87 million in 2019 for experimenting with war games and field training. The Army allocated $6.5 million for training, including simulations and virtual reality in 2019, and will begin fielding new unmanned combat systems by late 2019 with these being assigned to operational units by 2021. The eventual goal is for the Army to replace the M1 Abrams main battle tank and M2 Bradley infantry fighting vehicle. It also noted that the Marine Corps allocated $7.1 million for an unmanned warning system providing commanders with increased situational awareness. The Navy also allocated $6.5 million for AI training purposes, including submarine combat assets.[22]

Determining intelligence spending on AI is extremely difficult due to limited public disclosure of operationally specific items. A November 2019 Congressional Research Service report calculated FY 2020 National Intelligence Program spending at $62.8 billion and Military Intelligence Program spending for 2019 at $22.95 billion for a cumulative total of approximately $85.8 billion, representing 11.3 percent of overall defense spending. Debate about what degree the U.S. intelligence budget should be publicly disclosed remains ongoing.[23]

U.S. Armed Service Analyses of Machine Learning

Analysis of how AI and machine learning may affect operations of individual Armed Service branches in various threat scenarios is reflected in literature produced by the Air Force, Army, Marine Corps, and Navy. *Autonomous Horizons: The Way Forward* is a 2019 work from the Air Force's Air University Press focusing on emerging steps in autonomous systems development fielding and training. It presents recommendations for enhancing autonomous systems

capabilities in six areas: behavioral objectives, architectures and technologies, challenge problems, development processes, organizational structures, and knowledge platform.

These recommendations for enhancing autonomous systems capability include design ensuring proficiency in the given environment, tasks, and teammates envisioned during operations. Desired properties of *proficiency* include situated agency, capacity for adaptive cognition, allowance for multiagent emergence, and ability to learn from experience. Autonomous systems should be designed to ensure trust when operated by or teamed with human counterparts. Desired *tenets of trust* include cognitive congruence and/or transparency of decision making, situational awareness, design enabling natural human-system interaction, and a capability for effective human-system teaming and training. They also include developing one or more common autonomous system architecture capable of consuming multiple frameworks across disparate communities.

The architecture should be functionally structured to enable extensibility and reuse, make no commitment on symbolic versus subsymbolic processing for component functions, incorporate memory and learning, and support human teammate interaction as needed. Mission-oriented challenge problems with the two objectives should be selected for testing: a) addressing current or future operational gaps that may be well-suited for autonomous system application; and b) challenging the science and technology community to make significant advances in the science and engineering of autonomous system functionality. Through the U.S. Air Force chief data officer, acquire space to store the Services air, space, and cyber data so that AI professionals can use it to create autonomy solutions to challenge problems. Create data curator roles in relevant organizations to manage the data and establish the Autonomy Capabilities Team within the Air Force Research Laboratory, incorporating a "flatarchy" business model to bring experts into a single product-focused organization to develop the science of autonomous systems while delivering capabilities to the warfighter. Develop a knowledge platform centered on combining an information technology platform approach, with a platform business model. A knowledge platform designed for the multidomain operating Air Force should monopolize the connection of observation agents with knowledge creation agents and with warfighting effects agents, which can be either human or machine-based agents (autonomous systems).[24]

Another 2019 publication, *Artificial Intelligence: China, Russia, and the Global Order: Technological, Political Global, and Creative Perspectives*, examines how AI is affecting the global strategic environment with particular emphasis on its use by China and Russia. It notes that AI technology advances benefit all-encompassing surveillance used by dictatorial regimes, such as China and

Russia. Globally, countries are looking at democratic and dictatorial uses of AI to affect domestic developments in authoritarian, hybrid, and democratic countries.

U.S. policy makers should use a three-pronged strategy to understand this challenge and develop global policy, including ensuring the protection and robustness of U.S. democracy as it adapts to these new technologies. It must respond to domestic threats (e.g., capture by a tech oligopoly or drift to a surveillance state) and external threats without becoming governed by a military-industrial complex. U.S. digital democracy, if successful at home, will exert gravitational influence globally; the United States must exert influence effectively and manage potential escalation in the swing states (e.g., Asia or Europe) and global systems (e.g., norms and institutions) that form the key terrain for competition among the digital regime types. U.S. pushback on the diplomatic, economic, informational, and commercial dimensions will be crucial with allies and other states but must do so in ways that manage the significant risks of spiraling fear and animosity.[25]

One section of *Artificial Intelligence, China, Russia, and Global Order* examines AI and military dimensions in international competition. It focuses on hacking making AI more important by searching for vulnerabilities in opposing systems whose exploitation enhances national leverage, changing the nature of warfare and the risks of conflict escalation from AI-enabled military systems. Additionally, China's People's Liberation Army is exploring AI technological use in future command decision making by overcoming admitted deficiencies in commanders' capabilities and leveraging AI technologies to achieve decision superiority in emerging "intelligentized" warfare. This section of the book also examines Chinese efforts to integrate neural networks into its hypersonic platforms, potentially heralding a shift from active defense to a more offensive posture. Russia's military is also investing heavily in creating an AI intellectual and physical infrastructure across its armed services while expanding cooperation between a growing high-tech infrastructure and expansive military-academic infrastructure.[26]

The potential of AI to change war is also reflected in Army professional military literature. A 2018 Army Command and General Staff College study noted AI can enhance an Army commander's ability to exercise mission campaigns. This involves the Mission Command Battle Lab in the Army's Capability Development Integration Directorate taking a leading role in developing tools the Army can use with AI for enhancing human capacity and capability. This treatise also noted that it is a matter of when, not if, militaries focus on using AI in future wars. It stresses that the Army will focus efforts on human-AI teaming and that the machine's advantage over humans consists of unlimited bandwidth

and a narrowly defined focus within a clearly defined structure, which can easily outperform the best human counterparts.[27]

Conclusions of this work stress that AI places large volumes of information at commanders' fingertips, provides access to other's experiences, and usefully enhances cognition by organizing large volumes of information and presenting only situationally pertinent information. If employed correctly, AI gives the military an asymmetrical advantage by providing greater access to the information environment, allowing commanders to shape the operational environment. This shaping effort does not require employing forces, enabling operations to begin long before troop movements. Such deployment allows military commanders to conduct operations deep behind enemy lines with minimal or zero political risk.[28]

Army AI activities can also involve collaboration with business and academic entities. *Army Directive 2018–18*, issued on 2 October 2018, involves collaboration between DOD's JAIC and projects based at Carnegie Mellon University, which has established an Army-Artificial Intelligence (AI) Task Force (AATF) to enhance existing AI capabilities by leveraging existing technological applications to enhance warfighters, preserve, peace, and win wars. AATF's ultimate objective is rapidly integrating and synchronizing AI activities across the Army and DOD. AATF program objectives include:

- Revising the Army cloud strategy to establish an accessible, secure cloud environment that is an AI and machine learning-ready hybrid to share system data more easily to support decision-making speed and lethality;
- Developing and recommending policy and procedures for an identity, credential, and access management system that will efficiently issue and verify credentials to nonperson entities, such as AI agents and machines authorized to operate on Army networks;
- Reviewing all information technology, network, and cybersecurity policies to account for developing and employing emerging AI capabilities and tools on Army networks;
- Reviewing all information technology network, and cybersecurity policies to account for developing and employing emerging AI capabilities and tools on Army networks; and
- Developing and recommending standards-based technical architecture establishing a common foundation underpinning all AI and machine learning capabilities, including network connectivity, data access and availability, hybrid cloud hosting capabilities, and data protection mechanisms.[29]

U.S. Marine Corps AI discussion and analysis is also growing exponentially. The 2016 *Marine Corps Operating Concept* stresses that "even in a world of ever-increasing technology, we must continue to provide combat formations capable of closing with and destroying the enemy."[30] The *Marine Corps Operating Concept* goes on to stress that the Corps must be a lethal force combining arms with information warfare and destroying and defeating enemies across air, land, sea, space, and cyberspace. It also notes that information used as a weapon complicates the United States' ability to gain and maintain accurate, up-to-date, and intelligence-driven understanding of conflicts. Additionally, the Marine Corps is not presently organized, trained, and equipped to meet future operating environment demands featuring complex terrain, technology proliferation, information warfare, the need to shield and exploit signatures, and an increasingly nonpermissive maritime domain.[31]

To successfully adapt to this environment, the Corps must learn to use unmanned systems and automation at all echelons and in every domain. Mastering the human-machine interface represents a military operational revolution. The Marine Corps must understand and manage heat and radar signatures by combining mission control and use decoys, cover, concealment, camouflage, and deception. It should also exploit data strategies and information-sharing architectures to gain benefits from machine-aided tipping and relational visualization, along with displaying battlefield threats, expediting commanders' ability to quickly and intuitively understand complex situations. The Marine Corps must engage in information warfare by enhancing our ability to identify and oppose adversary narratives by using counternarrative methods, such as competing narratives, as well as reducing voices contributing to hostile narratives. The United States could exploit human-machine and artificial intelligence interfaces to enhance performance.[32]

Three recent Marine Corps University School of Advanced Warfighting (SAW) master's theses describe how emerging Marine Corps leaders view AI and its possible integration into military operations. Joshua E. Cavan's thesis, "Artificial Intelligence and the First to Fight: The Implications of Artificial Intelligence for Forward-Deployed and Early-Deploying Forces in Contingency Operations" notes AI can quickly process large data volumes, convert the data to information, and point to courses of action based on an algorithm in ways and speeds beyond human cognitive processing. He notes that AI is limited by its foundational machine learning, requiring vast amounts of data, and collecting sufficient machine learning of military AI systems may become important for forward-deployed and early-deploying forces, including country teams, special operations, expeditionary, naval, air, and forward-deployed ground forces.[33] Cavan's work argues that the United States should avoid being surprised by hostile deception processes by using data collected by advance- and forward-

deployed forces to quickly spot significant deviations from preconflict patterns. This information could drive decision-making tempo by analyzing hostile use of AI to exploit opportunities to protect friendly operations through surprise. It stresses using ambiguity to achieve surprise by referencing Russian forces' use of ambiguity during the 2014 Crimean annexation. The conclusion warns the American government to guard against surprise by avoiding being formulaic and predictable in decision making when there is excessive dependence on AI at the cost of human creativity. It is possible the United States and its allies may effectively use this creativity and national tradition of individual initiative against authoritarian societies if their mutual AI capabilities are of equal quality.[34]

A second SAW master's thesis, Jason C. Copeland's "Swarms of Flying iPhones: Using Limited Artificial Intelligence to Root Out an Adversary," stresses that evolving technology will increase the lethality of future wars. Noting the increasing urbanization of global demographics and the probability that more military conflict will occur in such areas, the author stresses the increasing importance of small unmanned aerial systems and their AI capabilities in changing the character of future war. They could provide critical targeting information to separate and target adversaries from friendly or neutral populations as they seek shelter from bullets and bombs.[35]

Copeland goes on to express concern that a Marine Corps squad could experience cognitive overload with the amount of information provided, such as integrating and making sense of an unmanned aerial system feed while winning a firefight. He notes that an individual squad leader could effectively receive redirecting intelligence for a patrol based on later intelligence updates produced by small unmanned aerial systems swarms compiling, sorting, and supporting real-time information into actionable intelligence. Additional determinations of this work are that weapons release is highly unlikely to defer to an automated system for killing human combatants, but that the data collected before deciding to target a human can be exploited by machines to shorten the decision to strike. This technology is not currently available since a flying iPhone would need a multimegapixel camera, require long air loiter times, extended range from the base station recharging the small unmanned aerial systems, and a high bandwidth data downlink.[36]

How machine learning transforms the joint targeting process is analyzed by a third SAW thesis, Joseph F. Sgro Jr.'s "A Blueprint to Exploiting Artificial Intelligence: How Machine Learning Is Transforming the Joint Targeting Process." This work notes that Project Maven, a former collaborative venture between Google and the Department of Defense, aspired to accelerate military integration of big data and machine learning by using machine learning algorithms to efficiently process large volumes of video footage collected by aerial drones and identifying objects that analysts had previously evaluated. Oppo-

sition to this program by some Google employees led to it being sourced to competitors, such as Booz Allen Hamilton.[37]

Recommendations made by Sgro include DOD increasing its AI budget and focusing heavily on machine learning to support military intelligence, surveillance, and reconnaissance and data collection for joint force commanders. The DOD could leverage AI within the traditional collections and analysis process, expanding the reach of available information in developing shared understanding while accelerating the collection process. AI would need to monitor, collect, and exploit adversary media outlets to facilitate development of joint intelligence preparation of the environment to increase intelligence collections. Machine learning has the ability to offer systems-oriented collections in military, information, economic, and infrastructure systems and will play a critical role with its ability to find, fix, and track military targets while also providing combat assessment and battle damage assessment.[38]

Scrutiny of AI's potential for naval operations is ongoing in this Service's literature. A 2015 U.S. Naval War College thesis asserts that AI may "potentially revolutionize national security affairs by decreasing the human cost of war while increasing the speed and efficiency of America's tools of national power at the tactical, operational, and strategic levels of conflict."[39] This could produce a future AI race or the emergence of very intelligent or hostile AI requiring combatant commanders to develop ways to confront hostile AI with faster and more linear thinking processes.

A late 2019 *Naval War College Review* assessment on AI's potential role in naval operations maintained that autonomous AI war-fighting machines are years away, along with operational applications of swarm techniques, autonomous copilots for pilots, and *general AI*, which attempts to mimic the human brain in completely autonomous thought. However, it stressed widespread AI adaptation that produces three benefits. By collecting and compiling data now, the Navy and Marine Corps will have larger databases from which AI can learn, and these larger databases frequently produce more effective AI systems. In addition, fewer naval personnel

> will be restricted to the noncombat sector if support functions are transferred to AI. This development frees up manpower for use in new specialties, additional combat units, and forward deployments around the world. Finally, the sooner the [Department of the Navy] DoN can expose average Marines and sailors to AI, the more familiar and comfortable they will become with the technologies. In the future, when the full capabilities of AI are harnessed and implemented throughout the services, the fighting force will be ready to embrace them.[40]

Intelligence Community Research

AI's potential is also being thoroughly analyzed and deployed within the intelligence community. In 2019, the Office of the Director of National Intelligence (ODNI) released its unclassified Augmenting Intelligence using Machines (AIM) initiative. ODNI noted that data generation pace, whether through collection or publicly available information, is increasing exponentially and exceeds our ability to understand or find the most relevant data for making analytic judgments.

The AIM initiative's executive summary stresses that the intelligence community is carefully considering methods for fully automating well-defined processes and augmenting human expertise with analytics or planning capabilities for their potential benefit. They are monitoring the vulnerability of these technologies in development and adoption. AIM seeks to determine how the intelligence community can best manage uncertainty by achieving operational risk suited to the demonstrable analytic and operational advantages in AIM-enabled solutions and tradecraft. This strategic imperative of leveraging private investment, focusing on areas of unique mission need, and rethinking how to attract and retain human expertise exists because our adversaries, notably Russia and China, also recognize AI's potential to transform military and intelligence operations and are investing aggressively to make that advantage a reality.[41]

Primary AIM investment objectives are the immediate and ongoing strengthening of a digital foundation, data science, and technical intelligence to enhance understanding of the commercial supply chain, determining ongoing federal government programs that can be leveraged for wider audiences, and identifying adversarial AI uses. A second short-term objective is adopting commercial and open source AI solutions by rapidly transitioning the best commercial and open source narrow AI capabilities where technology outperforms humans in a very narrow specifically defined task, such as playing chess. A third and medium-term objective is developing the capability and capacity to exploit available data across all human, imagery, measurement, open source, and signals intelligence, while developing AI solutions processing and relating information from multiple modalities, breaking down traditional intelligence stovepipes such as using data from multiple intelligence agencies and open sources. A fourth and long-term AIM investment objective is investing in basic research focused on sense-making, aspiring to increase trust between human and machine teams, while also achieving research advances in knowledge representation of AI, goals and intent, entity extraction from incomplete multimodal data, and discourse generation.[42]

The Intelligence Advanced Research Projects Agency (IARPA) is a critical incubator of intelligence community research and development as the following programs demonstrate. The Aladdin Video Program recognizes that prodi-

gious amounts of video clips are generated daily on many consumer electronics and uploaded to the internet. Such videos are produced for broadcast or from planned surveillance, presenting significant challenges for manual and automated analysis. Aladdin aspires to combine state-of-the-art video and audio extraction, knowledge representation, and searchable technologies to create fast, accurate, robust, and extensible technology supporting future multimedia analytic needs.[43]

Intelligence Advanced Research Projects Agency Programs

The Better Extraction from Text Towards Enhanced Retrieval (BETTER) program seeks to develop methods for extracting fine-grained semantic information focusing on *whom-did-what-to-whom-when-where* across multiple languages and problem domains. Such extracted information is applied to an information retrieval task. Focusing on human-in-the-loop computation requiring human interaction in modeling and simulation is an additional BETTER focus area. BETTER also focuses on performer systems requiring the ability to incorporate human judgments for metrics, including relevancy and the accuracy of extracted and retrieved information.[44] Another program that seeks to extract information and intelligence from multiple sources is Crowdsourcing Evidence, Argumentation, Thinking and Evaluation, which seeks to develop and experimentally test systems using crowdsourcing and structured analytic techniques to improve analytic reasoning. Such systems aspire to help humans better understand the evidence and assumptions supporting or conflicting with human conclusions. They also help users better communicate their reasoning and conclusions. This U.S.-Australian collaboration is projected to last 4.5 years.[45]

Cyber-attack Automated Unconventional Sensor Environment (CAUSE) acknowledges cyberattacks evolve in a phased approach. Detection typically occurs in an attack's later phase and analysis is often postmortem to investigate and discover early phase indicators. Observing earlier attack phases, including target reconnaissance, planning, and delivery may facilitate warning of significant cyber events before their most damaging phases. CAUSE seeks to develop and test new automated methods forecasting and detecting cyberattacks significantly earlier than existing methods. Prime contractors include BAE Systems and Electronic Systems Integration, Charles River Analytics, Leidos, and the University of Southern California.[46]

The Deep Intermodal Video Analytics (DIVA) program develops robust automatic activity detection for a multicamera streaming video environment. Such activities will be enriched by person and object detection with DIVA addressing activity detection for forensic applications and real-time alerting. DIVA-derived research areas include machine learning, deep learning or hierarchical modeling, person detection and reidentification, tracking across multiple

nonoverlapping camera viewpoints, 3D video reconstruction, and super-resolution.[47]

Forecasting Counterfactuals in Uncontrolled Settings (FOCUS) seeks to develop and study the systematic approaches to counterfactual forecasting and lessons learned processes. Counterfactual forecasts represent statements about what would have happened if different circumstances had resulted. A postmortem review of an analysis failure could produce a conclusion that analysts would have to avoid such failure in the future by employing better analytic tradecraft; double-checking assumptions; or considering a broader range of hypotheses. Counterfactual forecasts working in past circumstances often represent the basis for lessons learned on how to respond in the future and can be incorporated into best practices and tradecraft.

FOCUS notes that there is limited research measuring which different approaches to counterfactual forecasting yield accurate or inaccurate counterfactual forecasts. FOCUS also maintains that research is scarce on the accuracy of lessons drawn from divergent lessons learned approaches. Consequently, there is insufficient evidence-based guidance for approaching lessons learned activities or for developing counterfactual forecasts representing the core of such activities. FOCUS aspires to develop and empirically test alternative approaches to structuring counterfactual forecasting and lessons learned processes to be readily incorporated into lessons learned activities.[48]

The Hybrid Forecasting Competition (HFC) program develops and tests hybrid geopolitical forecasting systems to integrate human and machine forecasting components to create maximally accurate, flexible, and scalable forecasting capabilities of events as varied as disease outbreaks, elections, financial market fluctuations, and interstate conflict. Since human-generated forecasts may be subject to cognitive biases or scalability limits, machine-generated statistical and computational forecasting approaches might prove more data driven and scalable, but they are often unable to provide forecasts of idiosyncratic or newly emerging geopolitical subjects.

Hybrid approaches may combine the strengths of these two approaches while reducing their individual weaknesses. HFC participants compete in a multiyear competition to identify approaches enabling the intelligence community to radically enhance the accuracy and timeliness of its geopolitical forecasts.[49]

Department of State

The Department of State is exploring ways of integrating AI into U.S. foreign policy and geopolitical forecasting. A 24 October 2018 speech by Christopher A. Ford, the assistant secretary of state in the Bureau of International Security and Nonproliferation, quoted Chinese president Xi Jinping that the revolution

in military affairs will be intertwined with a scientific and technical revolution, with AI being incorporated into military systems and doctrine. Xi's 19th National Congress of the Communist Party of China speech on 18 October 2017 stressed that AI military applications are part of intelligent warfare. Ford also noted that China sees military-civil fusion as involving AI and related disciplines including aerospace, aviation, big data processing, cloud computing, and nuclear technology.[50]

The Department of State's Office of the Science and Technology advisor lists AI as an emerging and transformational technology, which the department is using to develop its foreign policy priorities, including analyzing and advising how this strategic foresight can inform real time decision processes.[51] The Department of State's Office of Emerging Security Challenges (ESC) within the Bureau of Arms Control, Verification, and Compliance develops department positions for enhancing space security and missile defense cooperation among allies and partners. The ESC leads departmental efforts to ensure polar region security and plays a leading role through encouraging cooperation, enhancing cyber strategic stability, and developing confidence-building measures such as including AI's national security implications.[52]

Congressional Reports: Civilian and Military Aspects of Artificial Intelligence

Numerous congressional committees are involved in addressing civilian and military aspects of AI under its Article I U.S. Constitution powers. A 9 January 2018 hearing by a House Armed Services Committee subcommittee examined China's pursuit of emerging and exponential technologies, such as AI. Witness Paul Scharre of the Center for a New American Security maintained that China is second only to the United States in AI and that Alibaba, Baidu, and Tencent are top-tier AI companies. He also claimed that since 2014 China has surpassed the United States in the number of deep-learning publications, while stressing that publication quantity does not necessarily represent quality. Scharre also noted that the 2017 meeting of the Association for the Advancement of Artificial Intelligence saw nearly as many accepted papers from China as from the United States and noted the U.S. world leadership in AI patents. Nevertheless, China's AI patent rate is growing faster than the United States. China published a July 2017 national strategy for AI. Beijing's goal is to be an AI global leader by 2030, and China is striving to educate and recruit leading AI talent, including top-tier AI researchers.[53]

William A. Carter of the Center for Strategic and International Studies stressed that China sees AI and quantum technology as foundational to long-term economic and military competitiveness and has become an AI innovator. He also emphasized that Chinese companies have made significant AI break-

throughs in natural language processing, real-time translation, imagery analysis, facial recognition, and autonomous driving. Carter stressed that the United States must counter Chinese efforts to exploit U.S. military dependence on information and communications technology by investing in resiliency of critical conventional and nuclear military infrastructure and ensuring that China never has confidence in their abilities to compromise U.S. systems with a first strike.[54]

General congressional interest in AI is reflected by the Congressional Artificial Intelligence Caucus. Its membership of 27 representatives during the 116th Congress seeks to inform policy makers of AI's economic, social, and technological impacts and promote rapid innovation in AI and related fields by bringing together academic, government, and private sector experts to discuss emerging technologies and opportunities.[55]

Conclusion

Artificial intelligence has both positive and negative implications in civilian and military policy making and strategy. In January 2015, the Future of Life Institute, a collaborative of senior business and science leaders, including Tesla/Space X founder Elon Musk and the late theoretical physicist Stephen Hawking, released an open letter warning of an existential risk presented by the next phase of AI research on humanity's future. This document maintained that AI systems must do what we want them to do and adhere to human intentions.[56]

In its November 2019 interim report, the U.S. National Security Commission on Artificial Intelligence was blunt in its judgment that the United States is not using its AI strengths and strategies for national security advantages, meaning that many agencies have not adopted AI into their missions.[57] The NSCAI military implications include "changes to how we fight," such as military use of AI-enabled machines and weapons, enabling faster decision making in the battlefield. Furthermore,

> AI will foster a new generation of semi-autonomous and autonomous combat systems and operations. Autonomous capabilities can be useful for a wide array of applications, including for predictive analysis, decision support systems, unmanned platforms, robotics, and weapons (both cyber and physical).[58]

An additional November 2019 NSCAI contention is that AI is necessary to enable the United States to remain competitive. The advantages of embracing AI are clear:

> The Commission believes AI is key to the next technological leap forward which, if leveraged appropriately, will equip the United States to extend its advantages and preserve a credible deterrent in East Asia and Eastern Europe. AI-enabled

> systems could allow U.S. forces to understand the battlespace more clearly and rapidly; use autonomous systems to mount operations even when communication links are under attack; and develop capabilities to better defend against adversary AI systems. Intelligence agencies will be able to integrate massive amounts of data and better identify threats and discern patterns, which will provide military commanders and policy makers with more timely and sophisticated analysis.[59]

For Marine Corps personnel and policy makers, the 2016 *Marine Corps Operating Concept* argues that the full potential inherent in automation must be captured. It subsequently contends that putting people and machines together in the most effective pairing for the mission at hand is essential as machines become more capable and autonomous. Fully exploiting automation's power must take into account several things. The Marine Corps must refine the concept of manned-unmanned teaming to integrate robotic autonomous systems with manned platforms and Marines. The Corps should develop concepts of operations acting to accomplish mission objectives supporting and embracing robotic autonomous systems as a critical enabler. Finally, the Marine Corps needs to develop unmanned reconnaissance and surveillance systems to investigate littoral environments and complex terrain features, including sewers, tunnels, subways, buildings, and caves.[60]

Key findings of this literature and subsequent research opportunities for scholars and policy makers include the United States and its military allies not making the mistake of assuming that potential battlefield opponents will adhere to international law of war standards when using AI in military operations. *Unrestricted Warfare*, authored by two Chinese military officers in 1999 and published by the People's Liberation Army (PLA), essentially envisions no geographic restrictions on waging war as a result of emerging technological developments and the breakdown of long-standing boundaries between soldiers and civilians. This creates a borderless battlefield with globalization increasing interconnectivity and makes it imperative that the United States and its allies adopt sufficient operational, tactical, and strategic flexibility to defend its interests and defeat its foes in such a Hobbesian military environment.[61]

AI offers the potential for more accurate forecasting of hostile actor intentions. It remains to be seen whether this can be translated into more effective policy responses by the United States and its allies. Hostile countries and transnational organizations will seek various ways to respond to U.S. and allied use of AI against them. How will the United States and its allies respond to our adversaries' use of AI? AI in national security policy making also must address the ethical question of human/machine agency in geopolitical decision making,

and all democratic countries must address the manifold dangers of letting hostile actors have control of AI technology.

Civilian and military policy makers must recognize that even with advanced information processing capabilities, it may not be possible to sort out timely, accurate, and policy relevant and actionable information by AI to national leaders, military commanders, intelligence analysts, and military personnel on air, land, sea, and space. The advent of AI is likely to have significant impacts on U.S. civilian law, military operational planning, international law, international laws of war, and personal privacy. How these results will impact the entire spectrum of civilian and military policy making in a constitutional republic is a question with major moral and policy making implications.

The United States must determine which agencies will coordinate, fund, and prioritize U.S. AI geopolitical and military programs. How much AI funding will agencies such as DOD, DARPA, and the intelligence communities receive, and will they use it effectively? Which congressional committees will take the lead in conducting oversight of federal national security AI funding? Will the current parochial and stove-piped approach to congressional national security oversight remain in place and keep AI national security policy making programs mired in a bureaucratic morass as with other federal programs?

U.S. civilian and military leaders must also recognize that there are limits on how accurately AI can forecast human thinking and actions. This is particularly true if these policy makers assume that hostile foreign national and transnational leaders are rational or adhere to anything resembling Western norms.

The emergence of AI poses acute challenges and opportunities for the U.S. intelligence and military communities, civilian national security policy makers, their congressional overseers and appropriators, and foreign civilian and military leaders. Official U.S. AI literature gives interested citizens the opportunity to participate in influencing U.S. AI national security policy making. This can be done through interaction with relevant government agencies, providing feedback to congressional representatives, and commenting on proposed federal agency AI regulations under the 1946 Administrative Procedures Act. How these subjects and their profound moral implications are addressed in subsequent decades will influence the conduct of wars, military strategy, and numerous national and international security matters that will be paid for with taxpayer dollars and civilian and military sacrifice when wars occur.

Endnotes

1. Bert Chapman is the Government Information, History, and Political Science Librarian and professor of library science in the Purdue University Libraries and School for Information Studies, West Lafayette, IN. His research interests include government and military information resources dealing with national security. He has written six

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Documenting Changing Intelligence Ecosystems

Carl Anthony Wege

> *Subordinating Intelligence: The DoD/CIA Post–Cold War Relationship*. By David P. Oakley. Lexington, KY: University Press of Kentucky, 2019. Pp. 248. $50 (hardcover).
>
> *Strategic Warning Intelligence: History, Challenges, and Prospects*. By John A. Gentry and Joseph S. Gordon. Washington, DC: Georgetown University Press, 2019. Pp. 274. $110.95 (hardcover); $36.95 (paperback).

In Subordinating Intelligence: The DoD/CIA Post–Cold War Relationship, David P. Oakley has helped to fill a long-time gap in the open intelligence literature. While numerous authors over the years have written valuable books on both the Central Intelligence Agency (CIA) and the Department of Defense (DOD), little or nothing has been written about the relationship between the organizations. Oakley's work, informed in part by his own experience in the CIA and the U.S. Army, begins to fill this gap by outlining the relationship between the organizations and their interface with Congress from the beginnings of the Cold War to the post 11 September 2001 (9/11) terrorist attack years. A concise theme unifies this work, which describes "the transformation of the DOD/CIA partnership from one of sporadic cooperation to one of regular integrated collaboration" (Oakley, p. 1). In reading the book, it is helpful to keep in mind the asymmetrical nature of the DOD/CIA relationship. DOD is a huge national enterprise, containing the bulk of U.S. intelligence assets, whereas CIA is a tiny though preeminent global intelligence organization. It is also one of the United States' few intelligence assets separate from DOD, depending on how one describes various components of federal law enforcement and a few other agencies. Oakley chronicles a major cultural shift toward an ever-growing re-

sponsibility of the CIA to provide actionable intelligence for military operations other than war and for warfighters on the ground. Oakley's account of the CIA/DOD partnership forms an ongoing narrative of applicable statutes and reform efforts supported by Congress or hearings before the principal congressional committees with relevant responsibilities. Soldiers and intelligence officers often decry the role of politicians and politics as impairing their ability to do their jobs, but Oakley delineates the importance of those political bodies in directing CIA/DOD relations in a way that furthers the national interest.

The book opens with well-known intelligence lapses from the devastating attack on the U.S. embassy in Beirut, wiping out the CIA station, to force interoperability failures in Grenada. Importantly, Oakley demonstrates how these events precipitated important bureaucratic and administrative reforms, such as the Goldwater-Nichols Department of Defense Reorganization Act of 1986, which, in addition to discouraging parochialism in the uniformed Services, formally designated United States Special Operations Command as a prescribed point of interaction between DOD and CIA. The act also strengthened the roles of the combatant commands in their respective regions and administratively linked military operations with strategy, policy, and improved intelligence support, which was reinforced by President George H. W. Bush in 1990 when he issued the *National Security Review of Low Intensity Conflict* (NSR-27).

According to Oakley, the Gulf War marked a significant turning point in the DOD/CIA relationship. A Joint Intelligence Center set up by United States Central Command in ar-Riyadh, Saudi Arabia, supporting Army General Norman Schwarzkopf Jr.'s operations in an ar-Riyadh–based fusion center, with CIA personnel working alongside Joint Chiefs of Staff J2 proved the fusion concept worked. Bureaucratic disputes remained as the CIA viewed the relationship with DOD as a partnership, while DOD viewed the relationship as a subordinate one where CIA supported DOD operations. CIA finally lost the bureaucratic battle as the Senate Select Committee on Intelligence mandated that the CIA establish an assistant deputy director for operations whose charge was to make sure military requirements were adequately considered by CIA liaising with DOD operational planners. Furthermore, the CIA's Directorate of Intelligence and Directorate of Operations was required to integrate into the combatant commands Joint Intelligence Centers and report to the Joint Chiefs of Staff and commander in chief's J2s.

The 1990s were unkind to the U.S. intelligence community. It was an era of declining budgets, upward of five separate intelligence reviews during the decade, and attempts to centralize DOD human intelligence through the Defense Human Intelligence Service under the auspices of DIA. President William J. "Bill" Clinton's *Intelligence Directives, Presidential Decision Directive 35* (PDD-35), mandated intelligence support for military operations as a top intelligence

community priority.[1] Clinton's selection of John M. Deutch from DOD to head CIA during his administration only increased CIA's problems. Deutch put the agency under siege as resources directed to support military operations necessarily detracted from larger strategic concerns and from the CIA's analytic mission.

Oakley opens chapter seven with a portrait of Donald H. Rumsfeld's contradictory character as a businessman come pseudo-intellectual and arrogant bureaucratic infighter. However, his problematic reputation changed overnight with his heroic response when the Pentagon was burning on 9/11. Rumsfeld was unhappy that CIA paramilitaries were on the ground first in Afghanistan, though mollified a bit with the creation of Joint Intelligence Task Force (JITF). Counterterrorism (JITF–CT) establishing a unified campaign regularizing CIA support for DOD operations. CIA/DOD relations were improved with a longer term administrative approach creating a Defense Clandestine Service to buttress DOD human intelligence resources and directing increasing numbers of DOD case officers through CIAs "Farm" training program. This increased interactions and established stronger personal relationships than DOD temporary duty (TDY) at CIA headquarters in Langley, Virginia. Oakley continues that everything from cross-functional CIA/Special Operations Forces teams to crisis liaison operations teams supporting operating military forces have cemented this historically significant shift wherein CIA remains an independent organization but expends significant resources on supporting military operations. The result is a level of CIA and DOD integration now described in *Joint Operations*, Joint Publication 3-0. In these joint operations, CIA is an integral component of the regional combatant commands.[2]

Oakley, however, ends the book on a more somber note with prescient questions respecting the long-term cost to the nation's policy makers when intelligence becomes largely subordinated to military operations and military operations become a substitute for foreign policy.

John A. Gentry and Joseph S. Gordon's *Strategic Warning Intelligence: History, Challenges, and Prospects* is one of the first significant contributions to strategic warning intelligence since Cynthia M. Grabo's original work, *Anticipating Surprise: Analysis for Strategic Warning*, in the preinternet era 50 years ago. Oakley describes a historical progression where CIA resources have become more integrated with military operations. That shift in organizational focus, while occurring under both political parties and based on the collective judgments of relevant decision makers, is not without consequences. One of those consequences is a necessary impact on strategic warning, which according to Gentry and Gordon, is one of the four functions of intelligence analysis and frames warning intelligence in a range from six months to two years. The purpose of warning intelligence is to communicate with senior national decision makers potential or impending events of major significance to national interests and

provide "recommendations that leaders consider [when] making policy decisions and/or taking actions to address the situations" (Gentry and Gordon, p. 12).

Strategic warning intelligence depends on the ability to penetrate an adversary's deception. Several case studies are used to summarize the impact of deception and common lessons to the effect that leaders' psychology, point of view, and the totality of their situations matter. Likewise, intelligence institutions, their personnel, and their expertise also matter. Joseph Stalin, for example, may have been repeatedly warned that a German attack was imminent, yet the totality of the situation required every day of peace to rebuild his ravaged forces, so Stalin refused to take any actions that might hasten the attack by the Germans.

The authors see governments, leaders, intelligence organizations, and specialized strategic warning agencies as the framework through which strategic warning occurs. A traditional "every analyst a warning analyst" model is duplicated in multiple nations with definable analytic agencies (Gentry and Gordon, pp. 56–58). The CIA has used a version of this where officers are expected to highlight warning indicators as part of the reporting process. Unfortunately, this model has proven less effective in practice than its potential might suggest as common bureaucratic imperatives have the effect of concealing those warning indicators within a larger mix of priorities of varying intensity. The advantage of stand-alone warning organizations or dedicated warning elements within larger organizations is a defined warning function in the organization's mission. The downside of this approach is that warning analysts may lack the subject matter expertise or depth of knowledge to spot genuine anomalies that are not the product of an adversary's deception. A predictably Hegelian solution to this dilemma is a synthesis approach which, in an early iteration of its American version, created a national intelligence officer for warning within CIA with a dedicated mission.[3] They would have extensive horizontal interaction across different levels of line analysts, exploiting their analytic skills and subject matter expertise. In discussing early Cold War development of strategic warning, Gentry and Gordon reiterate some of the trailblazing analysis of Grabo, whose earlier work in 1970 was easily the most important scholarly material on warning prior to this text. What Grabo outlined was the development of a warning function whose improvements over time with experience and clarification of mission was only modest despite the efforts of skilled individuals navigating bureaucratic inadequacies.

The warning function was becoming more institutionally coherent by the 1990s and the authors reference Gregory F. Treverton, whose experience overseeing the production of National Intelligence Estimates in the 1990s led him to conclude that warning provided a good "second view" based on the expertise of line analysts adding value to intelligence products for decision makers with-

in the intelligence enterprise. The al-Qaeda attacks of 9/11 demonstrated the limitations of strategic warning that overlooked an apparently tactical terrorist threat ultimately burgeoning into strategic consequences halfway around the world.

The chapters on methodology and analytic methods form the most important part of Gentry and Gordon's book. The authors note the success of Soviet denial and deception doctrine known as *maskirovka*, which hid Soviet weakness in the 1950s and masked Soviet strength in the 1970s. Treverton distinguishes between "threats that come without threateners" and "threats without threateners" (Gentry and Gordon, p. 111). This leads to a discussion of a significant challenge to military intelligence where historic emphasis was on capabilities and order of battle. The authors argue that order of battle is best understood in the context of the target's military mission, the target's adversaries and relevant third parties, and the operational environment. In Gentry and Gordon's view, any capabilities assessment that does not address all three factors is faulty. The authors use the example of Israel's Military Intelligence Directorate (AMAN—their military intelligence service)—only looking at Egypt's military capacity to successfully wage war in the Sinai in 1973, misleading Israeli decision makers. This is because these order of battle assessments misunderstood that Egyptian president Anwar Sadat's objectives were to change the political climate of negotiation, not successfully conquer and hold the Sinai. Gentry and Gordon contrasted AMAN's error with the approach of Andrew W. Marshall, who headed the Pentagon's Office of Net Assessment from 1973 to 2015, where he emphasized psychological and broader assessments.

The authors note Thomas Fingar and Mark M. Lowenthal, as well as other senior intelligence officers, suggest the goal of warning intelligence is less a matter of predicting the future and more an effort at creating boundaries that reduce uncertainty. With this foresight, the decision maker can act on a warning with a measured and partial response, graduating their efforts as subsequent events lead to greater or lesser confidence in the original warning. While Analytic Standards, Intelligence Community Directive 203, was a historic milestone in establishing common analytic standards, there remain methodological shortcomings that cannot be erased with institutional decrees. The common probabilistic language mandated in Analytic Standards, for example, included numeric assignment of probabilities (e.g., almost or nearly certain corresponding with 95–99 percent probability) that was effectively imaginary. There is no valid and reliable way to ascertain that a future event is 95 percent likely rather than 92 percent likely. The authors include a telling quote from John Maynard Keynes that "it is better to be roughly right than precisely wrong" (Gentry and Gordon, p. 117).

Importantly, the authors note that useful strategic warning requires ef-

fective timing. Time is more important to decision makers than information. There is a narrow window of time between when information about a possible event matters to a decision maker and the point at which decisions have been made and additional information will not change the outcome. It is that narrow window in time when warning counts. This time horizon is likewise impacted by external factors. While a president's horizon may be three or four years, the time horizon of a departmental deputy or assistant secretary may be closer to a two-year range, as with many military command tours in the combatant commands. Additionally, the importance of persuading the decision makers to respect and listen to the warning intelligence takes us into less familiar territory. Intelligence officers are trained to be quite careful to provide objective information professionally and avoid advocacy. Yet, warning intelligence must persuade the decision maker by warning that a decision is necessary without advocating for a particular decision.

The traditional indicators and warnings as an analytical method is given its own chapter incorporating remarks from Cynthia Grabo's pioneering work on the method. She describes early efforts as simply making one list of actions likely to occur prior to the outbreak of hostilities and another list of indicators that these actions were, in fact, occurring. The method became widely used, sometimes impacting combatant command alert status as personnel could be quickly trained to employ it. In its more modern variants, the indicators are expected to be predictive of end state warnings, diagnostics (distinguishing between scenarios), unambiguous (making it unlikely they will be misinterpreted), and collectible. Treverson simplifies this approach, suggesting that the indicators should be unique (diagnostic) and visible (collectible). The problem with indicators and warnings is the problem of deception. If an adversary has high confidence, they know what indicators you are looking for, and they can make efforts to conceal or make the indicators ambiguous.

In subsequent chapters, Gentry and Gordon outline other approaches, including horizon scanning, to approach strategic foresight, risk assessment, and anticipatory intelligence. Some of these are more common outside the United States and used beyond the intelligence community in the wider public policy and business communities. While the utility of these decades' long views of disruptive technologies and events is important, they are beyond the scope of warning intelligence.

Significantly, Gentry and Gordon highlight the fact that leaders make mistakes, referencing Robert Gates's old maxim from the 1970s, "As a general rule, the best way to achieve complete strategic surprise is to commit an act that makes no sense and is self-destructive."[4] People are not always rational, make mistakes, and do not necessarily see things the way you do. When we add to that methodological errors such as confirmation bias, mirror imaging, and in-

stitutional challenges from bureaucratic routines to weak training programs for warning analysts, we see warning intelligence remains a challenging discipline. Overall, though, Oakley's *Subordinating Intelligence* and Gentry and Gordon's *Strategic Warning Intelligence* together help fill some important gaps in the literature. They are both well worth the read.

Endnotes

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The End of Strategic Stability?: Nuclear Weapons and the Challenge of Regional Rivalries. Edited by Lawrence Rubin and Adam N. Stulberg. Washington, DC: Georgetown University Press, 2018. Pp. 314. $110.95 (hardcover); $36.95 (paperback).

As former speaker of the U.S. House of Representatives Thomas Phillip "Tip" O'Neill repeatedly said, "All politics is local." In similar fashion, regional powers focus on countering threats in their locale. Rubin and Stulberg's edited volume gets us (American readers) out of our comfortable North American neighborhood with friendly neighbors in Canada and Mexico, and it provides us a much greater understanding of how regional actors deter nuclear-armed and nonnuclear armed states.

The purpose of this edited volume is to "examine the contemporary meaning and significance of strategic stability" (p. 4). During the Cold War, strategic stability referred to the disincentive for either the United States or the Union of Soviet Socialist Republics (USSR, now Russia) to launch a preemptive nuclear attack in the midst of an international crisis. This condition was made possible by both sides possessing secure second-strike capabilities. Rubin and Stulberg examine whether the concept is relevant in this second nuclear age of regional nuclear powers by inviting a host of international security experts to describe their state's respective national security challenges and priorities.

The book contains three parts, the first of which focuses on regional approaches to deterrence by evaluating the challenges that the United States, Russia, Israel, Iran, and Pakistan face in an increasingly complex strategic landscape. The second part of the book drills deeper into a new concept—cross-domain deterrence and coercion—to explore the use of new technologies such as cyber, disinformation campaigns, hypersonic conventional missiles, and ballistic missile defense to counter nuclear deterrence. In this part, scholars from India, China, Russia, Saudi Arabia, and Israel offer their unique perspectives on how their states confront a host of challenges, ranging from subnational actors to nuclear-armed adversaries. The final part offers insightful commentary on policy implications from all of the findings.

This book is a valuable resource for educators teaching international security and nuclear deterrence and coercion. The diversity of authors provide historical details of policy debates, nonproliferation campaigns, crisis management, and a wealth of information on how the respective states view their strategic situation. For instance, the chapters on Israel provides excellent details on its efforts to thwart the Iraqi, Syrian, and Iranian nuclear programs. Moreover, the Saudi Arabian chapter illustrates how the Israeli nonproliferation attempts deterred Saudi ambitions to pursue nuclear weapons. Additionally, the Russian chapters provide immense details on how Russia has shifted from its Cold War understanding of deterrence and has developed its new policies of full-spectrum coercion. These chapters are very helpful for understanding current-day Russian activities in the Ukraine and Syria.

The edited volume will also be very useful for security studies scholars and policy makers that focus on the regional competition between Israel, Iran, and Saudi Arabia. In particular, the details provided on Iran and Saudi Arabia are enlightening in understanding their sectarian conflict and modern history. For Iran, the Iran-Iraq War has been instrumental in its strategic outlook and ardent independence. In contrast, the Saudis have looked to external sources of security and weapons provision from the United States and China to balance against Iran.

The book also unlocks my understanding of the Pakistan-India conflict in its contrast and similarity to the classic Cold War standoff in Western Europe. Pakistan desires to see a change in India's hold of the Kashmir region, but it is unable to force India out due to its conventional weakness. Moreover, Pakistan it is not able to use its nuclear arsenal to compel India to change its Kashmir policy; instead, Pakistan's nuclear weapons are used to deter India's conventionally superior forces from invading Pakistan in the event of a war.

Another important point made evident in the Israel and India chapters is the challenge of subconventional threats to both states, as their respective arsenals do not deter attacks on their military assets and citizens. In addition, Israel and India are incapable of deterring the states that supply safe haven, weapons, and training to groups that carry out asymmetric attacks. Instead, both Israel and India must depend on their conventional warfighting capabilities to counter these threats.

In conclusion, Rubin and Stulberg's edited volume is an excellent resource for understanding the strategic landscape of a diverse set of regional actors. The book will serve as an indispensable guide for understanding how various states think about the second nuclear age in ways vastly different from the Cold War.

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Global Defense Procurement and the F-35 Joint Strike Fighter. By Bert Chapman. Basel, Switzerland: Palgrave Macmillan, 2019. Pp. 396. $99.99 (hardcover); $79.99 (ebook).

The Lockheed Martin F-35 Lightning II Joint Strike Fighter (JSF) is among the most controversial U.S. defense procurement programs in Pentagon history. Originally envisioned as the more affordable "lo" to the "hi" of the Lockheed Martin F-22 Raptor, the system reflects the culmination of the Department of Defense's culture of "jointness," but in procurement rather than operations. From the program's onset, it has been an ambitious endeavor to replace four attack and fighter aircraft models used by the Air Force, Navy, and Marine Corps with a single airframe, and with variants designed to operate from conventional runways, aircraft carriers, and helicopter carriers or forward locations using short takeoff and vertical landing capability. As a fifth-generation fighter, this stealth airframe features internal weapons carriage and incorporates advances in fusing information through its sensor suite. On top of it all, the program relies heavily on international cooperation in the production process through a tiered partner arrangement.

The scale of the program's ambition is matched by its expense, with an overall cost that may reach as high as $1.5 trillion as the Pentagon seeks 2,400 aircraft with an expected per-unit cost of $115 million (p. 134). Despite the high aims, the production schedule has constantly been delayed and readjusted, as per-unit cost estimates climb ever higher. The fact that the program has seen 11 separate directors during 24 years is testament to its troubles (p. 356). Given its complexity and procurement woes, the program is a recurring target for defense budget hawks and critics who question the value of a fifth-generation stealth fighter in a world where low-intensity threats do not require the survivability it brings, and where cruise and ballistic missile threats at the other end of the spectrum menace the short-range basing of tactical aviation. Critics advocate eliminating or reducing purchases of the F-35 in favor of greater reliance on legacy fighters. The crux of the issue for the policy makers in the United States and allied countries is whether the F-35's $115 million price tag offers a substantial leap in combat effectiveness over the approximately $50 million cost of upgraded "fourth-and-a-half" generation fighters (p. 17).

Given the size, importance, and controversy of the JSF, scholarship on the program is much appreciated, particularly approaches to the program in its totality, including international participants. In *Global Defense Procurement and the F-35 Joint Strike Fighter*, author Bert Chapman sets out to "provide a history of the JSF from a comparative multinational perspective transcending the US-centric approach to the JSF" (p. 3). In this, he has written a useful work that provides a succinct and valuable overview of the experiences of program

participants. Using prose that is direct, generally clear, and heavily data driven, Chapman manages to tackle the complex nature of combat aviation in an accessible package and convincingly argues that the F-35 will not be going away any time soon despite its cost and procurement hurdles.

Organizationally, Chapman begins by outlining the common generational construct of classification for fighter aircraft since the advent of the jet age. Such a historical approach was refreshing, particularly for those who will find this volume to be among their first scholarly forays into the world of military aviation. Chronicling this evolution of combat aircraft helps the readers understand the context of the F-35, and specifically what qualitatively makes for a fifth-generation fighter versus the fourth-generation "legacy" (F-15 Eagle, F-16 Fighting Falcon, F/A-18 Hornet) and the fourth-and-a-half generation (Dassault Rafale, Eurofighter Typhoon, F-15E Strike Eagle, F/A-18E/F Super Hornet, JAS-39 Gripen) mainstays of fighter fleets today.

After reviewing advances in the field military aviation throughout the decades, the author considers the technical factors of geographic theaters that the F-35 would be the most likely to fight in. China, North Korea, Iran, and Russia are all included, with each country's approximate order of battle, such as surface-based air defenses and relevant geographic and political characteristics. This helps frame the broader issues surrounding the particular technical elements of the program, or as Carl von Clausewitz contended the politics as "the womb in which war develops.[1] Nonetheless, the end of this section relies heavily on a 2017 Heritage Foundation report to make the case that the existing fourth-generation aircraft are insufficient to meet the needs of the Armed Services, with many of the legacy aircraft receiving a capability score of a 1 out of 5. Despite the book heavily relying on this assessment, the methodology is not made clear to the reader, with some sentences indicating that capability and age were synonymous, whereas other passages argue they are separate. Without greater exposition on the methodology, it is difficult to trust the inherently low scores.

The author concludes the rest of the volume with piecemeal chapters on the biggest participants in the JSF program, starting with the United States and including Canada, Australia, the United Kingdom (UK), Japan, and a slew of other European buyers. These chapters are of the highest quality and greatest utility, and overall the work is very well-researched using a mix of defense news publications, think-tank reports, and a multitude of government publications and audits. Readers are given a sense of the domestic politics surrounding procurement in each country, along with the scope and the geographic distribution of production. As a matter of clarification and despite the title, the book does not specifically review multinational joint production programs, opting to give individual profiles of the countries that have or are endeavoring to purchase the

F-35. For scholars of the defense industry, a brief comparison of the JSF experience with F-16 coproduction would have been useful given the similarities in country participants and arrangements. Moreover, it would have been useful to see a comparison of the JSF program's experience with prior joint fighter programs, such as the 1960s era McDonnell Douglas F-4 Phantom II fighter, and the controversial TFX (tactical fighter experimental) program. For the European cases of the UK, a comparison on the Eurofighter consortium would have also offered insight for scholars. Additionally, the problems associated with a lack of competition in the defense sector are briefly mentioned but not expanded on, and the topic overall could shed light on how the lack of competition adversely impacts the cost and schedule.

Chapman concludes the work by noting that despite the challenges of rising costs and close-range maneuverability compromises inherent in the design, the airframe performs well at beyond-visual-range combat due to its advanced sensors and stealth characteristics. It is also deemed essential for dealing with high-threat environments in light of Russian and Chinese developments of fifth-generation fighters, as well as advanced Russian air defense systems and their proliferation. Though not at a performance level of the F-22, the JSF is demonstrably better than the fourth-generation airframes that, for all their upgrades, cannot be made into low-observable platforms given the inherent nature of their designs.

While an impressive volume in total, the work is dotted with a few inaccuracies. For instance, Chapman incorrectly writes that Lockheed Martin acquired Northrop Grumman in 1997, when in fact the attempted merger was blocked by the Department of Defense and the Department of Justice (p. 17). Some of the data presented in the many tables in the work list puzzling performance characteristics or facilitates odd comparisons. For instance, it is strange to see a table on U.S. fourth-generation aircraft purchased compare the General Dynamics F-16XL variant to more established fighters, such as the F-14 and F/A-18, even though the F-16XL was an experimental model that was never operationally fielded by the United States (p. 17). The inclusion of the Grumman A-6 Intruder aircraft in the same table is also out of place, as this was clearly an attack aircraft and not a fighter. That said, these errata do not detract from the overall points advanced in the work.

After reviewing the nature of combat fighters, the political context of its most likely combat zones, country-specific politics, and experience with the program, Chapman concludes that there simply are no other fifth-generation fighter options on the near horizon, including unmanned combat systems. With the exclusion of Canada, the international partners more or less have shown a propensity to proceed with the JSF to achieve a capability that is more survivable in contested airspace. Additionally, they have seen fit to do so with

consistently decreased purchase quantities given the cost overruns. That the smaller air forces of these partner nations deem it prudent to pay the premium for the capability that the JSF brings over fourth-and-a-half fighters indicates that the JSF is essentially the only option moving forward. To invert the famous line from DC Comics' Batman series, the F-35 may not be the fighter that air arms deserve, but it is one that they need.

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Endnote

1. Carl von Clausewitz, *On War*, trans. Michael Howard and Peter Paret (Princeton, NJ: Princeton University Press, 1984), 149.

Innovating in a Secret World: The Future of National Security and Global Leadership. By Tina P. Srivastava. Lincoln: Potomac Books, an imprint of the University of Nebraska Press, 2019. Pp. 200. $29.95 (hardcover); 29.95 (ebook).

The end of the Cold War established the United States as the global hegemonic power due in large part to its technological superiority. Tina P. Srivastava quotes Presidents William J. "Bill" Clinton and George W. Bush in stating that in fact it is essential to preserve technological superiority as it underpins American national military and security strategy (p. 2). Events such as the terror attacks on 11 September 2001 and the eventual capture of Osama Bin Laden using night vision technology, stealth helicopters, and real-time, on-the-ground camera feeds, among other technologies, underscores this continued commitment to technological superiority and innovation. However, this innovation also requires heavy public investment as well as innovative policies to sustain the United States' position ahead of potential adversaries.

In *Innovating in a Secret World: The Future of National Security and Global Leadership*, Srivastava examines the government and corporate machinery that guides innovators, ideas, and technology through the research and development and implementation processes for use by the national security establishment. The author identifies a variety of unintended consequences and issues that impede innovation and innovators alike, which is at the intersection of the public and private sectors related to government research and development of critical technologies. Srivastava, an MIT PhD who has extensive experience with such technologies and policy issues working for Raytheon and technology startups, argues for the adoption of more open innovation strategies.

For Srivastava, open innovation means "broadening participation in innovation beyond an individual organization or division traditionally assigned to perform specific R&D activities" (p. 7). The problem Srivastava addresses is whether technology innovation in the national security realm creates two issues. First, that some potential innovators are excluded due to national security regulations. Second, certain innovations are left behind either due to slow innovation processes or are too quickly made obsolete.

In an introduction, seven chapters, and a wealth of tables, illustrations, and notes, Srivastava uses a variety of historical and contemporary case studies to describe the intricacies of the government research and development innovation process. Srivastava introduces and defines open innovation, describes the secret U.S. government research and development apparatus, its successes and failures, and incentive regimes for participation. She then concludes with a path forward based on her research.

The author begins with some context from the early 1990s and 2000s as each American president has maintained that science and technology underpins the United States' national security apparatus. Yet, to sustain this, it must innovate and development new technology through programs such as Defense Advanced Research Projects Agency (DARPA) and the Air Force Materiel Command, among others, alongside myriad private sector contractors. Some contractors are large, established corporations such as Raytheon and General Dynamics or small startups specializing in niche technologies or systems. However, given the classification cloak worn by much of the defense and intelligence communities, it makes open innovation difficult to adopt.

The author highlights examples of open innovation, where she argues that fostering competition means sharing and collaborating, which are the key elements of open innovation, while acknowledging certain limitations. Prizes, depending on the competition, is one example of incentivization Srivastava describes (with the Ansari X Prize among others), usually entailing project participation, government procurement. For example, providing financial rewards is one incentive structure. Srivastava also expertly guides the reader through an exceptionally complex topography of government institutions and regulations, providing a useful map of the national security apparatus. The American government uses a variety of technology readiness flow systems, regulations such as International Traffic in Arms Regulations and Federal Acquisitions Regulations, security clearances, and budgeting to control the technology development process guided by several organizations, many under the Executive Branch. Srivastava cites two examples: NASA's Apollo Program and the U.S. Marine Corps' fast adaptable next-generation ground vehicle. These well-selected examples give the reader insight into how a technology project comes to fruition within the political machinery described above.

As mentioned, Srivastava advocates for incentivization, with the concern of including smaller firms and startups. The federal government works with an established circle of large contractors, thus Srivastava argues that open innovation is an avenue to include smaller firms. In addition, she cites authorization and consent as another roadblock. The author completes the book with her call to action in which she urges open innovation to ensure the U.S. government can better use its investment in innovation by overcoming the secrecy challenge and participation challenge that limits potential innovators and innovations.

Srivastava's *Innovating in a Secret World* does not appear to directly engage with any specific literature or intellectual trajectory within a disciplinary field but does cite Henry W. Chesbrough as the architect of the open innovation idea. Srivastava builds off Chesbrough's theory to address its practical matters as it applies to American national security research and development. Srivastava draws from a variety of disciplines, such as public policy, law, and business management. The author's intended audience is academic as well as those in government and business, addressing how these actors in those sectors address open innovation. Srivastava's sources reflect her dialogue with the national security innovation community, interviewing a variety of chief executive officers, program managers, and individuals from the military from the American national security enterprise. She also drew a variety of sources from business websites, journals, and government and corporate reports.

This book offers a useful argument and valuable perspective for public policy scholars and students, business and management students, as well as project and program managers in government institutions. In particular, *Innovating in a Secret World* will be a valuable addition to advanced undergraduate and graduate courses in science and technology policy, business administration, and public management related courses as well as in civil servant and military program manager training seminars.

Overall, *Innovating in a Secret World* is a cohesive, engaging call to action seeking to address a growing problem within the American national security establishment. Srivastava at times takes on a concerned citizen tone, with elements of cynicism and nationalism. Yet, Srivastava's argument that introducing and implementing more open innovation policies into the American national security apparatus is well-informed, and her case studies are well selected to support her argument. She makes an urgent case to create a more timely and effective research and development process that will ultimately sustain the United States' global leadership.

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The Lessons of Tragedy: Statecraft and World Order. By Hal Brands and Charles Edel. New Haven, CT: Yale University Press, 2019. Pp. 216. $25.00 (hardcover); $16.00 (paperback).

Speculation about what constitutes world order and American statecraft within it increasingly animates political debates and scholarly discussions. Dynamics such as political polarization in the United States, Chinese bellicosity in the South China Sea, and increasing nationalism in multiple countries indicate an increasing skepticism about the international status quo. In *The Lessons of Tragedy: Statecraft and World Order*, Hal Brands and Charles Edel ask the philosophical question of what motivates the impulse to act in the international arena to prevent upheaval and disaster. In answering this question, Brands and Edel draw on the classical Western tradition of Greek tragedy.

Opening with Robert F. Kennedy quoting Aeschylus, in response to Martin Luther King Jr.'s assassination in 1968, the book by Brands and Edel stands as a piece of political theory that is both normative and analytical. Compared to other recent books of international relations, *The Lessons of Tragedy* exhibits an antiquated yet prescient feel to its approach to geopolitics. When framing current geopolitical affairs with conceptions drawn from the classical Greek tragedians, Brands and Edel provide a commentary on contemporary political affairs in a way that reconnects to great books of the Western canon. Brands and Edel explicitly link with the Western tradition in the introduction, where they declare the enduring relevance of the classics because of the ability of such works to "reveal timeless, elemental truths—insights about human nature and human relationships" that relate to the present (p. 3). Indeed, the dual premises of the philosophical relevance of history and an appreciation of the human condition's capacity to cause tragedy animate the entirety of the book.

As a work of normative political theory, Brands and Edel carry the theme of elemental truth as an instructive device to analyze upheavals in the international system. The authors make the dual argument that tragedy is not only a normal state of affairs in geopolitics, but that it also can motivate and inspire proactive intervention to forestall tragedy before it occurs. Combined, the book offers a clarion call to policy makers to not only reawaken to the lessons of the Western canon, but to disabuse themselves of any notion of a political utopia awaiting at the end of a purported arc of history. Brands and Edel rebut the Kantian notions of a predetermined trajectory of human affairs that animate much of foreign policy thinking.

Flowing forth with these philosophical ideas, the book transitions from discussing the core ideas derived from classical Greek tragedy to placing today's international order in a larger historical context. While arguing that tragedy is the norm of the international order, chapter 2 outlines the episodes of sudden

violence that mark transitions from one order to another. Beginning with the Athenians and tracing a succession of breakdowns in the international order until 1945, Brands and Edel argue that fleeting periods of optimism in international affairs obfuscate that "the trajectory of global affairs has too frequently ended in tragedy," and that cataclysms are not so much "anomalies" as the typical state of geopolitics (p. 40). The idea of the memory of political tragedy offering motivation to avert future upheaval characterizes chapter 3, while chapter 4 transitions to discussions of postwar American foreign policy.

Brands and Edel argue that recollections of tragedy from 1914 to 1945 galvanized American policy makers to create a preventative system of measures designed to protect the global order from reentering a period of war and instability (p. 77). Underwriting this preventive order-sustaining system is an infrastructure of "international institutions and norms" and "hard power" configurations that include standing alliances and a permanent military capacity (pp. 73–74). In chapter 5, Brands and Edel discuss how this infrastructure that created the postwar international order proved so successful that it allowed "amnesia" to emerge in foreign policy thinking. The authors argue that this "amnesia," characterized by decreased military capacity and increasing skepticism of upholding Cold War-era international economic institutions, threatens to increase geopolitical instability.

In chapters 6 and 7, Brands and Edel outline emerging pressures on shaky yet enduring postwar order and assert the need for Americans to "rediscover" tragedy. Brands and Edel discuss geopolitical pressures on the United States that are now familiar and range from regional revisionist powers in the Middle East to increasing great power competition arising from China and Russia. In chapter 7, the authors reiterate their point that American policy makers must recover the Greek sense of tragedy. Specifically, Americans must remember that "the best way to prevent a community's accomplishments from crumbling" is to recall the fragility of existing sociopolitical order (p. 145). The authors duly note that the question as to whether Americans want to invest in the effort to retain the current geopolitical system and the hard power that promotes it remains another question (p. 152).

When juxtaposed against similar works, *The Lessons of Tragedy* offers something of an intellectual antidote both to the works of Kantian thinkers, such as Francis Fukuyama, and scholars who assert the inevitability of American decline in the face of a rising China. Foreign policy pessimists and geopolitical optimists alike suffer from the same analytical bias of asserting inevitability where none is guaranteed. In drawing on the classical Western tradition and classical realism within international relations in particular, Brands and Edel take the necessary step of reminding readers that geopolitics is not inevitable if policy makers make the right decisions and have realistic readings of histo-

ry. In this regard, *The Lessons of Tragedy* fits with Graham Allison's *Destined for War: Can America and China Escape Thucydides's Trap?* (2017). As a genre, Brands and Edel find excellent company in the works of Robert D. Kaplan, and with high-profile realists such as John J. Mearsheimer. Unlike Kaplan and Mearsheimer, Brands and Edel distinguish themselves by explicitly drawing on the Western canon's Greek tragedians in asserting the rationale for garnishing elemental truth from ancient work.

What remains unclear in *The Lessons of Tragedy* is whether the audience requiring the incumbent lessons is policy makers in Washington specifically, Americans in general, or the West as a whole. Clarity on this issue is frustratingly elusive in the book, and by its end it becomes clear that the problem of forgetting the tragic lessons of both the Greeks and geopolitical history may exist beyond the confines of elite policy circles. Instead, the gloomy possibility remains that the problem of amnesia rests with Western society in general. A combination of perennial threats, such as terrorism, in which low-intensity conflict is the norm and abundant consumerism obfuscates clear and present risks to the current world order.

Traditional allies in Europe, Turkey, and Pakistan are not bulwarks of the American order so much as constituting increasing liabilities, while new allies are seldom considered. Washington remains befuddled as to how or if it can contain China's efforts to reshape international politics, and Americans on the whole have shifted their focus to issues closer to home. Even if aware, it is doubtful that most Americans keep abreast of threats such as Iran's nuclear program on a regular basis. It is even more doubtful that many Americans are aware of the classical Greek tradition of tragedy. The American audience mourning the loss of Martin Luther King Jr. that is mentioned in the opening of the book, that same audience to whom Robert F. Kennedy quoted Aeschylus in 1968, represents a fundamentally different society than exists today. The question as to whether Western society as a whole needs to rediscover the classical tradition and its accompanying tragedy is a question that the book leaves unanswered. If the problem is societal amnesia rather than amnesia on the part of policy makers, the book offers a small first step toward recovery.

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Love Your Enemies: How Decent People Can Save America from the Culture of Contempt. By Arthur C. Brooks. New York: Broadside books, an imprint of HarperCollins Publishers, 2019. Pp. 352. $27.99 (hardcover); $12.99 (ebook).

> When I call for a standard of love, I am asking us all to listen to our hearts. . . . But also, to think clearly, look at the facts, and to do difficult things when necessary, so that we can truly lift people up and bring them together. (p. 13)

In *Love Your enemies: How Decent People Can Save America from the Culture of Contempt* by Arthur C. Brooks, the author provides a refreshing examination of public interactions across our culture today, from social media, to political activism, to interpersonal relations. Brooks discusses the concept of contempt run rampant in our society today. Contempt seems ubiquitous on the stage of public interactions affecting beliefs, political candidates, and even families. Among discussion points is an investigation of the kind of thinking that supports extreme binary opinions casting opposing parties as good or evil depending on their perspective. So much of this conflict can appear overly vitriolic considering the diverse history of America. Yet, how can we benefit from this diversity of ideas when so many see perspectives other than their own as anathema when presented by adversaries? Brooks examines this phenomenon in *Love Your Enemies*, asserting that there can be another way in which we can interact. Perhaps we can start by considering the possibility that someone who disagrees with us might do so for reasons that we do not see or fully understand. *Love Your Enemies* is an excellent way for readers to start improving the discourse across our society by loving those who may not always agree with us.

Brooks provides engaging descriptions from American history of people who have not always agreed with one another, yet strove to find common ground. At America's founding, one could have hardly have found a more diverse group of people who argued vociferously and yet found enough common ground to found a new nation. Brooks describes the relationship between John Adams and Thomas Jefferson as an example of such disagreeing yet committed friends. In fact, Adams and Jefferson agreed on very little except the need for a new nation based on exceptional and radical ideas. Perhaps it was because they were so different from one another that they could put forward the radical concept that became known as America. What might have happened if all they did was hurl insults at each other instead of working to find common ground? Because Adams and Jefferson were friends, perhaps love indeed played a role in their ability to look beyond their disagreements and "listen with their hearts" as the above quote suggests.

Some might ask what stands in the way of civilized discourse today. Brooks invests significant time in *Love Your Enemies* discussing how identity politics may constitute one of our biggest obstacles to wholeheartedly viewing ideological opponents as fellow humans. There tends to be an unrealistic view encouraged by media sources to categorize people into binary choices on either side of

the ideological center, when real people tend to be more complicated than that. Adding to this problem is the current speed at which people can categorize opponents. In the past, one had to meet someone and engage in conversations or read something that they had published to categorize them. Today, a person can swiftly categorize others based on Twitter, Facebook, and any number of social media platforms—many of which encourage superficial depictions of people. One can hardly go a day without seeing an example of such contempt in public venues.

For example, during the 2016 presidential election, candidates focused more on trading insults than discussing issues. Hillary Clinton famously using terms like "basket of deplorables" while Donald Trump readily categorized people as either evil or liars over Twitter. Opponents on the public stage today seem engaged in theater that does not represent reality but approximates it. Brooks investigates ways that we can look beyond the vitriol and try to gain true understanding of perspectives not our own and see people as people instead of enemies.

One of the most engaging portions of *Love Your Enemies* is a section where Brooks discusses scholarship regarding how people view certain core concepts causing disagreements. Most people agree on the importance of fairness and care for others. However, not all people agree on how the concepts of respect for authority, loyalty to one's group, and purity/sanctity should be expressed. Just understanding how these differences influence us could help opposing parties see their interlocutors clearly as people.

Love Your Enemies is an outstanding read for anyone who is tired of the culture of contempt that seems rampant in society today. Brooks provides an engaging discussion that is long overdue. The notion of loving your enemies is not reserved only for communities of faith but for all of us. How many friends are lost due to contempt? How many family members no longer speak to each other because of how they voted? How long will governments remain deadlocked due to the inability to reach across party lines and acknowledge the humanity of someone on the other side of an issue? *Love Your Enemies* provides realistic options for returning civility to our discourse. This book would be especially useful for military professionals at the joint level exposed to people with different perspectives with whom they must work. *Love Your Enemies* will help military professionals be effective when exposed to diverse perspectives.

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Needs and Opportunities in the Modern History of the U.S. Navy. Edited by Michael J. Crawford. Washington, DC: Naval History and Heritage Command, Department of the Navy, 2018. Pp. 429. Free (PDF).

Needs and Opportunities in the Modern History of the U.S. Navy (hereafter *Needs and Opportunities*) presents eight chapters to the reader, each of which outlines a deficiency in current U.S. naval historical discourse. In order, they are forward presence of United States Navy (USN) forces, the operational history of USN countermine warfare and efforts, personnel topics since the end of the Second World War, naval programming and acquisition management, the U.S. Navy's naval sciences, the Navy's social history, the Navy's post-1980 role in national strategy, and the Navy's technological development in historiographical terms and contexts. The editor, Michael J. Crawford, aims to provide institutional and independent scholars directions of inquiry that require original research and/or greater attention. A curious omission that Crawford notes explicitly is that none of the scholars approached to contribute to the book were willing to address institutional bias within the Navy since the end of the Second World War. While this may at first appear to be a relatively minor lapse, Crawford writes, "perhaps you will be the exception and pursue a topic within this subject area!" and this apparent flippancy implies a systemic bias of its own: analysts (authors of any stripe, be they historians, sociologists, or others) unwilling to identify or tackle the question of institutional bias reflect the fear of censure (p. viii). Speculatively, perhaps the ideal candidate to address this topic could be a nonnational who may then use historical, political, and sociological methods to fill the sails of this metaphorical ship. Without fear of direct reprisal, perhaps this hypothetical scholar might be insulated enough to strike the Navy's sails of self-mythicization.

Because this is an edited compilation of essays, this review takes a brief look at the first chapter by Thomas G. Mahnken, which gives the reader a taste of the book. This is followed by an examination of the three chapters the reviewer believes deserve the most positive attention; a look at a chapter that deserves further attention; and will conclude with an assessment of thematic elements and how each chapter can be used individually or together.

Mahnken opens the book with his chapter, "Forward Presence in the Modern Navy: From the Cold War to a Future Tailored Force." Couching the United States' efforts to prevent the rise of a hegemony in Eurasia in humanitarian and economic rhetoric, Mahnken identifies immediately this 75-year strategy as obsolete. Writing in an age when the Navy is shrinking in size, he questions whether this strategy of forward presence remains viable. This is a challenge that is isolationist in nature. He points out that it is becoming increasingly difficult to keep the numbers of combat-capable ships on a forward deployment up to

par, and points specifically to increasing numbers and effectiveness of antinaval weaponry as the main threat to Navy capital military assets. Concluding that the recent rise of China, and the apparent resurgence of Russia on the global stage, he argues that strategies must catch up to numerical, technological, and political realities. Mahnken employs a broad sampling of historical and contemporary sources deftly. Of note is his use of Peter M. Swartz's *Sea Changes: Transforming U.S. Navy Deployment Strategy: 1775–2002* (2002) as his keystone resource. His choices of other cited documents serve two purposes: to support Swartz's findings (which is likely an incidental and is probably an accidental side effect), and, of course, to support Mahnken's own argument, based as it is on *Sea Changes*.

Gary E. Weir contributes chapter 5, "The Navy, Science and Professional History," which is an essay in the vein of professional historical method. Rather than seeking to address the weaknesses in the Navy's scientific historiography, Weir aims to illustrate the trends that result in the most significant contributions to naval science. He frames this as an identification of "the most insightful works in the history of the Navy's interaction with the scientific community" (p. 201). This is of particular interest to Weir as he is (at the date of the book's publication) the chief historian at the National Geospatial-Intelligence Agency. The institutions his list includes are derived from the works of Francis Duncan, who led efforts to historicize the work and life of Admiral Hyman George Rickover, the father of the nuclear-powered Navy. Weir shows that Duncan was brought into contact with General Electric, General Dynamics, and Westinghouse Electric. He observes that Duncan's knowledge of naval technologies and sciences became enriched as he explored non-Navy entities, "which operated by different standards, and for the profit motive" (p. 203).Weir exposes the presence of distortionist theory in the work of Kai-Henrik Barth, and in the work of Paul Foreman, who works on the early history of nuclear physics. Weir writes that Barth rejects the idea that federal dollars and government influence distorted scientists' motives—or rather, that the companies for whom they worked—and resulted in violations of scientific ethics. Evidently, Barth argues that meeting defense and national security goals are of secondary importance to the scientists who conduct the research, who are instead simply grateful for the funds that allowed their work to continue. Paul Foreman, conversely, argues that defense spending corrupts inherently the purpose of pure science, rendering science studied for its own sake into science perverted to serve strictly human designs. Weir underscores the work of another historian, Stuart W. Leslie, who argues that if science could be corrupted in such a manner, all science could be and is twisted. What does that say for the people who become scientists? Leslie suggests that it means that these scientists' efforts ultimately serve destructive ends, be they military or political in function (p. 205).

Weir's piece is unique in *Needs and Opportunities* in that his rapid-fire delivery of historians of naval science provides a concise (to the point of being almost laconic) assessment of each individual's work, often developed from his own research into their work and biographical history. This is not to say that the other authors are not concise or that other contributors' work is not equally convincing. What it does mean is that his analyses lead more naturally to his conclusion than those of other chapters. Weir's conclusions on historiographical method—to which professional ethics are inherent and implicit—can be summarized in the observation that the relationship between the Navy and the scientific community was a friendship formed by the Second World War. This friendship has eroded through the generations through ignorance and poor scholarship, resulting in the "distortionist view" with whose discussion Weir primes his chapter. He closes the chapter by addressing the methodological responsibility historians have to one another and to their topic. This responsibility is one of due diligence. The example to which he points is the number of researchers of the history of the Navy's dialogue with science who fail to examine the records of the Office of Naval Research (ONR; formerly the Office of Research and Inventions, founded in 1947) and of Record Group 298 at the National Archives and Records Administration. "You cannot validly examine the relationship in question here without the ONR records," writes Weir. "It is simply not possible. . . . Know the sources, interview as many of the players as you can. Your analysis will broaden and your insights deepen" (p. 215). If this reviewer was asked to pluck a chapter out of *Needs and Opportunities* to reach as broad an audience as possible, chapter 5 would be the essay chosen with no compunctions.

Sebastian Bruns observes adroitly in chapter 7, "The U.S. Navy's Role in National Strategy, Especially Between 1980 and Today," that one of the key impediments to public discourse on the role of the Navy in United States national strategy is twofold: first, it is subject to the 30-year limitation placed on the release of strategic documents to the public, and second whether Navy strategy can be isolated from national strategy at all. He forms his discussion around six thematic lines of investigation and assumption:

1. The Navy does not have/need a strategy;
2. Should the Navy have a strategy at all?
3. What is the best fleet design and force structure? What kind of conflict and future war should the Navy be prepared to fight? How "hard power" should a strategy be?
4. What is the Navy concerned about? What is its place in national strategy?
5. Who makes naval strategy? Who creates, who interprets, who modifies, who implements it?

6. What is the value of naval history and the enduring relevance of the classics?

Bruns suggests several meaty topics for future research to answer these questions, among others: How have strategic shocks impacted naval strategy, the consideration of naval means and ends, and the use of the Navy? What contextual factors need to be considered? Under what conditions can the Navy be used as a foreign policy tool? (As a point of curiosity, Nicholas Tracy addresses this latter question, namely regarding the Royal Canadian Navy in *A Two Edged Sword: The Navy as an Instrument of Canadian Foreign Policy* (2012). What is Congress's impact on naval strategy? What demographics make up the Navy? How do those demographics relate to the Service's public image? What is the Navy's relationship with the other branches of the military? How do strategies and naval operations correlate with operations and the crafting of strategy? And, how has the Navy shaped itself to craft and execute strategy? Bruns concludes in a somewhat anticlimactic manner that the answers to these questions may be answered only if new scholarship can be written on recent history and strategy. Citing Seth Cropsey, Bruns insists that victories cannot remain silent if these questions are to be answered. Historians who can write these studies on recent topics, he says, "will place themselves in a unique position to influence policy" (p. 284). This in turn raises the question whether historians ought to seek to influence policy, but in this instance the question is tangential.

As with Gary Weir's essay, Brun's chapter deserves close attention because it forms a series of research topics in an order logical and neat. Where chapter 5 addresses the ethics of professional historical method, chapter 7 illustrates how it is accomplished, both by content and by bibliography. Professors and students of military history are well-advised to read these essays in tandem.

Closing *Needs and Opportunities* is Mark D. Mandeles's "The Historiography of Technology since 1950, with a Focus on the Navy." Chapter 8 presents three themes to which Mandeles applies himself. First, he notes that the end of the First World War prompted a surge in military technological development (thus sharing a theme with Thomas Hone's chapter 4). The post–Second World War period saw the development of product and program improvement methods. Second, Mandeles balances his chapter thematically with both chapters 4 and 5, addressing the "co-evolution of institutions and military, social, political, and economic organizations; not whether a law-like generalization can be offered regarding the role of knowledge and analysis" (p. 310). Mandeles's third theme addresses how context drives technological development. In this sense, he seeks to place relationships between the Navy's interactions—endogenously with U.S. levels of government and its sister military Services, and exogenously

in combat roles and in the greater context of relations with U.S.-allied nations—and the prediction of future development of war materiel.

Mandeles binds these issues together by noting that historians of technology are faced with the practical barrier presented by the lack of influence social science has had on "research-based prescriptions for organizational design and practice" (p. 337). Phrased another way, social scientists' recommendations on the direction war materiel development takes in the Navy as an institution has not warranted significant attention within the Department of the Navy. He concludes his chapter with the remark that "[t]he larger implications to the Navy of an expansion of military historians' professional skills involve building knowledge about the operation of human-technology-organizational systems to enable higher operational effectiveness of the Fleet "(p. 337). Military historians, historians of public and military policy, and other social scientists who come in contact with immediately relevant policy (within 30 years) and operational topics walk a fine diplomatic line, for their judgments of any given scenario have the potential to make or break reputations and careers and can cause severe diplomatic and military problems. For example, if they release sensitive information (e.g., the geographic region in which a highly classified operation is, or *has* taken place, is revealed, and who was in charge and/or participating) to the wrong people, or it becomes the attention of unwarranted institutional censorship, this could cause serious repercussions. In the latter instance, Mandeles refers anecdotally to the distrust the Department of Energy leveled at Barton C. Hacker's *Elements of Controversy: The Atomic Energy Commission and Radiation Safety in Nuclear Weapons Testing, 1947–1974* (1994) "due to agency leaders' anxiety that Hacker had not read and incorporated elements from reviewers they trusted" (p. 337). Incessant bureaucratic delays from the DOE led Hacker to publish his book through the University of California Press.

Edward J. Marolda, former acting director of naval history and senior historian of the U.S. Navy addresses the lack of social history literature in Navy studies in chapter 6, "The Social History of the U.S. Navy, 1945–Present." This is the chapter the reviewer remarks on at the beginning of this review as the piece requiring the greatest attention. The reason for this assessment is twofold. First, the author is tasked with a difficult question to answer, namely the social history of the Navy. He shares this burden in part with Donald W. Chisholm, who writes chapter 3, "Naval Personnel Since 1945: Areas for Historical Research." Of greater concern, however, is that Marolda, undoubtedly seeking to avoid the controversy to which Crawford identifies in his introduction, fails entirely to bring the plight of transgender demographics into his discussion of the work the Navy has conducted to include socially marginalized demographics into its ranks. But first things first.

Marolda argues that as the United States became a global police force post-World War II, it was pressure from industry, and later from progressive social minority interest groups, that allowed the Navy to continue its forward-deployed strategy into the twenty-first century (see chapter 1). Despite these endeavors, Marolda identifies that extant literature pays only lip service, if at all, to the Navy's social history since 1945, and insists that a close examination of the topic qua the modern age is necessary. He notes that of particular significance to the modern Navy is actively deploying women to combat zones, and the contrasts in the abilities and skills—whether stereotyped or actual—between women and men. While some books, such as Cheryl Lynn Ruff and K. Sue Roper's *Ruff's War: A Navy Nurse on the Frontline in Iraq* (2005), and Heidi Squier Kraft's *Rule Number Two: Lessons I Learned in a Combat Hospital* (2007) exist, they are exceptional works, and not the rule.

Changes in the social histories of the Navy seem to occur when the status of social minorities rises to critical popular awareness. Marolda suggests that the status of blacks and women did not become important enough for the Navy to address until the burgeoning civil rights movement rose to predominance in the 1970s and 1980s. Marolda's chapter identifies important extant texts in cases of diversity in the Navy, sexual harassment, homosexuality, and the integrated Navy among others, with the effect that he characterizes Admiral Elmo R. Zumwalt as a sort of Navy messiah, and elicits the impression that the role of women in the twenty-first century Navy is of extreme importance. This is unsurprising: the repression women have experienced for centuries in the Western world has been one of the most heavily addressed of recent social history discussions. What is surprising is that Marolda appears to protest that womens' roles in the Navy are of greater social import than that of other social outliers, such as African Americans and Hispanics. Indeed, the recent acceptance of homosexuals in the Navy is a major victory for that demographic, and for its supporters. And most certainly, the 12 April 2019 "Military Service by Transgender Persons and Persons with Gender Dysphoria" directive-type Memorandum-19-004 exclusion of transgendered individuals from military service is worthy at least of a page of discussion. Marolda ignores the topic of the transgendered in military service entirely. It is on this prioritized emphasis—on women, visible minorities, and on homosexual communities in the Navy, respectively—that Marolda focuses his attention, and his essay articulates that the bulk of the Navy's social history has been written on these topics. He draws readers' attention to those topics admirably, but it is what he *excludes* from his chapter that prompts greater critical attention from this reviewer. Chapter 6 is indeed an exceptional case, for it fails to present one of the most, if not *the* most, difficult topic for modern Navy social historians to approach. In the U.S. military, as with Western society at large, engagement with transsexual realities and necessities, especially those

within militaries, skirt the edge of the taboo. Rather than ignoring or dismissing Marolda's "Naval Personnel Since 1945: Areas for Historical Research," this reviewer heartily endorses the idea that a journal issue, or an edited book such as Crawford's piece, be pursued to address these social issues within the Navy. Chapter 6's insufficiency speaks directly to the difficulty inherent in studying the taboo in U.S. Navy social history, and this is what makes it the most important essay in this collection.

As a whole, *Needs and Opportunities* fulfills its purpose: to provide future researchers with a catalog of underdeveloped areas of research, the reasons why these areas have not drawn more attention, and importantly provides a select bibliography researchers in various fields can draw from both for inspiration. It also serves a precautionary purpose, warning researchers what they may expect to encounter in the process of pursuing these topics.

Needs and Opportunities is strongly recommended for doctoral and post-doctoral social science students as an inspirational piece. If not found by the students, it would be apropos for instructors to be made aware of its existence and contents for their charges' benefit. For seasoned researchers both within and external to the Naval History and Heritage Command, *Needs and Opportunities* offers exceptional insight into underexposed areas of research. This reviewer will use chapters 5, 7, and 8 for methodological development, and chapters 1–4 for inspiration to guide future research.

Mendeles's essay sits with both Weir and Bruns's chapters as being the most thoughtful and erudite pieces in this edited volume. These three authors blend extensive personal research and experience with editor Michael Crawford's stated goal to address the weakest, and the most important topics facing the academic study of the modern U.S. Navy, although the two are not mutually exclusive. Mahnken, Truver, and Chisholm's contributions work admirably toward this goal, but they have mixed success in identifying and explicating the immediacy and the requisite methods researchers must use when attending to the topics and quandaries the authors pose.

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Poland, Germany and State Power in Post–Cold War Europe: Asymmetry Matters. By Stefan Szwed. London: Palgrave MacMillan, 2019. Pp. 306. $119.99 (hardcover and paperback); $89 (eBook).

Since the collapse of the Soviet Union and an end to the Cold War by 1991, both Germany and Poland have enjoyed a period of redemption marked by democratic blossoming, integration in supranational institutions, as well as free market prosperity. Seemingly, both states have found reconciliation from their difficult past relationships through such ventures, with Germany's support of its counterpart's ascension to the North Atlantic Treaty Organization (NATO) in 1997 and the European Union (EU) in 2004 being perhaps the most notable displays of remarkable cooperation. What may seem like a happy ending to a long and turbulent century is actually contrary at closer examination. By placing greater emphasis on understanding the capacity and mechanics of state power and structure, Stefan Szwed demonstrates that the agendas of these two neighboring states are quite asymmetric despite possessing similar interests in the future of Euro-Atlantic communities.

The monograph is divided into seven chapters, consisting of case studies and corresponding literature reviews on German-Polish relations through a period of two decades. Its research is based on, among other things: economic studies, exposés, parliamentary debates, speeches, and newspaper/media interviews with policy makers. Although Szwed distinguishes the 1990s as a period of intimate contact from the 2000s, where the partnership's cooling resulted in noticeable asymmetric agendas, he does provide some commentary on keystone moments up to 2015, such as Poland's turn to populism and the invasion of Crimea. Chapter 2 truly lays the foundation for the monograph, identifying both states' aspiring and actual roles in Europe and the global stage. It illustrates spatial considerations such as NATO's (and later the EU's) interest in Germany's centrality during the Cold War, and later Poland's inheritance of a *Frontstaat* position due to its bordering with a perceived unstable Eastern European frontier. Additionally, the chapter lists out Szwed's methodology that he applies in his succeeding case studies, which examines both neighbors vis-à-vis NATO, the European Union, Russia, and Eastern Europe, as well as the European energy question. He also applies material and temporal dimensions to measure the states' power dynamics and capabilities, such as Germany's edge in influencing fellow EU members due to its robust economy's domestic and foreign reach. Despite a promising economy, Poland has yet to match its neighbor's purchasing power, but has succeeded in forging its own power dynamic by "mak[ing] up for its material shortcomings with a more ready display of political loyalty inside the Atlantic Alliance and its bilateral relationship with the United States," through continuous military readiness and security commitments (pp. 54, 56).

Aptly handled in chapter 3, Szwed emphasizes Poland's desire to maintain American presence in the continent to counterbalance threats such as a resurgent Russia. This falls contrary to Germany's agenda, which seeks to avoid antagonizing the coveted Eastern trade partner and instead follow a path of

disarmament that seeks to redistribute the transatlantic power balance by providing the European allies with greater voice opportunities on key matters (p. 81). However, Poland's gravitational pull toward NATO is not purely based on the Russian contingency, but rather a universal one, based on its desire to participate in a "joint action in defense of values and principles," as strongly underlined in Operation Iraqi Freedom and tempered by its "instrumental use of historical traumas." But due to Poland's power and structural limitations, Warsaw has found that its participation is critical for an investment in its state's own long-term security (pp. 85, 90). This is not to single out Germany either, as Berlin's objective also finds itself following a historical path with an aversion to force. Yet, it has shown its reliability in the case of Kosovo or grudgingly and to a lesser extent in the Middle East, as a political tactic to avoid isolation or the loss of credibility as a key ally (pp. 81, 91).

The unequal power distribution between Germany and Poland is inherent in chapter 4 regarding the European Union. It is generally based on Poland attempting to catch up to Germany's influential position after joining the institution far later than the former, but with a focus on expressing its disapproval for the formation of an inner circle where Poles would be denied the right to fully participate in the European project of granting a supranational institution full sovereignty and a constitution (p. 127). Poland's ascension occurred around the same time as decisions were being contemplated to create a governing council within the EU and to grant qualified majority voting powers to certain states over others. As Germany wanted to concentrate power to the four largest member states, Poland demanded unitary institutional structure. This required the latter to pick its battles with its neighbor by blocking certain measures and settling for others to avoid becoming an EU problem child. Szwed defends the Polish position by supporting this tactic as an act to maintain the state's structural position and to display its voice opportunities as an alternative to voting. Another arena of battle between both neighbors has involved the expansion of the continent's premier institution, which despite their equal support of a unified continent manifested by increased contact with former Soviet satellite states, has largely clashed over the issue of their integration into the EU. Poland may well favorably view hastened integration as a solution to neutralize Moscow's influence over states like Ukraine as public opinion has shown, but for Germany, its own polls have revealed that net recipients support such a venture more than the wealthier states whose citizens are paying for the benefits of being a part of the EU (pp. 184–85). "The pair's divergence with respect to the EU's institutional reform—and in particular, their clashes over the distribution of voting power—should be understood as also being a function of the unequal levels of their respective integration, or their asymmetric 'ownership' in the EU" (p. 154).

A profound mark of growing asymmetric agendas can be found in both states' shared approach to Russia and the corresponding issues of the Eastern European periphery and energies trade that span the two tail end chapters of the book. Although Szwed departs from culturalist narratives, where identities and historical pasts are emphasized, he does lend credence to the difficult Polish-Russo relationship during the Cold War as stymieing a genuine cooperation, particularly inflamed by the controversy surrounding the 2010 Smolensk air catastrophe. Germany's twenty-first century reset with Moscow can also be attributed to previous episodes of intimate contact, such as Treaty of Rapallo-era trades under Weimar Germany. But what really matters are the power variables that drive Germany and Poland's agendas apart in the East, as the former's economy is drawn to investments in raw materials from and exports to Russia, while dually brokering better EU relations with Moscow. Apart from historically driven skepticism toward such collaboration, Poland's preference for a solution to the unstable eastern periphery is practically purely security based, with concerns tempered by the Orange Revolution in Ukraine (2004–5), the Lukashenko regime's growing authoritarianism, and Russia's diverse incursions, among other things (p. 175). What Szwed calls the desire to "securitize relations," Warsaw's ultimate desire to manage the *Intermarium*, or region spanning from the Baltic to the Black to the Adriatic seas, is seen as a step to not only neutralize its historical nemesis that is Russia, but to also show its potential in a leadership role within the EU (p. 174). And despite there being moments of dual mediation with Berlin to see through Kiev's pull toward the West, a slide back into corruption under the Viktor F. Yanukovych regime has reinforced the latter's reluctance to cosponsor the East's integration into the EU and prefer to seek greater relations with Russia instead.

Berlin's choice to create its own bilateral relations with Russia to match Warsaw's with Washington/NATO comes through the key dividing issue between both states that is the Nord Stream pipeline and the EU's energy dependency. Szwed frames this asymmetry on the basis of material and power dimensions, as well as with classifications of "sensitivity" and "vulnerability" with regards to energy resources. Both state actors may very well desire a unified EU solution to energy resources, but proposals have fallen short due to fears of upsetting the free market or antagonizing Russia should the member states form a front when a disagreement arises. Germany's profound interest in the energy trade is based on its decades-long dealing with Russian gas companies, coupled with its foresight to build up its infrastructure to secure reserves, which has made its vulnerability to dependency quite low. Unlike Poland's sensitivity rating, which is low as a result of its recourse to alternative options such as coal, Germany's is dependent on external supplies. Poland, however, possesses a high vulnerability rate as it has failed to invest in energy reserves or even taken advantage of the

rest of the vast Russian market (pp. 214–15, 218, 220). Critically, the pipeline's circumvention of Poland has also not only taken away Warsaw's bargaining chip as a transit state to the rest of the continent, but consequently reinforced its fears of Moscow's renewed grasp over its former Soviet states with the threat of cutting off their gas supplies in return for favorable political results.

Asymmetry Matters is a valuable addition to a scholarship seemingly still too fixated on using identities and historical pasts as explanations for the missed opportunities of Germany and Poland to form a formidable partnership in the post–Cold War era. Stefan Szwed convincingly argues that despite a difficult history between the two, there have been remarkable episodes of cooperation between two states who share a similar goal: the search for security and economic stability through integration in key institutions such as NATO and the European Union. Public opinion and political parties will always influence a state's direction, but ultimately state power and structural dynamics will determine the degree of a state's maneuverability and how much bargaining it will take to showcase its ability to lead the transatlantic community toward a united and prosperous front.

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Surrogate Warfare: The Transformation of War in the Twenty-First Century. By Andreas Krieg and Jean-Marc Rickli. Washington, DC: Georgetown University Press, 2019. Pp. 264. $104.95 (hardcover); $34.95 (paperback).

Surrogate warfare creates opportunities to answer the complexities of the geostrategic, operational, and tactical environments affecting globalized conflicts. We may classify surrogates as proxies, auxiliaries, or technological platforms, which accept the burden of warfare and the consequences of contemporary wars among fractured societies. In fractured societies, a social contract exists where the provision of communal security relates to protecting the individual from internal and external threats. These socially constructed conceptualizations of feeling secure provide opportunities to manage risks, creating strategic dilemmas. The ideas of combating these dilemmas shape the narrative of Andreas Krieg and Jean-Marc Rickli in their book *Surrogate Warfare: The Transformation of War in the Twenty-First Century*. The authors strive to address their research question of "how the concept of surrogate warfare departs from existing concepts that deal with delegation, substitution, and supplementation in war" (p. 5). To answer the question, *Surrogate Warfare* provides a narrative to

address the historical context of how surrogacy has been rediscovered in twenty-first-century warfare to cope with a globalized, privatized, securitized, and mediatized context of warfare. This revisited method of warfare attempts to respond to a sociopolitical phenomenon addressing shortages of capacity and capability of nation-states.

Krieg and Rickli address these concerns in multiple ways. First, the authors focus on historical precedence to support their narrative. Whether the authors describe surrogates in the Peloponnesian War in the fifth century, through the Crusades, or the twentieth century, states continue to use surrogates to achieve military objectives at unprecedented levels of deniability. Since the Cold War, the externalization of strategic and operational burdens of warfare resource often take the form of foreign military assistance. The historical examples the authors provide support the theme that patrons and surrogates have overlapping strategic interests where cooperation is mutually beneficial. More recently, surrogate warfare has returned to warfare amid the sociopolitical realities of the pre-1792 years when cabinet wars waged by the aristocracy and their cabinets supported their private interests. For example, the Syrian Defense Force as a U.S. surrogate in Syria provided the United States a means to conduct warfare overseas that has more legitimacy locally in Syria than domestically in America.

These historical analogies compete with the authors' proposition that warfare is inherently a sociopolitical phenomenon shaped by Carl von Clausewitz's principle of trinitarian warfare between society, state, and soldier for the delivery of a security to support human needs. Combating this historical concept, the authors describe warfare in the twenty-first century as neotrinitarian. In *neotrinitarian warfare*, globalization has altered the social cohabitation, association, and interaction between humans, rapidly undermining the social-contractarian nature of sociopolitical affairs defining the post-Westphalian world since 1648. The change from the classical model of the trinitarian war causes the traditional authority of the state to reconsider the organization and orchestration of violence as a medium to determine the outcome of conflicts amid a globalized, transnational environment of anarchy. The authors articulate this transition to the neotrinitarian model that allows the state to disconnect the burden of war from domestic scrutiny, relieving governments from the political costs of using force in an environment of uncertainty, unpredictability, and intangibility of threat.

Surrogate Warfare provides an opportunity to challenge the thinking of Clausewitz, Helmuth von Moltke the Elder, and B. H. Liddell Hart through the book's organization, displaying a realization that the externalization of the burden of warfare to local surrogates is effective in undermining the strength of the enemy without directly engaging in war. With porous borders and growing migrant populations, surrogate warfare deconflicts strategic and operational chal-

lenges amid a globalized context. States have developed alternative approaches to dealing with insecurity by relying on risk-based rather than threat-based approaches to solve complex problems with limited resources. Mitigating risk for state-centrism enables surrogate warfare to serve as the panacea—a way out from the dilemmas of the everywhere war. The vast panacea leads to "wars of desire" or "wars of choice" rather than "wars of necessity" (p. 147). Meanwhile, the authors identify how surrogate warfare may help local communities fight for self-determination or protect themselves against oppression by building sustainable sociopolitical order by following local traditions and customs.

Both authors use their experiences and strengths to aid in the organization and delivery of *Surrogate Warfare*. For example, Andreas Krieg is an assistant professor of security studies at King's College London. Throughout his research, he has focused on just war theory, conflict studies, and nonstate violence in the developing world. He augments his research, serving as a political-risk consultant for governmental and commercial clients. Jean-Marc Rickli is the head of global risk and resilience at the Geneva Centre for Security Policy and serves as the senior advisor for the Artificial Intelligence Initiative at the Future Society at Harvard Kennedy School. These experiences have richly augmented and organized *Surrogate Warfare* to create chapters in the book on each element of their expertise to fill a gap in the literature. This book provides an alternative to conventional military thinking by introducing refined concepts and technologies bounded under legal considerations while highlighting known linkages with historical surrogates. Strategists and military planners may use the book to fill a niche of desired information that enhances the tapestry of military thinking via rich references as it relates to future military planning and sociopolitical context.

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Tokens of Power: Rethinking War. By Ann Hironaka. New York: Cambridge University Press, 2017. Pp 312. $105.00 (hardcover); $29.99 (paperback); $24.00 (ebook).

For as long as civilized nations have existed, there have been instances of interstate wars. Many historians argue that the armed conflicts waged between states throughout history have shaped the world more drastically and significantly than most other cultural endeavors. It is for precisely that reason that the aca-

demic field of military history remains so important. But there is an interesting contradiction that persists to this day—while interstate war is perhaps the most highly prioritized and vigilantly planned effort by nations, military history nevertheless includes countless examples of immense mistakes and epic catastrophes. How can that be?

Ann Hironaka's *Tokens of Power: Rethinking War* addresses that paradox by discussing the many risks that befall nations engaged in interstate wars. The author, a professor of sociology at the University of California, Irvine, seeks to redefine and reevaluate the major foundations of military preparation—chiefly power, strategy, and national interests—by blending sociology and political science in her analysis of war. She concludes that because the strength of warring states is difficult to gauge, military strategies are often miscalculated, and that subsequent analyses are nearly always incorrect, and variables as simple as victory and defeat are ultimately unpredictable. Therefore, it is almost preposterous that nations invest so heavily in something such as war that offers so many risks and so few rewards.

After outlining several key social philosophies that impact interstate wars, such as constructivism and world society theory, Hironaka focuses much of the rest of her book on describing how nations have competed with one another within a "Great Power hierarchy" throughout history to achieve power and status. According to the author, "war is the most consequential form of Great Power competition, although other competitions such as arms races and diplomatic negotiations also matter" (p. 31). To illustrate her points, she details the rise and fall of nations during more than 400 years, paying special attention to the rise of the United States as a great power in the late nineteenth century and its subsequent role in world affairs.

The author meticulously builds her work around a wide range of mostly secondary resources that offer a strong framework for how interstate wars are conducted and how they are later remembered by history. Perhaps the strongest aspect of *Tokens of Power* is Hironaka's masterful blend of military and sociological theories with concrete examples that illustrate how the strategies within past interstate wars have been bungled due to inaccurate planning and poor execution. For example, the gradual failure and eventual disappearance of cavalry forces during the mid-twentieth century highlights the pitfalls of planning for future wars solely by analyzing past conflicts at the expense of considering emerging military tactics and technologies.

Unsurprisingly, the most poignant examples that Hironaka uses to support her overarching argument are the colossal wrongs assumed at the beginnings of the First and Second World Wars. On the eve of World War I, many ranking military strategists who rested much of their faith on impressive military technologies believed that offensive forces would hold the upper hand in the

coming conflict, only to be proven wrong as trench warfare, machine gun nests, and poison gas reigned supreme in a dug-in, defensive war. Consequently, at the start of World War II, military planners assumed that defensive forces would again possess an advantage, only to be thoroughly shaken by the remarkable speed and attack power of tanks and armored vehicles, aircraft, landing craft, and other new technologies.

The Cold War-era arms race that existed among the major post–World War II great powers during the late twentieth century offers an interesting departure from Hironaka's study of earlier wars, and she capitalizes on that diversion to argue that while the atomic bomb, the ultimate prize of that competition, served as a symbol of power rather than an actual material strength, it was highly valued by the Great Powers because it nevertheless represented a tangible, measurable token of victory. Indeed, while the proxy conflicts of that period—especially the Korean War—were certainly large-scale, interstate wars, there was a higher, more abstract competition guiding those Great Powers' quest for status.

In the end, *Tokens of Power* poses many questions regarding the planning and execution of interstate war that will interest both professionals and enthusiasts of military history and political science. Hironaka's conclusions depart from the tradition of much other scholarship in those fields by offering few recommendations to solve the problems proposed. Instead, the author acknowledges that because military planning has always been and will continue to be fraught with uncertainties and impossibilities, war strategists and tacticians of today should heed the warnings of the past and exercise care and restraint when seeking to achieve power and status through military means.

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