



Monthly Review

July-August 2020

Military Review

THE PROFESSIONAL JOURNAL OF THE U.S. ARMY

JULY-AUGUST 2020



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2019055



Cover photo: A medical evacuation Stryker assigned to the 3rd Squadron, 2nd Cavalry Regiment, stands by 27 April 2020 during an artillery live-fire exercise in support of NATO's enhanced Forward Presence Battle Group-Poland in Bemowo Piskie, Poland. (Photo illustration by Sgt. Timothy Hamlin, U.S. Army)

Next page: Pvt. 1st Class Miranda Ray, New Jersey National Guard, takes a picture 28 April 2020 during a flyover at University Hospital in Newark, New Jersey. The Air Force and Navy flight demonstration teams, the Thunderbirds and the Blue Angels, conducted the flyover to show support for first responders and health care workers on the front lines in the fight against COVID-19. (Photo by Spc. Michael Schwenk, Army National Guard)



2020 General William E. DePuy

Special Topics Writing Competition

This year's theme: "Finding the enemy in 2035—What technological, doctrinal, organizational, or other advances or changes must we make to find our adversaries on the battlefield of the future?"

Articles will be comparatively judged by a panel of senior Army leaders on how well they have clearly identified issues requiring solutions relevant to the Army in general or to a significant portion of the Army; how effectively detailed and feasible the solutions to the identified problem are; and the level of writing excellence achieved. Writing must be logically developed and well organized, demonstrate professional-level grammar and usage, provide original insights, and be thoroughly researched as manifest in pertinent sources.

Contest closes 20 July 2020

1st Place	\$1,000 and publication in <i>Military Review</i>
2nd Place	\$750 and consideration for publication in <i>Military Review</i>
3rd Place	\$500 and consideration for publication in <i>Military Review</i>

For information on how to submit an entry, please visit <https://www.armyupress.army.mil/DePuy-Writing-Competition/>.



6 Preparing for the Unexpected Enhancing Army Readiness in the Arctic

Lt. Col. Kirby R. "Bo" Dennis, U.S. Army

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A Holistic Campaign Assessment to Inform the Army Modernization Enterprise

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The U.S. Army has developed a new operational concept, The United States Army in Multi-Domain Operations 2028, primarily to meet the challenges presented by its peer and near-peer adversaries. The Battlefield Development Plan drives continuous experimentation and analysis to refine and integrate the forces, concepts, and capabilities required to execute multi-domain operations.

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Suggested Themes and Topics

Large-Scale Combat Operations

- How do we foster deep institutional focus on large-scale combat operations (LSCO)?
- What is the relationship between multi-domain operations and mission command in LSCO? How can they be integrated and synchronized?
- What specific impacts on the Army's renewed emphasis on LSCO training, readiness, and doctrine are to be expected? How does one measure the effectiveness of adjustments in those areas?
- First strike: discuss how hypersonic weapons and other means would be employed by Russia to neutralize/devastate U.S. capabilities in the first stage of a conflict.
- Hypersonic weapons: What is the real threat? How do we defend against them? How do we use them?
- Specifically, what new kinetic threats can we expect to see in LSCO? How do we defend against them? How do we use them?
- How do we survive in hyperlethal engagements where "if you can see it, you can kill it; if you can be seen, you can be killed" (including attacks using weapons of mass destruction)?
- How does one perceive and seize fleeting opportunities in LSCO? What examples are there of fleeting opportunities and temporary advantages that were exploited? Are there repeating characteristics of such events to guide cultivation of future perception training?
- How do we offset "one-off" dependencies and contested domains?
- How do we continually present multiple dilemmas to a peer enemy?
- What must be done to adjust junior leader development to succeed in a modern operational environment?
- What changes are required to the professional development models for officers and noncommissioned officers?
- What logistical challenges are foreseen in LSCO due to infrastructure limitations in potential foreign areas of operation and how can we mitigate them?

- Regarding sustainment and mobilization for LSCO, how should the industrial base change to support LSCO? How does the Army communicate its requirements to industry?
- What rapid training and mobilization is required for COMPO2 and COMPO3 units to "join the fight" and meet deployment requirements?
- Brigade combat teams have the training centers, division headquarters have warfighters, and sustainment brigades sometimes rotate smaller elements to training centers, but how does a division exercise the sustainment function on a large scale?

General Topics

- What training gaps is the U.S. Army facing (e.g., mechanic training, talent management, and retention; large-scale casualty training [medical and G1 functions], etc.)?
- Is there a capability gap in air defense and rocket artillery at lower echelons? Do we need to become a more artillery- and air-defense-centric army?
- Do we need to increase security cooperation exercises in Europe or the Middle East?
- What lessons have we learned from National Guard, Army Reserve, and interagency responses to natural disasters including the response to coronavirus (COVID-19) pandemic?
- How does China's "New Silk Road" initiative compare with the pre-World War II Japanese "Greater East Asia Co-Prosperty Sphere"?
- Is Russian doctrine changing regarding use of humanitarian assistance as a weapon?
- What are the security threats, concerns, and events resulting from illegal immigration/refugee movements globally?
- What is the role for the Army in homeland security operations especially along our borders? What must the Army be prepared to do in support of internal security?

Two Army CH-47 Chinooks conduct a high-altitude training flight over the Bavarian Alps 4 May 2020 in Germany. (Photo by Maj. Robert Fellingham, U.S. Army)



Preparing for the Unexpected

Enhancing Army Readiness in the Arctic

Lt. Col. Kirby R. “Bo” Dennis, U.S. Army

Today’s security environment is one expressed in distinct lexicon; phrases like great-power competition, near-peer threat, and large-scale combat operations have become firmly mainstream. These descriptors—primarily oriented toward China and Russia—will rightfully play a visible role in future defense strategy and policy. At the same time, however,

military planners must steadfastly prepare for global contingencies not associated with the Pacific and European theaters. In the closing days of his chairmanship with the Joint Chiefs of Staff, Gen. Joseph Dunford gave clear intent on contingency planning when he stated that “priorities don’t mean exclusivity.”¹ Contingency readiness also features prominently in the 2018 *National Defense Strategy’s* Dynamic Force Employment concept, a joint force employment model

designed to “account for the uncertainty that exists in the changing global strategic environment.”²

This guidance clearly reflects a world that is ever-changing and marked by ubiquitous threats. While the nature of these threats compels military planners to look to the east and the west, they would be wise to also look to the north. In its 2019 strategy report to Congress, the Department of Defense (DOD) uses the word “threat” thirteen times to describe the Arctic theater. Moreover, this strategy outlines its Arctic objectives in unambiguous terms, stating that the U.S. military “must be able to quickly identify threats in the Arctic, respond promptly and effectively to those threats, and shape the security environment to mitigate ... those threats in the future.”³ With this in mind, the Army must take steps to enhance its Arctic posture through a training-and-equipping effort commensurate with the theater’s strategic importance.

Once considered a conflict-free zone, the Arctic has largely been defined by international cooperation. At its inception in 1996, the Arctic Council embodied this spirit by altogether excluding the issue of security in its establishment declaration.⁴ This overt commitment to consensus over conflict was apt for the time, but over two decades onward, the landscape has changed considerably. According to NATO, the Arctic Council’s current agenda is largely driven by “hard security concerns”; a statement that stands in stark contrast to the body’s original founding.⁵

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Moreover, a mix of trends that include increased human activity, enhanced accessibility to the region, and population growth is fueling global interest in the region and portends a future marked less by cooperation and more by geopolitical maneuvering.⁶

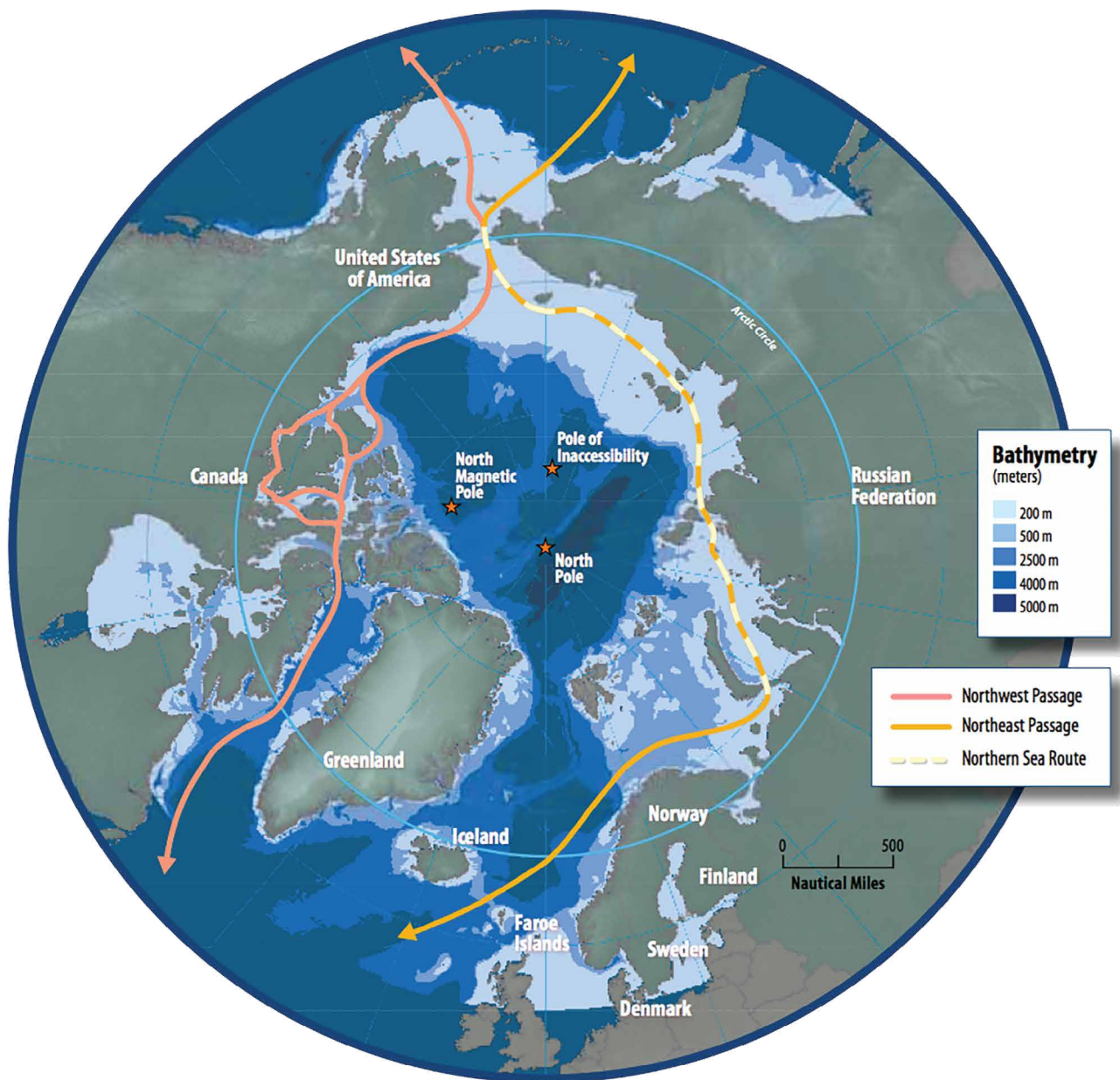
The importance of this theater to American competitors is abundantly clear, because one-fifth of Russia's gross domestic product comes from the Arctic, and estimates of Chinese investment in the region are upward of \$90 billion.⁷ Additionally, Russia's military buildup in the Arctic is undeniable—as evident in its fleet of icebreaker ships, military base infrastructure, and employment of personnel in training exercises.⁸ During this year's Arctic Council Ministerial Meeting, Secretary of State Michael Pompeo brought all of this into sharp focus when he declared that “the [Arctic] region has become an arena for power and for competition” and subsequently outlined a range of hard measures aimed at protecting U.S. interests and preserving international norms in the region.⁹ In light of these developments, and even as experts continue to weigh the evidence and assess the future, it is increasingly clear that today's Arctic is one where the ideas of great-power competition are already in full motion.

Soldiers assigned to 3rd Battalion, 21st Infantry Regiment, participate in a combined arms live-fire exercise 15 March 2018 during Alaskan Command's exercise Arctic Edge 18 at Fort Greely, Alaska. (Photo by Tech. Sgt. Efren Lopez, U.S. Air Force)

U.S. military services and American allies have taken notice because recent activities indicate a growing commitment to enhance Arctic readiness; however, more can and must be done. While many acknowledge that U.S. strategic interests in the region most closely align with the activities of the Navy, Coast Guard, and Air Force, all agree that the Army's Arctic capabilities and presence will be vitally important to efforts moving forward. Therefore, the Army should operationalize the Arctic strategy through concrete and modest steps, all of which align with the DOD's roadmap for implementation.

Build Arctic Awareness

Training is a centerpiece of the “Arctic Strategy,” which states that the “DOD will demonstrate and enhance the Joint Force's ability to operate in the Arctic through regular exercises and deployments in the



(Map by Susie Harder [2009], Arctic Council/Arctic marine shipping assessment)

Arctic Region Shipping Routes

region.”¹⁰ Despite this very clear guidance, many agree that the current level of training is out of balance with the Arctic’s strategic significance. While there is no question that the Army maintains some level of preparedness through the Arctic Edge exercise series and the Alaska-based Northern Warfare Training Center (NWTTC), the 2019 strategy necessitates a change in Arctic training activities to ensure maximum readiness.

Specifically, the Army should adopt a rotational unit program that exposes more brigade combat teams to the rigors of Arctic operations because this will ensure optimal readiness across the force. As it currently stands, only five of the Army’s fifty-eight brigade combat teams train in Arctic-like conditions, and while this may make sense from a monetary and logistical point of view, broadening the training audience to include

more units based in the continental United States is the optimal approach for the future.¹¹

Importantly, a rotational unit concept will complement intertheater readiness by training forces in conditions found in three different combatant commands: Northern Command (NORTHCOM), European Command, and Indo-Pacific Command. At a more basic level, exposing more units to cold weather training will build toughness in the force, enhance situational understanding for leaders, and test deployment capabilities at all organizational levels. Recent exercises in high north locations such as Alaska and Norway underscore this latter point, as units and installations were considerably tested on “fort to port” logistics; joint reception, staging, onward movement, and integration activities; and intratheater movement.¹² Given the Army’s senior leader emphasis on strategic readiness, recently defined by Secretary of the Army Ryan McCarthy as the “capability to rapidly mobilize and deploy forces anywhere in the world and sustain the Joint Force,” availing more Army units and installations to the unique training opportunities in the Arctic is a logical next step.¹³

If deploying additional units for cold-weather maneuver training is not feasible in the short term, then interim steps should be explored. Expanding the NWTC to accommodate more units and leaders from across the Army is one such step as this would build upon the NWTC’s decades-long record of successfully training thousands of soldiers.¹⁴ Dr. Anthony Pfaff, a former Arctic policy advisor at the Department of State, agrees. In a 2019 analysis in *Parameters*, Pfaff notes that training data from the NWTC indicate that “fighting expertise is limited to Soldiers stationed in

Alaska” and should therefore prompt an expansion of training audiences.¹⁵ Other options are at the Army’s disposal, such as growing the Army’s emergency deployment readiness exercises program to include Arctic environs. This low-cost, high-payoff activity is yet another means by which the Army can measure power projection capabilities and readiness for an Arctic contingency. Finally,

the Army should continue to increase participation in symposia, tabletop exercises, and plenary sessions that aim to enhance understanding and develop solutions to Arctic challenges. Events such as the 2018 RAND-organized and Norwegian Institute of International Affairs-sponsored scenario-based exercise as well as the U.S. Alaska

Command Arctic Symposium 2019 are examples of collaborative engagements.¹⁶ To be sure, robust participation in these events will provide the intellectual backbone and interagency connectedness necessary to inform strategy modifications in the future.

Strengthen the Rules-Based Order and Deter Aggression

Homeland defense is a central tenant of the *National Defense Strategy*, which establishes that continued investment in air and missile defense (AMD) is necessary to protect the United States and its allies. This guidance is echoed by the Army that listed AMD as one of six enterprise modernization priorities in its 2019 strategy document and established a cross-functional team dedicated to AMD modernization.¹⁷ These efforts clearly signal strong commitment to future readiness; however, investment in current technologies is also needed. McCarthy underscored this point in his



U.S. Secretary of State Rex Tillerson addresses the 10th Arctic Council Ministerial Meeting 11 May 2017 in Fairbanks, Alaska. (Photo courtesy of the U.S. Air Force)



12 September 2019 testimony to the Senate Armed Services Committee, stating that the Army missile defense has “atrophied a great deal” since the onset of combat operations in Iraq and Afghanistan.¹⁸

This stark assessment, combined with increased geographic combatant command demand for missile defense assets, should focus efforts not only on the future force but also on existing AMD infrastructure. To this end, a close examination of missile defense assets aligned to the Arctic is warranted because recent activities in the theater highlight a need to recapitalize these formations. Specifically, preparations for Arctic Edge 2020, a NORTHCOM-sponsored exercise that will occur in winter months, indicate that Patriot units possess degraded communications and end-item protective gear that is necessary to operate critical equipment in extreme cold weather (ECW) conditions.¹⁹ More broadly, the current communications equipment standard issue that exists for Army air defense units is not sufficient to meet the demands of the Arctic, which can reach temperatures of minus 40 degrees Fahrenheit.²⁰ These seemingly minor equipment difficulties are not trivial; many argue that the Army’s ability to pace adversarial threats vis-à-vis ground-based air defense assets is at risk without a fix. Moreover, given the vital nature of AMD to the homeland defense mission, the Army can expect to consistently provide air defense units to NORTHCOM for exercises and real-world purposes in the future, thus making investment in ECW equipment both sensible and necessary.

Enhance Arctic Operations

Equipment readiness is front and center within the “Build Readiness” line of effort of the 2019 Army

Strategy. Specifically, the strategy outlines a clear goal to “modernize Soldier Organizational Clothing and Individual Equipment issue by tailoring it to support deployments.”²¹ For too long, the Army’s notion of a deployment was, and is, associated with the U.S. Central Command theater of operations; however, for all of the aforementioned reasons, the Army must broaden its equipment issue to account for all operational environments. Therefore, the Army should take appropriate steps to procure an ECW inventory that will enable soldiers and critical equipment to operate effectively in the Arctic.

Soldier gear is recognized as the most important pillar of a larger equipment winterization strategy, which experts define as individual equipment and Arctic kits designed for heat, fluid resiliency, and water freeze prevention.²² While the specifics of any future winterization strategy can and should be debated, current theater concept of operation plan guidance charges the services with ECW equipment training and procurement, thus making this a matter of imperative importance.²³ Adding to this urgency, any future procurement plan will likely rely on heavy commercial involvement. While off-the-shelf solutions have proven to be very efficient in the past, current ECW equipment fielding estimates range between six to nine months—a factor that should compel immediate steps.²⁴ In sum, the complexity of the Arctic environment does not lend itself to ad hoc equipping solutions but rather a concerted strategy that builds upon the numerous lessons learned endogenous to the Army.

Many argue that the costs of fielding ECW will divert much-needed resources away from higher priorities—a claim that certainly bears merit. Therefore, the Army should initiate the first step in an enterprise-level ECW solution by funding a cold-weather equipment set to air defense artillery units expected to operate in the Arctic. Such a step would promote readiness for this high-demand asset and meet the specified tasks outlined in current theater plans and strategies. Beyond the short term, ECW procurement should be accounted for in the next program objective memorandum because this will serve as a significant step in advancing the objectives laid out in the Arctic Strategy.

In a similar vein, the Army should take steps to invest in an Arctic infrastructure footprint that will assure a “fight tonight” posture for the future. This step

Top left: The Yamal LNG (liquefied natural gas) initiative—located on the Yamal Peninsula, six hundred kilometers north of the Arctic Circle, in Western Siberia—is spearheaded by Russia and supported by Chinese and French interests. The commercial operation of the port and the first LNG train were launched on 8 December 2017. (Photo by Alten Group/courtesy of Novatek)

Bottom left: U.S. Navy Ice Camp Nautilus drifts on a sheet of ice in the Arctic Ocean 18 March 2014 during Ice Exercise (ICEX) 2014. ICEX 2014 was an exercise highlighting submarine capabilities in an Arctic environment. (Photo by Petty Officer 2nd Class Joshua Davies/Dr. Amy Sun, Lockheed Martin)

would both buttress senior leader emphasis on strategic readiness and ensure that the Army can meet its responsibilities under the aforementioned Dynamic Force Employment concept. Specific measures to enhance power projection to austere Arctic locales such as prepositioning ECW equipment at “in-stride” locations like Joint Base Lewis-McChord and constructing additional cold weather infrastructure within Alaska that can house equipment, personnel, and maintenance materiel should be considered moving forward.²⁵

Aside from these specific Army measures, the larger strategic picture of the Arctic must be assessed through current plans and doctrine. While the previously mentioned big-power competition ideals are beginning to manifest in the north, the Arctic is also a theater where asymmetric provocation will undoubtedly occur in the future. As such, the services and combatant commands should continue to fully exercise authorities to review the Unified Command Plan (UCP) and to make recommendations to the chairman of the Joint Chiefs of Staff if changes are necessary. The 2011 UCP embodied this notion, as President Barack Obama made changes to both combatant command geographic boundaries and responsibilities in the Arctic based on a changing strategic environment.²⁶ Eight years later, the world is more complex and dangerous, and as such, the UCP is tested more than ever by the exogenous nature of existing threats. Recent doctrinal updates like the *Joint Concept for Integrated Campaigning* and organizational changes such as merging global joint force

integration into the chairman’s portfolio are notable efforts to meet the challenges of the day.²⁷ Similar efforts to bolster the force’s ability to respond to an Arctic contingency will most certainly be required if we are to execute decision-making at what Dunford described as “the speed of relevance.”²⁸

Today, the Army fills over 60 percent of combatant command requirements across the globe.²⁹ This statistic highlights the exigent demands on the force and underscores the belief that committing more resources to the Arctic would undermine readiness for more likely conflict scenarios in Europe, the Pacific, or the Middle East. Others advocate for the Arctic to remain an economy of force mission with American allies shouldering significant responsibility for protecting American interests in the Arctic. These concerns are problematic, however, as the former ignores the clear security trends emerging in the Arctic while the latter underestimates the power of American influence. More fundamentally, numerous senior leaders have described the Arctic as an avenue of attack against the homeland, an outlook that should inspire Army planners to commit intellectual effort to advancing the department’s inchoate strategy.³⁰ In the end, there is no question that the military must balance priorities and resources and that hard choices will need to be made. However, the confluence of threats and interests in the Arctic demands that the Army adopt a range of operationally enhancing measures in the near future. ■

Notes

1. “Robert B. McKeon Endowed Series on Military Strategy and Leadership with General Joseph Dunford,” Council on Foreign Relations, 5 September 2019, accessed 21 January 2020, <https://www.cfr.org/event/robert-b-mckeeon-endowed-series-military-strategy-and-leadership-general-joseph-dunford>.

2. Department of Defense (DOD), *Summary of the 2018 National Defense Strategy of the United States of America: Sharpening the American Military’s Competitive Edge* (Washington, DC: U.S. Government Publishing Office, 2018), 7.

3. DOD, “Report to Congress: Department of Defense Arctic Strategy” (Washington, DC: DOD, 2019), 1, accessed 21 January 2020, <https://media.defense.gov/2019/Jun/06/2002141657/-1/-1/1/2019-DOD-ARCTIC-STRATEGY.PDF>.

4. Marc Lanteigne, “The Changing Shape of Arctic Security,” NATO Review, last modified 28 June 2019, accessed 21 January 2020, <https://www.nato.int/docu/review/2019/Also-in-2019/the-changing-shape-of-arctic-security/EN/index.htm>.

5. Ibid.

6. *Requirement for Arctic Investment Case & Comparative Analysis* (Colorado Springs, CO: United States Northern Command [NORTHCOM], 15 September 2019), 1.

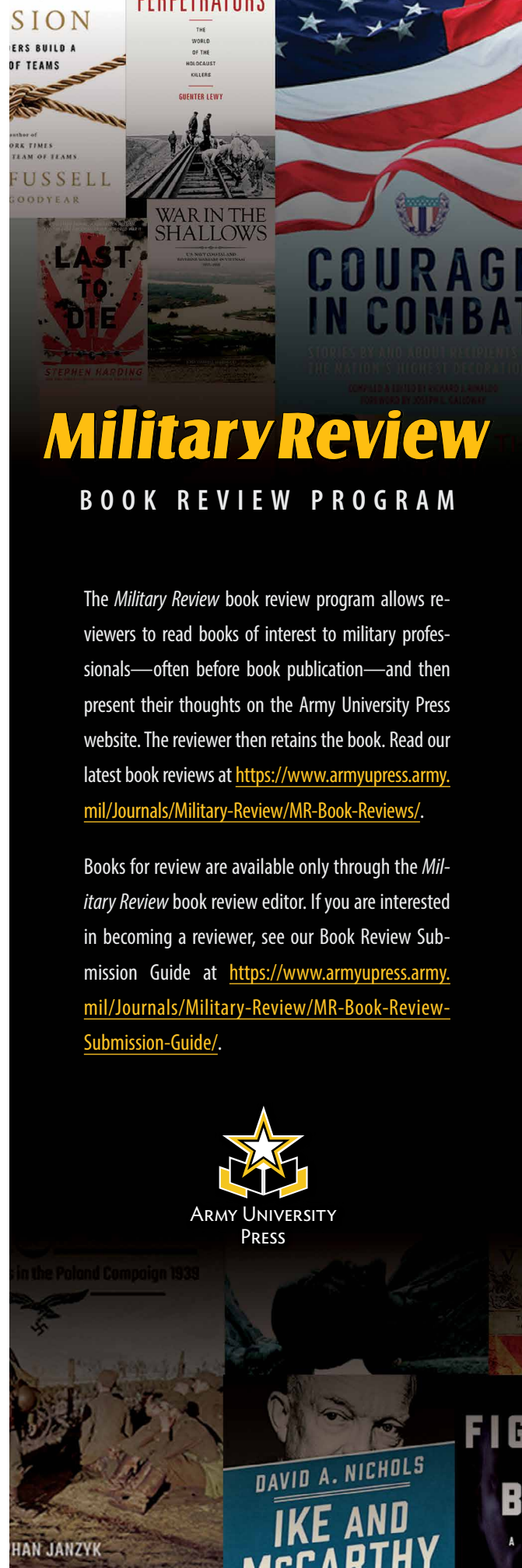
7. Helene Cooper, “Military Drills in Arctic Aim to Counter Russia, but the First Mission Is to Battle the Cold,” *New York Times* (website), 12 April 2019, accessed 21 January 2020, <https://www.nytimes.com/2019/04/12/world/europe/global-warming-russia-arctic-usa.html>; Mark Rosen and Cara Thuringer, “The Opening of Arctic Demands International Cooperation,” CNA, accessed 5 September 2019, <https://www.cna.org/news/releases/arctic>.

8. Cooper, “Military Drills in Arctic Aim to Counter Russia.”

9. Michael R. Pompeo, “Looking North: Sharpening America’s Arctic Focus” (speech, Rovaniemi, Finland, 6 May 2019), accessed 24 September 2019, <https://www.state.gov/looking-north-sharpening-americas-arctic-focus/>.

10. DOD, “Report to Congress,” 11.

11. Discussion about U.S. Army North winterization, 1 October 2019.
12. Jim Garamone, "U.S., NATO Assess Lessons of Trident Juncture Exercise," DOD, 17 January 2019, accessed 21 January 2020, <https://www.defense.gov/explore/story/Article/1734333/us-nato-assess-lessons-of-trident-juncture-exercise/>.
13. Sydney J. Freedberg Jr., "Army Secretary Stresses Rapid Deployment, Information Warfare," Breaking Defense, 14 October 2019, accessed 21 January 2020, <https://breakingdefense.com/2019/10/army-secretary-stresses-rapid-deployment-information-warfare/>.
14. Todd South, "A New Cold War: How the Army is Preparing for a Fight in the Arctic," *Army Times* (website), 30 July 2018, accessed 21 January 2020, <https://www.armytimes.com/news/your-army/2018/07/30/a-new-cold-war-how-the-army-is-preparing-for-a-fight-in-the-arctic/>.
15. C. Anthony Pfaff, "Human Security in the Arctic: Implications for the United States Army," *Parameters* 49, no. 1-2 (Spring-Summer 2019): 47, accessed 28 January 2020, <https://publications.armywarcollege.edu/pubs/3701.pdf>.
16. Stephanie Pezard, Abbie Tingstad, and Alexandra Hall, "The Future of Arctic Cooperation in a Changing Strategic Environment: Insights from a Scenario-Based Exercise Organised by RAND and Hosted by NUPI" (Santa Monica, CA: RAND Corporation, 2018); U.S. Alaskan Command, "Advancing Strategic Partners in Securing America's Arctic Interests" (symposium agenda, University of Alaska Fairbanks, Fairbanks, AK, 7 September 2019), accessed 28 January 2020, https://arcticdomainawarenesscenter.org/Downloads/PDF/Events/ADAC_Workshop-ALCOM%202019_Agenda_v1.2_190907.pdf.
17. Todd South, "New Air Defense Threats Mean New Equipment and New Ways of Defending," *Defense News*, 20 October 2019, accessed 21 January 2020, <https://www.defensenews.com/news/your-army/2019/10/20/new-air-defense-threats-mean-new-equipment-and-new-ways-of-defending/>.
18. Kyle Rempfer, "Army Secretary Nominee Talks Priorities: More Artillery Troops, Missiles That Will 'Change the Geometry' in SE Asia," *Army Times* (website), 12 September 2019, accessed 21 January 2020, <https://www.armytimes.com/news/your-army/2019/09/12/army-secretary-nominee-talks-priorities-more-artillery-troops-missiles-that-will-change-the-geometry-in-se-asia/>.
19. Discussion about U.S. Army North winterization, 30 September 2019.
20. U.S. Army North discussion, 1 October 2019.
21. "The Army Strategy" (Washington, DC: DOD, 2018), 6, accessed 21 January 2020, https://www.army.mil/e2/downloads/rv7/the_army_strategy_2018.pdf.
22. U.S. Army North discussion, 1 October 2019.
23. NORTHCOM Arctic Edge 2020 Initiating Directive (Colorado Springs, CO: NORTHCOMJ7, 18 September 2019), 8.
24. U.S. Army North discussion, 1 October 2019.
25. Discussion with Arctic Edge exercise planner, 4 October 2019.
26. "Unified Command Plan," DOD, last modified 28 October 2011, accessed 21 January 2020, <https://archive.defense.gov/ucc/>.
27. *Joint Concept for Integrated Campaigning* (Washington, DC: Joint Chiefs of Staff, 16 March 2018), accessed 27 January 2020, https://www.jcs.mil/Portals/36/Documents/Doctrine/concepts/joint_concept_integrated_campaign.pdf?ver=2018-03-28-102833-257.
28. Jim Garamone, "Global Integration Seeks to Buy Leaders Decision Time, Increase 'Speed of Relevance,'" Joint Chiefs of Staff, accessed 21 January 2020, <https://www.jcs.mil/Media/News/News-Display/Article/1565627/global-integration-seeks-to-buy-leaders-decision-time-increase-speed-of-relevance/>.
29. Ryan McCarthy and Thomas Horlander, "Department of Defense Press Briefing on the President's Fiscal Year 2020 Defense Budget for the Army" (transcript, DOD, Washington, DC, 12 March 2019), accessed 21 January 2020, <https://www.defense.gov/Newsroom/Transcripts/Transcript/Article/1784223/departement-of-defense-press-briefing-on-the-presidents-fiscal-year-2020-defense/>.
30. Former NORTHCOM senior leader, interview by author, 28 September 2019.




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Staff Sgt. Donovan Galbreath, assigned to 1st Squadron, 40th Cavalry Regiment (Airborne), 4th Infantry Brigade Combat Team (Airborne), 25th Infantry Division, U.S. Army Alaska, demonstrates Modern Army Combatives Program grappling techniques 6 February 2020 at Joint Base Elmendorf-Richardson, Alaska. (Photo by Justin Connahey, U.S. Air Force)

Lethal Weapon

Combatives and Mental Skills Training to Ensure Overmatch in the Close-Combat Fight

Lt. Col. Peter R. Jensen, U.S. Army, Retired
Lt. Col. Andy Riise, U.S. Army

We must improve human performance and decision making by increasing training and assessment; starting at the Soldier level.

—Chief of Staff of the U.S. Army Gen. Mark A. Milley and Acting Secretary of the U.S. Army Ryan D. McCarthy

As the competitive advantage over near-peer adversaries shrinks, the U.S. Army is revising modernization priorities in accordance with the Department of Defense (DOD) Close Combat Lethality Task Force to reestablish dominance on the battlefield. Regarding the close-combat soldier, developing the capability for improving fundamental combat skills and overall human performance to secure battlefield dominance falls to the Soldier Lethality Cross Functional Team. Collaboration between the Modern Army Combatives Program (MACP) and Ready and Resilient (R2) performance centers offers a solution to make soldiers more lethal and survivable in the close fight. More than building relevant fighting skills, the partnership between MACP and R2 performance experts (PEs) accelerates development of performance attributes fundamental for winning in close combat—courage, confidence, focus, composure, and decision-making. Expanding the examples from such collaborations offers an approach to integrate existing Army resources to achieve the immediate goals of the lethality priority.

Prioritizing Close-Combat Overmatch

A major concern for Army leaders is the erosion of the long-held competitive advantage of the Army over expected adversaries.¹ This competitive advantage—termed *overmatch*—is decreasing across multiple warfighting domains. Overmatch erosion is expected to most impact close-combat soldiers fighting in the urban operational environment of future megacities.² Characterized as ground engagement by dismounted, squad-sized formations with a line-of-sight enemy, the extreme violence of close combat makes it the most physically and mentally challenging performance arena for a soldier.³ Building overmatch for close-combat soldiers must include improving the physical and mental attributes needed for winning in this most trying of warfare areas.

The Army response to overmatch erosion is the establishment of the Army Futures Command that synchronizes six modernization priorities: long-range precision fires, the Next Generation Combat Vehicle, future vertical lift, the Army network, air and missile defense, and *soldier lethality*.⁴ The lethality priority invests in advancements for the individual soldier, such as load-bearing exoskeletons and communications equipment. Soldier lethality also includes optimizing human performance and decision-making through enhanced training that brings soldiers to their optimal physical and mental capacity. Given the demands of close combat, the lethality priority—with the emphasis on human performance optimization—is the most relevant for the close-combat soldier to win future conflicts. The lethality priority can most impact human performance development through the existing Army hand-to-hand combat training program—the MACP. The MACP stands out for physical conditioning and building relevant fighting skills. And more than any other Army training experience, the MACP develops courage, confidence despite setbacks, focus amidst distractions, composure under extreme circumstances, and decision-making under time

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constraints—all of which are critical to performance and winning the close fight.

Developing Close-Combat Attributes

Leveraging hand-to-hand combat training to build close-combat attributes has a long history in warfare but was reintroduced with vigor in World War I. Shocked by the demands of trench warfare, leaders introduced boxing and grappling to ready soldiers with close-combat fighting skills but also to wake the fighting spirit in each soldier.⁵ Leaders believed that a soldier who could manage fear and remain aware during the competitive aspects of hand-to-hand combat training was likely able to do the same in the close combat of trench warfare. Although combatives was not an integrated feature of Army training for most of the twentieth century, other major conflicts—such as World War II and the Korean War—caused

U.S. Army Rangers toughen up with a little all-in wrestling and unarmed combat 20 August 1942 during training at a British commando depot in England. (Photo by Associated Press)

resurrected programs to develop physical and mental skills that build close-combat attributes.

Famed instructors such as William Fairbairn, with Allied Special Operations in World War II, and John Styer, with the U.S. Marine Corps in the Korean War, emphasized that combatives was as much about building close-combat attributes as it was developing hand-to-hand fighting skills.⁶ Combatives regained institutional traction in Army doctrine in the latter half of the twentieth century. Starting in 1971 and continuing with revisions into the twenty-first century, Army field manuals noted that combatives developed a range of close-combat attributes intended to sustain mental balance in combat

and “not allow fear or anger to overcome ability to concentrate or react instinctively.”⁷

The surprising demands of hand-to-hand combat and close-combat fighting in Operation Iraqi Freedom and Operation Enduring Freedom, perhaps similar to World War I, likely played a role in fostering a renewed emphasis on combatives in the Army. Several reports indicate that one in five soldiers (19 to 22 percent) from infantry brigade combat teams experienced hand-to-hand combat during the early years of Operation Iraqi Freedom.⁸ Additionally, leaders recognized the need to foster mental qualities for winning in the close-combat fight; Gen. Peter Schoomaker, former chief of staff of the Army, as well as commandants from the Maneuver Center of Excellence, advocated for increased combatives training.⁹ Research studies with leaders and soldiers throughout the Army further support the belief that combatives builds close-combat mental attributes.

In a survey of fifty field-grade officers (nineteen responded), the majority (82 percent) believed combatives was useful in building soldier confidence and unit esprit de corps.¹⁰ To complement the officer survey, a group interview with training noncommissioned officers found additional support for MACP as a mechanism for soldiers to build confidence and learn to cope with the fear of being hit (i.e., getting punched by an opponent).

Another study conducted in-depth interviews with seventeen soldiers about their personal experiences in hand-to-hand combat encounters during war. When these soldiers talked about their training, they emphasized that combatives was critical not only for developing technical fighting skills that saved their lives but also in fostering an overall confidence and a warrior mindset.¹¹

The most expansive study on the value of combatives for developing close-combat mental strengths was a survey of over three thousand U.S. Military Academy graduates about their mandatory first-year boxing class.¹² Ranging in graduation years from 1963 to 2001, the survey respondents indicated their boxing class contributed to developing qualities important for close-combat soldiers. The table summarizes the study findings and

Table. U.S. Military Academy Graduates' Perspectives on the First-Year Boxing Course

Boxing helped me increase my ...	To a “great” or “very great” extent
Physical courage	73.1%
Self-confidence	72.8%
Capacity to fight through tough times	69%
Capacity to be poised under pressure	65.2%
Ability to control my fear	60%

(Table by authors)

reveals the various qualities that the participants believed were enhanced in their mandatory course. Given the similarities between boxing and MACP (e.g., competitive, an actively resistant training partner, aggressive physical contact), the study is especially relevant to the current MACP and stands out because a large number of Army officers view their training as valuable for building close-combat attributes.

No one has specifically examined how combatives develops close-combat attributes, but unlike any other type of Army training, combatives is unique in challenging the physical courage of a soldier in the immediate face of

an adversary. Although foot marches are physically trying and live-fire exercises or stress shoots contain an element of elevated stress, these events fail to match the fear, challenge, and consequences associated with facing a willful opponent in an immediate visceral contest—when failure and defeat are very possible outcomes. Combatives, more than any other training environment, provides a setting where soldiers can actually be challenged to exhibit the behaviors associated with the qualities of courage, confidence, focus, composure, and decision-making. For close-combat soldiers who win by closing the distance with an enemy and fighting in situations of extreme violence, such training—and the mental qualities developed in the course of training—are



especially relevant. The challenge with any training in the Army is to ensure it receives appropriate emphasis.

The Soldier Lethality Cross Functional Team seeks to improve human performance optimization through innovative means. With constrained resources, an enduring challenge for any Army modernization priority, finding collaborations of existing Army resources is one approach to addressing the aims of the lethality priority. The collaboration between division MACP and the R2 performance centers offers an example of existing resources. Rather than relying on the inherent experience of combatives to build close-combat attributes, the MACP teamed with R2 to foster a more deliberate approach to building both fighting skills and the human-performance qualities most needed for winning the close-combat fight.

Collaborating to Build Close-Combat Attributes

The R2 performance centers (formerly comprehensive soldier and family fitness centers) are an integration of Army efforts that strengthens soldiers, optimizes performance, enhances resilience, and sustains personal readiness at twenty-six Army installations across the world. The performance centers are manned by DOD contracted performance experts (PEs) with advanced backgrounds in sport and performance psychology and other applied behavioral science backgrounds. PEs directly support local units by providing education and training in mental skills with a focus on increasing self-awareness and self-management based on how the mind affects behavior and performance. The R2 PEs teach specific mental techniques that can be individually applied, and with practice over time, coached to others. Mental-skills training provides a common language for soldiers, instructors, and PEs that demystifies stress responses and normalizes the difficulties of performing close-combat tasks. As mental skills are ingrained

through repeated practice, soldiers develop confidence, composure, concentration, and resilience that apply to performance in a wide range of personal and professional arenas. An important part of any mental-skills training is the practice of such skills in challenging and stressful training environments. Fortunately, combatives provides a wide range of training situations that include appropriate levels of challenge and stress for soldiers.

The two primary courses offered by division MACP are the Basic Combatives Course (BCC) and the Tactical Combatives Course (TCC). The BCC (formerly Level I Instruction) is a five-day, forty-hour course that introduces fundamental fighting skills for the individual soldier and exposure to an aggressive, striking opponent. The TCC (formerly Level II Instruction) is a ten-day, eighty-hour course that builds on the BCC by teaching soldiers additional fighting techniques as well as fire-team-level scenario training with room clearing tasks against opposing forces. The TCC exposes soldiers to the same pain, aggression, and stress of the BCC but amplifies it with team dynamics and decision-making environments that build close-combat attributes more transferable to actual combat. In recent years, R2 PEs have teamed with division-level combatives programs to integrate mental-skills training within the BCC and TCC.

At Fort Drum, New York, PEs worked with the division-level combatives instructors to optimize performance within the stress and challenge provided by the combatives courses.¹³ Fort Drum combatives instructors believed mental strength was often just as important as physical strength during close combat and in achieving success during the challenges of combatives courses. For example, one instructor commented that “the hardest obstacles for the Soldiers to overcome are usually the fear of the unknown and the ability to implement the training they receive.”¹⁴ To address this fear, the R2 PE approach included explicitly educating and training soldiers on confidence, keeping their minds focused on the task at hand, and managing their energy. After the education phase, soldiers practiced exhibiting these mental qualities within the stress and challenge inherent within the BCC and TCC. Instructors found the mental skills training to be a valuable contribution, with one stating that the collaboration with R2 PEs “resulted in a great improvement in the way Soldiers deal with chaotic scenarios that we place them in. Soldiers are learning how to hone into the CSF2 [comprehensive soldier and family fitness] training,

Top left: Company A-2 junior Lawrence Shepherd (*left*) sneaks a jab to the body of Company A-1 sophomore Michael Matthews 21 February 2020 in the men's 147-pound title bout at the U.S. Military Academy at West Point, New York. (Photo by Eric Bartelt)

Bottom left: Sgt. Teshae McCullough gains side control on Staff Sgt. William Chandler 9 March 2018 while participating in the Joint Tactical Combatives Course on Chièvres Air Base, Belgium. (Photo by Pierre-Etienne Courtejoie, U.S. Army)

such as visualizing outcomes, using keywords to alter emotions and knowing how to bring their emotions into control when the scenarios are over.”¹⁵ These comments highlight the value in R2 PEs collaborating with MACP instructors to specifically identify and build important close-combat attributes.

A second collaboration effort between Fort Drum division-level MACP instructors and R2 PEs included the use of video recordings of the soldiers’ performance during the training events.¹⁶ Providing feedback through video is a well-established method for enhancing learning in a range of performance settings. With the videos of soldier performance, PEs pointed out specific behaviors that indicated not only failures in performance but also breakdowns in mental resilience or lack of appropriate mental-skill use (such as getting “tunnel vision” instead of remaining agile in controlling their attention). Video recordings of students also assist instructors with ensuring objectivity in performance assessments and maintaining archival footage for course improvements.

Similar to the effort at Fort Drum, R2 PEs at Fort Carson, Colorado, were invited by the division-level MACP instructors to develop and apply mental-skills training to enhance performance during the BCC and TCC.¹⁷ At Fort Carson, the collaboration between MACP instructors and R2 PEs resulted in a primary goal of enhancing a course participant’s ability to maintain high-order thinking while operating in the complex and volatile setting provided by the TCC. The PEs provided mental-skills training to enhance student abilities through seamless integration into the existing TCC program of instruction. The skills identified between the R2 PEs and the MACP instructors were based on assessment that success in the tactical combatives environment required soldiers to communicate with their teammates, remain flexible in their decision-making, and regulate their physical reactions to stress. The challenging situations in MACP training created stress and fear that sometimes overwhelmed a soldier’s ability to perform effectively. In close combat, this type of breakdown in performance is an unacceptable cost to both the soldier and the unit. When these breakdowns in performance occurred during the TCC, the PEs normalized this type of stress response and used the instances as an opportunity to reinforce mental skills that could mitigate the risk of freezing under pressure. Fort Carson MACP instructors were

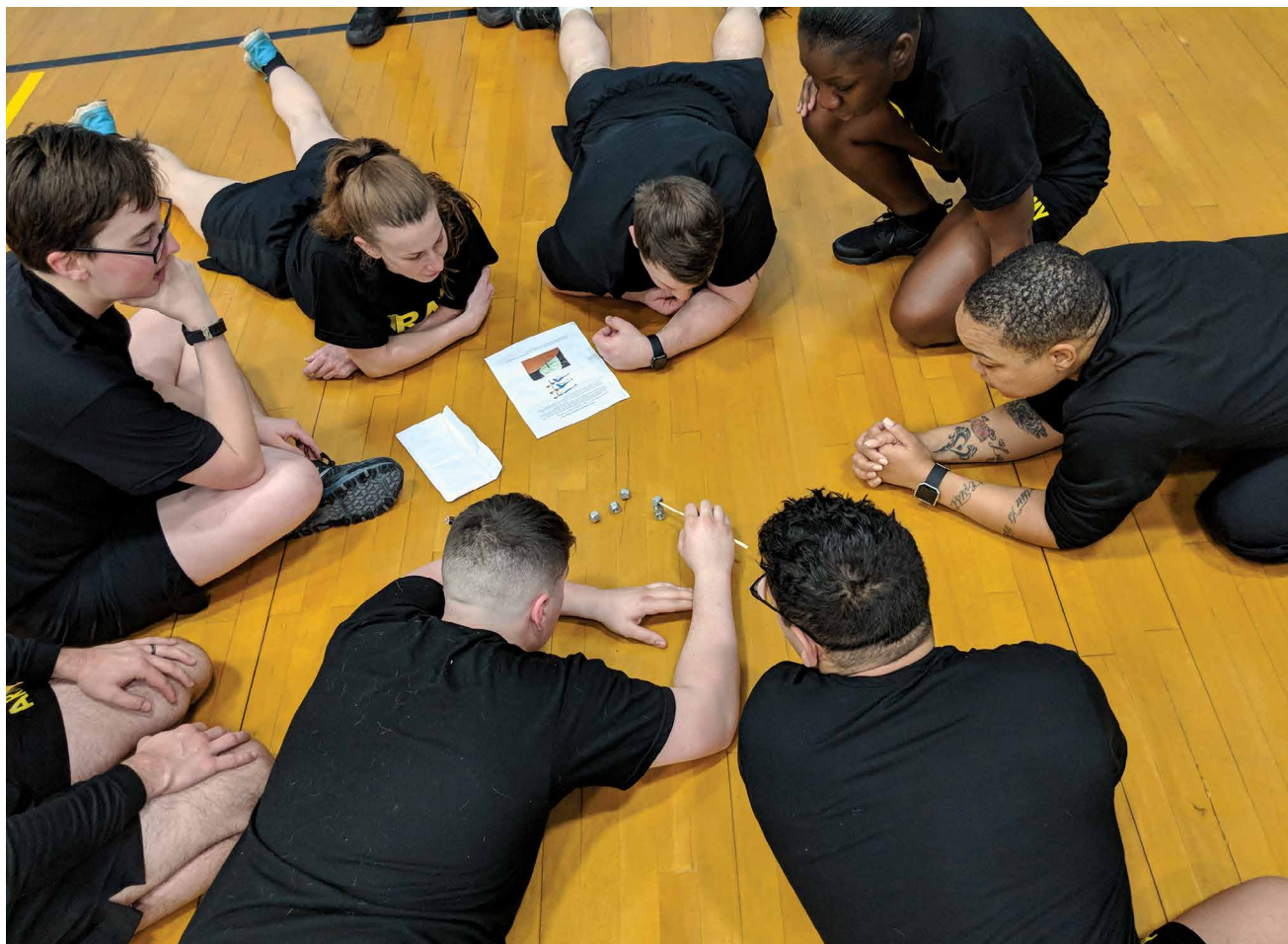
impressed enough with the collaboration with the R2 PEs that they expressed their interest to communicate their approach to others in the U.S. Army.

Recommendations

The Fort Drum and Carson examples of integrating the BCC and TCC training with installation R2 PEs offer a model for the entire Army to address soldier lethality and improve overmatch in the close-combat fight. An immediate recommendation is the coordination between R2 leaders and division G-3 sections to specifically task, as their primary responsibility, a minimum of two PEs at additional R2 centers to support division-level combat-ives training centers to further pilot test the collaboration of integrating mental-skills training with the BCC and TCC to enhance development of close-combat attributes. PEs at other posts might initially reference the Fort Drum and Carson models, but PEs and combatives instructors at other posts bring sufficient expertise to develop their own approach to mental-skills training that optimizes development of close-combat attributes. More centralized guidance on the exact mental skills and engagement protocol with combatives training can be developed in the future, but initially, each installation should explore and foster their own best practices.

Additionally, the Synthetic Training Environment Cross Functional Team can enhance the MACP-R2 collaboration with virtual simulation technology to more closely replicate the conditions of the close fight by immersing soldiers in a more complex, diverse training environment. Repetitions in this type of training build the expertise and qualities needed to dominate the close fight. This recommendation supports the DOD vision for close-combat soldiers to fight twenty-five simulated battles during training before encountering actual close-combat operations.¹⁸ Further, lethality priority resources could support additional advancements in video feedback such as the Fort Drum example.

Video technology designed to improve training, learning, student assessment, and instructor feedback for tactical settings could enhance MACP-R2 collaborations. Performance-measurement software operating on mobile devices (e.g., tablets or smartphones) captures soldier training performance on video while simultaneously allowing instructors to use the mobile device to uninterruptedly make notes, tag soldier behaviors, and rate performance actions to support feedback and after action



reviews.¹⁹ Such video measurement capabilities provide instructors with tools for rigorous assessments of soldier performance that offer trend analysis for the soldier, unit performance, and insights into different performance capabilities within the training course. Additionally, video software technologies can assist in identifying behaviors associated with effective performance and close-combat attributes that might normally be missed in MACP training exercises. Some examples where video software technologies have been used to enhance training and support instructor assessment of students include the Army Reconnaissance Course, Master Leader Course, and simulation-based Army aviation training exercises.²⁰ Other recommendations include leveraging Army after action review institutions to assess, analyze, and communicate the best practices from each installation, which can be incorporated into centralized guidance for the collaborations between combatives centers and R2 sites. Lastly, the Army should invest in additional PEs to support combatives training below the Army division-training-school level. As graduates of the BCC and TCC

A group of soldiers from 210th Brigade Support Battalion, 2nd Brigade Combat Team, 10th Mountain Division (LI), attempt to stack lug nuts 6 February 2018 during an activity that tests concentration and team communication led by the Ready and Resilient Performance Center staff at Monti Physical Fitness Center, Fort Drum, New York. (Photo by Michael Strasser, Fort Drum Garrison Public Affairs)

develop lower-echelon combatives programs, additional PEs would be available to enhance training and optimize development of close-combat attributes.

Conclusion

Combatives offers a microcosm of the close-combat fight. The chaos, speed, physicality, and immediate threat of an enemy are ever-present—if not to the degree of actual combat. Combatives repeatedly tests soldier performance and teamwork under the pressure of an endless number of scenarios. Combatives is one of the few training environments that so powerfully generates the stress responses in a soldier. The MACP-R2

training collaboration provides opportunities to mitigate the performance risk from the stress response and provides the tools for soldiers to perform optimally. The MACP-R2 training collaboration is a best practice for ensuring soldiers have the attributes needed for the close fight. Rather than two separate requirements, combining

the two programs improves both the quality and the efficiency of training. Our Army has well-established combatives and mental-skills training programs. Leaders need only to direct the collaboration of these existing resources to impact lethality and readiness for the inevitable demands our close-combat soldiers will face. ■

Notes

Epigraph. Chief of Staff of the U.S. Army and Acting Secretary of the U.S. Army Memorandum, "Modernization Priorities for the United States Army," 3 October 2017, accessed 10 January 2020, <https://admin.govexec.com/media/untitled.pdf>.

1. Acting Secretary of the U.S. Army, Memorandum for the Deputy Under Secretary of the U.S. Army, "Science and Technology Portfolio Realignment," 29 September 2017.

2. Meghann Myers, "Milley: In Future Wars, Creature Comforts Are Out and Disobeying Orders Is In," *Army Times* (website), 4 May 2017, accessed 13 January 2020, <https://www.armytimes.com/news/your-army/2017/05/04/milley-in-future-wars-creature-comforts-are-out-and-disobeying-orders-is-in/>.

3. Daniel S. Roper, *Regaining Tactical Overmatch: The Close Combat Lethality Task Force* (Arlington, VA: Institute of Land Warfare, Association of the United States Army, 2 April 2018), accessed 13 January 2020, <https://www.ausa.org/publications/regaining-tactical-overmatch-close-combat-lethality-task-force>.

4. Army Futures Command Task Force, "Army Futures Command," Army.mil, 28 March 2018, accessed 29 October 2019, <https://www.army.mil/standto/2018-03-28>.

5. A. E. Marriott, foreword to *Hand-to-Hand Fighting: A System of Personal Defense for the Soldier* (New York: Macmillan, 1918).

6. William E. Fairbairn, *Get Tough! How to Win in Hand-to-Hand Fighting as Taught to the British Commandos and the U.S. Armed Forces* (Boulder, CO: Paladin Press, 1979), v; John Styers, *Cold Steel* (Washington, DC: Leatherneck Association, 1952), iii.

7. Field Manual (FM) 21-150, *Combatives* (Washington, DC: U.S. Government Printing Office, 1971 [obsolete]); FM 21-150, *Combatives* (Washington, DC: U.S. Government Printing Office, 1992 [obsolete]), 1-2; FM 3-25-150, *Combatives* (Washington, DC: U.S. Government Printing Office, 2002 [obsolete]), 1-1.

8. Charles W. Hoge et al., "Combat Duty in Iraq and Afghanistan, Mental Health Problems, and Barriers to Care," *The New England Journal of Medicine* 351, no. 1 (2004): 13-22; Peter R. Jensen, *Hand-to-Hand Combat and the Use of Combatives Skills: An Analysis of United States Army Post-Combat Surveys from 2004-2008* (West Point, NY: U.S. Military Academy, 2014); Paul Y. Kim et al., *Technical Report: Land Combat Study of an Army Infantry Division 2003-2009* (Silver Spring, MD: Walter Reed Army Institute of Research, 2012).

9. Philip Grey, "Controversy Over 'Combatives' Tamped-Down Army-Wide," *Leaf-Chronicle* (website), 16 September 2013, accessed 29 October 2018, https://theleafchronicle.newspapers.com/search/#query=combatives&dr_year=2013-2013; Vince Little, "More Than 300 Soldiers Take to Mat in Combatives," Army.mil, 24

September 2009, accessed 29 October 2019, https://www.army.mil/article/28240/more_than_300_soldiers_take_to_mat_in_combatives; Walter Wojdakowski, "Combatives and Conditioning: Winning the Close Fight," *Infantry* 96, no. 3 (May-June 2007): 1.

10. James F. Blanton, "Hand to Hand Combatives in the US Army" (master's thesis, Command and General Staff College, 2008), 69-70.

11. Peter R. Jensen and Greg Young, "Soldiers' Experiences of Training for Emergency Performance Situations," *Journal of Sport and Human Performance* 4, no. 2 (August 2016): 1-15.

12. Renard Barone, "An Assessment of Freshmen Boxing at the United States Military Academy from the Perspective of Graduates" (EdD diss., U.S. Army Military History Institute, Columbia University, 2004).

13. Michelle Kennedy, "Soldiers, Trainers Use CSF2 Skills to Reinforce Tough Combatives Training," Army.mil, 7 August 2014, accessed 10 March 2018, https://www.army.mil/article/131416/soldiers_trainers_use_csf2_skills_to_reinforce_tough_combatives_training.

14. Ibid.

15. Ibid.

16. Melody Everly, "Soldiers Use Biometric Feedback to Improve Performance, Conserve Energy," Army.mil, 4 February 2016, accessed 25 September 2019, https://www.army.mil/article/161859/soldiers_use_biometric_feedback_to_improve_performance_conserve_energy.

17. Steve DeWiggins et al., "Keep Your Brain in the Fight: An Intervention Designed to Enhance Adaptive Thinking, Attentional Shifting, and Management of Energy in a Tactical Environment" (presentation, Association for Applied Sport Psychology Annual Conference, Orlando, FL, 20 October 2017).

18. Jeff Schogol, "Combat Troops Have Been Complaining about the M4 and M16 for Years. Now the Pentagon Is Doing Something about It," Task & Purpose, 28 February 2018, accessed 15 April 2018, <https://taskandpurpose.com/pentagon-is-doing-something-about-the-m16-and-m4/>.

19. Jean MacMillan et al., "Measuring Team Performance in Complex and Dynamic Military Environments: The SPOTLITE Method," *Military Psychology* 25, no. 3 (2013): 266-79.

20. Martin L. Bink et al., *Validation and Evaluation of Army Aviation Collective Performance Measures* (Woburn, MA: Aptima, 2014); Courtney R. Dean et al., *Development and Evaluation of a Mobile Assessment Tool for the Master Leader Course* (Fort Belvoir, VA: U.S. Army Research Institute for the Behavioral and Social Sciences, 2018); Krista L. Ratwani et al., *Measuring Leader Attributes in the Army Reconnaissance Course* (Woburn, MA: Aptima, 2016).

Larger War, Smaller Hospitals?

Sanders Marble, PhD

For most of the U.S. Army's large-scale wars, a large hospital system was deployed. The size of this hospital system deployment was based on clinical and logistical factors, and it helped sustain fighting power in the theater of operations by returning injured soldiers to duty near the fighting. By the 1990s, the desire to have a smaller deployed medical "footprint" led to the Department of Defense (DOD) reducing the number of deployed hospitals while improving the en route care capabilities of strategic air evacuation to DOD hospitals at Landstuhl, Germany, and in the United States. This solution worked well as long as U.S. forces were not challenged in the air.

Recently, the Army recognized that battlefield challenges could make rapid evacuation of casualties impossible at certain times and places, and the U.S. Army Medical Center of Excellence is exploring mitigation for the challenges of prolonged care before the hospital. Similarly, U.S. forces may not be able to promptly evacuate patients from a theater of operations to hospitals in the United States, and the size of the deployed medical footprint may be too small. Army logisticians are examining the challenges for "just in time" logistics in large-scale combat operations, and the Army should also consider the implications if just-in-time evacuation fails.

Big Wars, Big Medical Systems

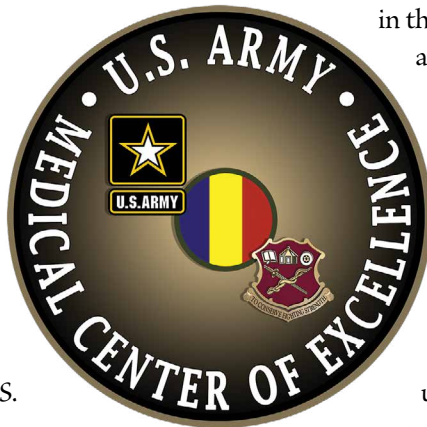
During World War I, the United States deployed over two million "doughboys" to France. The distance from the port of New York to Bordeaux, France, was over 3,600 miles, and troopships traveling at fifteen knots needed

roughly ten days to complete the trip. Any patients evacuated from France to the United States had to be healthy enough to survive that ten-day voyage because even hospital ships had limited medical capabilities, and the hospital ship would run the risk of submarine attack

in the Atlantic. (No U.S. hospital ship was attacked, but over a dozen Allied hospital ships were torpedoed in the Atlantic and adjacent waters, and others hit mines.) Thus, the American Expeditionary Forces (AEF) deployed a large medical system to support the theater. There were mobile hospitals in the combat zone, and divisions had their own medical units, but there was also a substantial communications zone (rear-area) medical

system of fixed facilities for both area support (camp hospitals and dispensaries) and long-term recovery in base hospitals. The fighting was expected to be bloody, and it was. For example, the AEF suffered 70,000 wounded, 19,000 gassed, 2,000 psychiatric casualties, and 69,000 sick and injured in the Meuse-Argonne fighting from 28 September to 11 November 1918. The total number of casualties from that one battle was 160,000.¹

Sick or injured patients, who were very likely to return to duty, outnumbered the wounded, and even many of the wounded and gassed could return to duty after recuperating and convalescence. The AEF established a 120-day evacuation policy, which stated that patients who needed more than 120 days to recover would be sent to the United States; everyone else would be kept in France. Therefore, the hospital system had to be large enough to care for the long-term patients until they could be sent home and for those who would recover





sooner. With the large AEF, the hospital system was large as well; there were over 157,000 beds in the base hospitals, 25,000 more beds in the camp hospitals for routine sick and injured, and about 20,000 cots (without medical attendants) in convalescent facilities.² At times, over 9 percent of the AEF was on sick report (due to the influenza pandemic), so the large medical system was necessary.³ The range of therapeutic drugs was also limited, so most patients got better because their own immune systems fought off infections, aided by supportive care in hospital beds. As an example, there was no measles vaccine and no antibiotics to treat complications associated with measles: the 96,817 measles patients (from an epidemic starting in November 1917) were each hospitalized an average of nineteen days.⁴

The medical system had a silver lining: it returned most patients to duty. This reduced the number of men who had to be shipped to France, freeing shipping space for other purposes and reducing the number of men drafted. Of the 1,000,683 soldiers

hospitalized in France, half of the AEF, 93 percent recovered to return to duty.⁵

The fundamentals had not changed by World War II, though the war was larger and longer than World War I. The worldwide war meant shipping capacity was stretched in more directions over even longer distances, and more depots had to be established; the longer duration meant returning patients to duty was even more important. World War II ships were somewhat faster than those in World War I, but in World War II, they were at risk from air attack as well as submarine attack; convoys had to zigzag their whole route instead of just passing through a small danger zone. Air evacuation was certainly used, with about 121,000 patients flown back to the United States (19 percent of the total number of patients), but the overall death rate of four out of one hundred thousand patients (including shorter, intratheater flights) shows the careful selection of patients for air evacuation. The Army Medical Department (AMEDD) was well aware of



the limits of en route care (a single nurse per aircraft, with virtually no medicine available) and exercised great caution in selecting patients for air transport. In contrast, over 518,000 patients were brought to the United States by sea.⁶ Thus, for most of the war, most patients (63 percent) were healthy enough to travel by troopship with extremely limited medical attendance, and the more severely wounded patients (18 percent) returned by hospital ship.

As in World War I, a 120-day hospitalization policy was standard so that most patients would recover in theater, reducing the number of replacement soldiers needed. Again, large fixed-facility hospital systems were deployed, complementing the large number of mobile hospitals that were forward with the divisions, corps, and armies to provide the initial care. The European theater had over one hundred thousand fixed beds (now termed general hospitals for definitive care and station hospitals for area support); the Pacific theater also had over one hundred thousand beds, while

An aerial photograph of the Beau Desert Hospital Center in 1918 in Bazoilles-sur-Meuse, France. The American Expeditionary Forces had multiple hospital centers, clusters of hospitals with up to twenty thousand beds, plus capacity. (Photo courtesy of the National Library of Medicine)

the Mediterranean theater had about half that number. In the United States, the fixed hospital system had over 153,000 general hospital beds for the wounded and complex patients, and another 101,000 station hospital beds for the short-term sick and injured.⁷

Smaller Wars, Same System

Medical doctrine saw limited change for the wars in Korea and Vietnam. Medicine changed; antibiotics and whole blood were widely available in deployed hospitals where they were not as accessible before, and medical training improved to produce more specialized practitioners.⁸



Operationally, the most notable change was adding helicopters to speed medical evacuation to the hospitals. Combat-zone hospitals changed their capabilities to suit new wartime circumstances, but the communications zone hospitals remained unchanged. While doctrine was unchanged, the wartime circumstances had changed. Neither the Korean War nor the Vietnam War needed the large hospital systems to deploy to the theater of operations because in both wars, there were many hospital beds offshore, especially in Japan.⁹ Korea is close to Japan, and the general and station hospitals established during the military occupation of Japan were used to support the fighting in Korea. There was no need to reinvent the wheel and establish hospitals in Korea when they were a short trip away. Existing hospitals were expanded, upgraded, and received more staff, including Japanese and American civilians, while more hospitals were deployed.¹⁰ Eventually, there were about fifteen thousand Army hospital beds in Japan. The introduction of pressurized aircraft made long-range medical evacuation possible for

Lt. Katye Swope checks patients in July 1943 while they are evacuated from Sicily to Africa for further medical treatment. Fixed-wing air evacuation was used in World War II, typically with a nurse and a medic per aircraft. En route care was very limited, so patients typically were not flown until they were stable, after several days of hospitalization. (Photo courtesy of the National Museum of the U.S. Air Force)

more patients, certainly for the very short flight to Japan, but also for the multistop trip to the United States. En route care was still extremely limited, so patients needed several days or weeks in Japan before it was safe to fly them back to the United States.

The evacuation policy fluctuated. When fighting was heavy, more patients were returned to the United States after stabilizing care, while when the fighting was lighter, a 120-day evacuation policy meant that far more soldiers would return to duty in the Far East. Available data is scant, but out of the tens of thousands of patients treated, about 80 percent of those treated could return to full duty.

In Vietnam, there was a blurring of fixed-facility and combat-zone hospitalization. With fixed bases and no front line, combat-zone hospitals were deployed and semipermanent facilities built for them. When combat operations changed in location and intensity, it was more common to move medical personnel to augment existing facilities than to move hospitals to new base camps, though that did happen. Jets replaced propeller aircraft for strategic lift, speeding evacuation from theater, but there was no change in the en route care capabilities: patients needed to be stable for the six-hour flight to Japan or the ten-to-eighteen-hour flight to the United States, and it could take six to ten days before a patient was safe to fly.

The evacuation policy was set at thirty days, so patients who were expected to recuperate in less than a month were kept in Vietnam. This led to establishing a convalescent center in Vietnam in May 1966 that focused on malaria patients (50–65 percent), but it also received hepatitis patients and the postoperative wounded. The 6th Convalescent Center had an average of over one thousand patients per month, 96 percent of whom returned to duty, which is the equivalent of one to two battalions per month.¹¹ (Late in the war, the 6th was tasked to treat drug-addicted soldiers before they returned to the United States.)

The 6th was only part of the medical system that returned 42 percent of wounded soldiers to duty in Vietnam.¹² Offshore hospitals also supported operations in Vietnam. The Air Force hospital at Clark Air Force Base in the Philippines was used, as was the Army hospital on Okinawa (which was still under U.S. military governance). In 1965, the Army both augmented the existing hospitals in Japan and established three general hospitals to treat patients under a sixty-day evacuation policy.¹³ Between 1965 and 1970, the hospitals in Japan returned around ten thousand soldiers to duty in Vietnam, which translates to about 8 percent of the wounded, or around twelve infantry battalions.¹⁴

Late Cold War Changes

After Vietnam, the Army changed its doctrine and force structure, but it took a decade before the deployed medical system was examined. In 1984, the vice chief of staff of the Army, Gen. Maxwell Thurman, challenged the AMEDD concepts that had not changed since the

early years of the Vietnam War. Thurman started a medical system program review (MSPR) that looked at medicine in both garrison and field operations.¹⁵

The 1960s doctrine had been based on a draftee Army. At that time, replacement manpower for sustained combat power could come from the large reserve components and increased draft calls. Therefore, while field medical care was important, the medical system was not necessarily a critical part of sustaining combat power. It was extremely useful and reduced the transportation problem, but the reserve components would provide units and manpower quickly until the draft produced still more manpower. Switching from a draft to an all-volunteer force reduced both the active duty forces and the reserve components, and the numbers in the training bases declined as well. Thurman pointed out that wounded soldiers who returned to duty would be the main replacement stream for the first 120 days of combat.

Meanwhile, medical researchers identified the main causes of death from combat.¹⁶ The AMEDD had previously focused on areas under physicians' control—the hospitals—and had substantially reduced the died-of-wounds rate, which applied to wounded who died after admission to a hospital.¹⁷

The new data pointed to patients dying before they were admitted to a hospital where they would be categorized as killed in action. Thus, to reduce fatalities (whether killed in action or died of wounds), medical care before the hospital had to be improved. All these changes set the conditions for the MSPR.

That review led to many changes in the AMEDD. To improve unit-level medical care,

- more medical skills for self-aid and buddy-aid were included in initial entry training;
- combat lifesavers were introduced;

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- 91A (basic combat medic) training was upgraded to emergency medical technician–ambulance standards; and
- the 91B (senior combat medic) military occupational specialty, which was previously awarded on promotion to sergeant (assuming the individuals would have received on-the-job training), was now awarded after completion of a new “Super B” training course to ensure senior medics would be able to supervise their juniors.

Deployed hospitals were also overhauled. Tables of organization and equipment were updated to reflect a new generation of vehicles (five-ton truck versus the two-and-a-half-ton truck) and other routine updates of equipment. Simultaneously, hospitalization in the theater of operations was revised, driving changes to types and sizes of hospitals.¹⁸ As early as possible after their admission to the hospital, casualties were identified as “return to duty” (RTD) or for evacuation to the United States (not RTD). Hospitals in the corps area were simplified to the mobile army surgical hospital (sixty beds, all surgical, intended for not RTD) and the

Air Force flight nurse Capt. Shirley A. Armstrong hands out cups of apple juice to the wounded on a C-141 Starlifter in November 1966 during a medical evacuation flight from Tan Son Nhut Air Base, South Vietnam. By the time of the Vietnam War, aircraft were faster and pressurized, but en route care was still very limited, and patients needed several days in hospitals to be stable enough to safely fly. (Photo courtesy of the U.S. Air Force Medical Service)

combat support hospital (three hundred beds, a mix of medical and surgical, intended for RTD). The communications zone (behind the corps) would have general hospitals (one thousand beds were intended to be used to stabilize patients before they evacuated to the United States) and field hospitals (five hundred beds for low-acuity care, for RTD).

Also in the communications zone, medical holding companies were added, each with 1,200 cots for convalescent patients who needed specific exercises before returning to combat. The overhaul not only focused on returning patients to duty, but it also reduced the number of hospitals overall while still increasing the number of operating room table-hours available for

casualty care. Fewer beds were required because fewer soldiers were getting sick (for example, from improved vaccines), and those who did get sick were spending less time hospitalized because of improved pharmaceutical therapies. Air evacuation became the standard mode of strategic evacuation, but it would still be used after hospitalization in theater because en route care

paper, Iraq had formidable forces—nearly one million soldiers and around five thousand tanks, plus chemical and possibly biological weapons—so the Army treated the Iraqis as capable foes, and it deployed the force structure and used the doctrine for World War III. Knowing Iraqi capabilities, especially with weapons of mass destruction, there was no reason to take risks with

“The overhaul not only focused on returning patients to duty, but it also reduced the number of hospitals overall while still increasing the number of operating room table-hours available for casualty care.”

was still a substantial step down in capability from the intensive care unit that hospitals provided. The MSPR and subsequent reviews recognized that earlier air evacuation would allow shifting some hospitalization out of theater, and the Army engaged the biservice Airlift Concepts and Requirements Agency to have it studied by the U.S. Air Force (USAF).¹⁹

However, for the foreseeable future, the Army of the late 80s would have a large theater hospital system for two reasons. First, the forces engaged in a large-scale combat operation would be large (perhaps five hundred thousand soldiers deployed to Europe for a potential World War III in addition to other U.S. services), and they would be facing a capable opponent. Second, there would inevitably be disease and non-battle injury patients. The Total Army Analysis was expecting some 360 casualties per division per day, of whom 143 would need treatment beyond the division rear.²⁰ (The 143 wounded lost to a division plus the 36 killed, captured, or missing, meant the division lost about a company of soldiers each day of action, or each and every platoon lost a soldier.) Six division-equivalents stationed in Germany (and three more due to reinforce) implies that well over one thousand patients a day needed rear-area hospitalization. Casualties among corps- and theater army-level units would increase that number to around 1,500 per day. Patients needing roughly a week to stabilize for strategic air evacuation implies a bare minimum of twelve thousand rear-echelon hospital beds were needed to allow a modest cushion against casualty spikes or delays in evacuation.

Instead of World War III, the Army ended the Cold War fighting Iraq in Operation Desert Storm. On

hospitalization. The Army, following doctrine, supported the roughly three hundred thousand deployed soldiers and deployed forty-four hospitals, from mobile Army surgical hospitals (to follow the combat troops) to general hospitals and field hospitals for rear-area support; these hospitals totaled 13,400 beds in aggregate.²¹ These bed numbers were fortunately overkill for the 467 wounded in action, and for the 14,530 disease and non-battle injury patients who needed in-patient care over the yearlong deployment.²² The hospitals provided excellent care and returned most soldiers to duty, but deploying so many looked foolish in retrospect: the logistical burden was quantifiable, but the amount of insurance provided could not be calculated.

Slimming the System

During the 1990s, with the Soviet Union gone and a more benign world, the U.S. military was cut. To defend the nation's interests with fewer assets required changes, and one change was to the medical evacuation system. The USAF introduced critical care air transport teams (CCATT) that provided essentially ICU-level en route care on ordinary transport aircraft. After the 1993 “Black Hawk Down” episode in Somalia, the Army hospital in Somalia had to send a physician and respiratory therapist on the medevac flight, but later in the 90s, the USAF would provide that type of care. With no drop in care during evacuation, patients no longer needed to stay in theater until they recovered enough for safe evacuation, and thus, the number of hospitals to hold them could be reduced. Large quantities of hospitals were cut from the force structure.



Operation Enduring Freedom never had more than about fifteen thousand personnel deployed, and the medical “footprint” was scattered to support the bases but never needed many hospitals. Operation Iraqi Freedom had far more hospitals deployed but only for the invasion. The only remaining mobile Army surgical hospital was deployed alongside six combat support hospitals, one field hospital, and Navy facilities.²³ That was because the evacuation system could not be robust enough to support the operations; there were no forward airfields for C-17s to evacuate from, and CCATT were not trained to operate in C-130s. During the occupation of Iraq, medical support for U.S. forces was handled by two split-based combat support hospitals located near airfields. When more U.S. forces were deployed for the surge, to a maximum of some one hundred sixty thousand U.S. personnel from all services, no more hospitals were needed because the extra casualties could be handled by more air evacuations.²⁴

Implications for the Future

As long as U.S. air evacuation capabilities are not interdicted, low numbers of deployed hospital beds

Lt. Gen. Frank Helmick, Multi-National Security Transition Command-Iraq and NATO Training Mission-Iraq commander, speaks with a U.S. military patient 27 May 2009 at Ibn Sina Hospital in the International Zone of Baghdad. For most of the operations in Iraq, U.S. hospitals were not operating in tents and having to move as they presumably would in large-scale combat operations. (Photo by Sr. Airman Clayton Murray, U.S. Air Force)

should not pose a problem. Even with more casualties, patients can be evacuated from deployed hospitals. However, projected multi-domain operations suggest the United States will not have unchallenged air capabilities, even for nonthreatening evacuation missions. The Army’s deployable hospitals are being restructured (from combat support hospitals to field hospitals and hospital centers), and by fiscal year 2021, there will be around four thousand deployable beds, counting both active duty and reserve components. While casualty forecasting is not an exact science, any large combat operation against a highly capable foe, especially one with chemical, biological, radiological, nuclear, and explosive capabilities, could easily

overwhelm the hospital capacities. Having too few hospital beds would reduce both the ability to treat casualties and the ability to return soldiers to duty.

In 2009, Secretary of Defense Robert Gates directed that operations in Afghanistan and Iraq be conducted so that troops could get to surgical care within sixty minutes, the so-called “Golden Hour.” The Golden Hour directive has saved lives in Afghanistan and Iraq, but its sustainability in other operations is

questionable. Gen. Mark Milley has acknowledged the challenges of Golden Hour evacuation in high-intensity operations, recognizing the number of potential casualties against tactical evacuation assets, and the possibility that evacuation would be contested.²⁵ To mitigate this tactical problem, the Army is working on prolonged care. The risk of too few hospital beds for sustained, high-intensity operations without strategic evacuation also needs attention. ■

Notes

1. Sanders Marble, “Medical Support for the Meuse-Argonne,” in *The Long Haul: Historical Case Studies of Sustainment in Large-Scale Combat Operations*, ed. Keith R. Beurskens (Fort Leavenworth, KS: Army University Press, 2018), 15–40, accessed 15 January 2020, <https://www.armyupress.army.mil/Portals/7/combat-studies-institute/csi-books/the-long-haul-ls-co-volume-4.pdf>.
2. Joseph Ford, *Medical Department of the United States Army in the World War, vol. II: Administration American Expeditionary Forces* (Washington, DC: U.S. Government Printing Office, 1927), 312.
3. *Ibid.*, 314.
4. Joseph Siler, *Medical Department of the United States Army in the World War, vol. IX: Communicable and Other Diseases* (Washington, DC: U.S. Government Printing Office, 1928), 411.
5. Albert Love, *Medical Department of the United States Army in the World War, vol. XV: Statistics pt. 2, Medical and Casualty Statistics* (Washington, DC: U.S. Government Printing Office, 1925), 103, 147, 1022, 187.
6. Clarence Smith, *The Medical Department: Hospitalization and Evacuation, Zone of Interior* (Washington, DC: U.S. Army Center of Military History, 1956), 324; Mae Mills Link and Hubert A. Coleman, *Medical Support of the Army Air Forces in World War II* (Washington, DC: Office of the Surgeon General, U.S. Air Force, 1992), 399.
7. *Ibid.*, 211.
8. For generalities of care of the wounded, see Spurgeon Neel, *Vietnam Studies Medical Support 1965-1970* (Washington, DC: U.S. Army Center of Military History, 1973), 49–58.
9. *Ibid.*, 69–70; Albert Cowdrey, *U.S. Army in the Korean War: The Medics’ War* (Washington, DC: U.S. Army Center of Military History, 1987), 270–76.
10. Cowdrey, *U.S. Army in the Korean War: The Medics’ War*, 270–91.
11. Neel, *Vietnam Studies Medical Support 1965-1970*, 68.
12. *Ibid.*, 52.
13. *Ibid.*, 70.
14. *Ibid.*, 52, 69–70.
15. AMEDD Stockholders’ Report, AHS, 1989, document on file, Army Medical Department Center of History & Heritage, Fort Sam Houston, TX.
16. Ronald Bellamy, “The Causes of Death in Conventional Land Warfare: Implications for Combat Casualty Care Research,” *Military Medicine* 149, no. 2 (February 1984): 55–62.
17. DOW (died of wounds) refers to casualties who die after admission to a medical unit and is thus an indicator of hospital effectiveness.
18. Neel, *Vietnam Studies Medical Support 1965-1970*, 68.
19. *Army Medical Activities Report for the Academy of Health Sciences* (Fort Sam Houston, TX: U.S. Army Medical Department, 1985), 11, accessed 15 January 2020, <http://cdm16379.contentdm.oclc.org/cdm/ref/collection/p16379coll4/id/32>.
20. The Total Army Analysis was conducted in 1992, but it used most of the planning factors of the 1980s. On file, Army Medicine Center of History and Heritage.
21. Frank N. Schubert and Theresa L. Kraus, eds., *The Whirlwind War: The United States Army in Operations Desert Shield and Desert Storm* (Washington, DC: U.S. Army Center of Military History, 1995), 157; Government Accounting Office (GAO), *Operation Desert Storm Full Army Medical Capability Not Achieved*, GAO/NSIAD Report 92-175 (Washington, DC: U.S. GAO, August 1992), accessed 16 January 2020, <https://www.gao.gov/assets/160/152150.pdf>.
22. Barbara Wojcik et al., “A Disease and Non-Battle Injury Model Based on Persian Gulf War Admission Rates,” *American Journal of Industrial Medicine* 45 (2004): 549–57.
23. Order of Battle information from Gregory Fontenot et al., *On Point: The U.S. Army in Operation Iraqi Freedom* (Fort Leavenworth, KS: Combat Studies Institute Press, 2004), 441–96.
24. One reduced-strength hospital was deployed, task-organized to provide detainee care.
25. Mark Milley, congressional testimony, cited in Sydney J. Freedberg Jr., “The Army’s Plan to Save the Wounded in Future War,” *Breaking Defense*, 12 April 2019, accessed 22 January 2020, <https://breakingdefense.com/2019/04/the-armys-plan-to-save-the-wounded-in-future-war/>.

A Russian Military Framework for Understanding Influence in the Competition Period

Tom Wilhelm

Information has become a destructive weapon just like a bayonet, bullet or projectile.

—Vladimir Slipchenko

To the U.S. Army, a competition period is described as actions over time that exploit the operational environment conditions in order to gain a position of advantage below the threshold of armed conflict. At the crux of competition is the ability to create a strategic and operational standoff

to gain freedom of action in any domain. This is done through the integration of political and economic actions, unconventional and information warfare, and the actual or threatened employment of conventional forces.¹ “Russia exploits the conditions of the operational environment to achieve its objectives by fracturing alliances, partnerships, and resolve, particularly through the effective use of information in undermining friendly will.”² In various forms, this description of Russian influence is prolific throughout Western security analysis. The prevailing views often



include the notion that much of Russian influence over events is planned and orchestrated. This is certainly true in many instances; however, identifying the wiring of Russian influence can be difficult as it can not only come from planned operations but also from standard geopolitical practice, spontaneous civic activities, and many other actions and events that contribute to achieving Russian objectives.³ The actors can come from across the entire government and yet not be whole-of-government. Russian influence can involve many aspects of Russian society and other governments and their societies, and it can include extralegal networks too. Adding to this are other insoluble factors such as the opaque institutional dynamics in Kremlin decision-making and the secret activities of the Russian security services including its armed forces and General Staff. Confounding outsiders even more is that any event and activity can be denied or can be the result of *bardak* (a particular Russian understanding of fiasco).⁴ But events that occur while competitively vying to shape and control the security environment can also be confusing for the Russians themselves and for the military in particular. As leading Russian military theorists I. A. Chicharev, D. S. Polulyah, and V. Yu. Brovko observe, the operational environment is characterized by “the confusion of military and non-military array of tools [that] belong

to modern hybrid wars.”⁵ For the Russian military establishment—a keeper of Russian strategic culture and its premier planning institution, the General Staff—this has been alarming, and members have been working to come to grips with it.

There are a variety of frameworks that provide a way to understand how

Russian influence plays out in the current operational environment. These frameworks are often focused on particular military events or explained at sociocultural and political-strategic levels. These models range from case study analyses to a summing-up of Russian mentality and tradition, to Kremlinology, and to mirror reflections of what the military claims the West is doing to Russia.⁶ All offer invaluable insight; however, in terms of a distinctive framework built from Russian military insight, developments of the

General Staff reveal a useful model for examining all levels of influence in the competition period.

The Russian military does not directly or fully illuminate what it does in conceiving, developing, implementing, and coordinating actions to affect what it describes as the “amalgam of calculation and risk” of its adversaries.⁷ To a significant degree, its process is dogmatic, secretive, and opportunistic at the same time. Moreover, sometimes Russian influence events obviously involve the armed forces, and at other times, the armed forces seem to grapple and play catch-up with actions that defy their deep culture of planning.⁸ Nevertheless, surveying some of the General Staff’s doctrinal developments resulted in a structured exposure to how the Russian military may look at influence, particularly in the competition period. There is also the potential to see how they can be expected to deal with it going forward, even emerging with a more consolidated and central role among the state’s security institutions.



Emblem of the General Staff of the Russian Armed Forces
(Graphic courtesy of Wikimedia Commons)

Russia's Defence Minister Sergei Shoigu holds a virtual meeting of the Russian Defence Ministry Board in Moscow on 29 April 2020 that includes Chief of the General Staff Valery Gerasimov, other key General Staff members, and other Russian military leaders. The meeting was held to discuss a variety of issues including measures to mitigate adverse impacts of the COVID-19 pandemic. (Photo courtesy of the Russian Ministry of Defence)



Influencing the Defense of the Russian World and the Goal of Information Warfare

As described in the official military policy, Russia will take military measures to provide for “the safety of the vital interests” of individual Russians, the society, and the state.⁹ Military risks and threats include a “rivalry of proclaimed values and models of development.”¹⁰ The policy, however, instructs the military establishment to apply measures “only after political, diplomatic, legal, economic, informational, and other non-violent instruments have been exhausted” but does not preclude the military’s participation, support, or the development of its capacities in any of these domains.¹¹ In fact, as the doctrine further notes, “There is a tendency towards shifting military risks and military threats to the information space.”¹² This is a telling statement because information warfare is something Russians have developed significantly in their military science over decades. Empowered by this doctrine, which equates to national policy in Russian statecraft, the General Staff’s contemporary list of information warfare components indicates an imaginatively broad vision. It includes international media centers, military bases abroad, human rights organizations, movie and computer gaming industries, private military companies, and even “the need to use world-renowned

Through its media outlets, Russian combat-system developers assert that Russian military robots (as shown in the photo) using sophisticated artificial information will soon have “nearly human capabilities” that will enable them to independently evaluate the changing conditions they face, plot new courses of action, communicate and coordinate with other machines, and make battlefield decisions without human involvement. Such assertions are at least in part intended to intimidate prospective adversaries. (Photo from RT)

academics, such as Nobel laureates.”¹³ According to the military, the goal of influence domination, in this context, is described as protecting national interest by “countering” and “suppressing” attacks against the promotion of Russia and its defense of a *Russkiy mir* (Russian world).¹⁴ In the information domain, Russian military science divides information warfare into informational-technical, which can incorporate cyberattacks and electronic warfare, and informational-psychological, which includes a wide range of activities aimed at creating unpredictability. In the latter, legitimate appearances are maintained but content is changed and the context of information is transformed to fit objectives.¹⁵ According to the military, the ultimate effect of influencing operations would be to have an adversary “self-disorganize” and “self-disorient.”¹⁶

Words matter. The significance of this in Russian military thought is also evidenced in the evolution of

its military terminology. Russian terms of operational art have doctrinal weight. The military, often through the Military Academy of the General Staff and related higher military educational institutions, chooses and uses words carefully after deliberate consideration over time. The lexicon of Russian military science is used to ensure that planning proceeds toward calculable ends and that force-wide developments are anchored to a common ground. In the realm of influence and influence operations, some key terms associated with Russian information warfare have been deliberately evolved in this way, revealing motivations and directions of the General Staff. Some terms are in a state of consideration, indicating that there is still ongoing General Staff doctrinal developments; still, other terms have appeared to guide the General Staff work in the current operational environment. For example, the term “propaganda,” holding onto its Red Army roots, still exists officially to mean the government’s “purposeful” wisdom.¹⁷ However, the military hardly uses it in that positive sense in its current writings, and instead, the nondoctrinal, negative sense of the term pops up more often as something practiced against it. “Counter-propaganda,” once a common feature of the Russian military lexicon and used to explain negative information contrived by adversaries, is in a kind of doctrinal term limbo, and Russians seem to be searching for other ways of expressing this.¹⁸ Some old terms are receiving a face-lift: “sabotage,” for instance, has been expanded to embrace the context of information operations; the doctrinal terms for “deception,” “misdirection,” and “disorientation” are becoming synonyms in describing influence effects.¹⁹ The standard definition of “defense” now includes the “use of precision weapons and highly effective means of information warfare.”²⁰ Other terms like “controlled chaos technology” in the “cultural-philosophical sphere” of “hybrid war” are newer concepts and in a state of discussion and development, along with “information packet” and “simulacra” related to “reflexive control,” which is inclining an adversary to make decisions on his or her own accord that are predetermined to favor the protagonist.²¹ “Disorganization” aims at creating “mismanagement”; “fragmentation,” similarly, refers to actions that disrupt the enemy’s decision-making at crucial times but particularly highlights isolation of key players from making those decisions.²² Operations

launched to accomplish this are “information strikes.”²³ The purpose of “specially created channels” to insert erroneous information may include organizations such as the General Staff’s Main Intelligence Directorate but expressly includes the public media.²⁴

This evolution of terms signals that the General Staff is building a very particular foundation. It is an understanding of not just how information warfare is contextualized in forecasting and describing the nature of conflict but how influence actions can be operationalized or at least dealt with in a more calculable way. For instance, taken together, these concepts are much more than planning and mounting an operation to divert, mask, or deceive an enemy in a tactical moment; the aim is to ultimately shape or change the nature of the conflict itself.

Influence and Russian operational art. In 2015, then chief of the Russian General Staff’s Main Operational Directorate, Gen.-Lt. Andrei V. Kartapolov, published an article in the *Journal of the Academy of Military Science* that described “new-type war.” His article, a work of trend analysis, solidified the General Staff’s previous forecasting and historical surveys. The most famous of these was done by S. G. Chikinov and S. A. Bagdonov that was understood by Western analysts as “Russian new-generation warfare,” and was also used by Chief of the Russian General Staff Valery Gerasimov’s own publication on foresight, the erstwhile “Gerasimov doctrine.” Critically, Chikinov and Bagdonov believed that strategic goals would not be accomplished unless information superiority was assured; Gerasimov’s work indicated that the ratio of nonmilitary to military measures in future war was four to one.²⁵ In terms of military art in what the West recognizes as the competition period, Kartapolov noted a “set of indirect actions” that

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characterize “new-type war” including “hybrid war.” This list of the forms and methods—a specific nomenclature of Russian military science—was based on the General Staff’s historical analysis of what it believed the West had been doing to attack Russia since before the end of the Cold War.²⁶ Given his position at that time and now as the deputy minister of defence and chief of the Main Military-Political Administration, Kartapolov’s description of the methods can be seen as serving a couple of critical purposes. First, it has been a beacon over key developmental years to orient the General Staff’s doctrinal work and planning focus. Second, it has also illuminated Russian intentions with regard to the nature of contemporary conflict with great consistency.²⁷ In this context, Kartapolov’s description can be understood as a road-map of Russian development and practice.

An Applied Look at Kartapolov’s Framework

The framework has eight parts and involves more than just the military institution:

(1) political, economic, informational, and psychological pressure;

A damaged Buk missile is displayed 24 May 2018 during a news conference by members of the joint investigation team, comprising authorities from Australia, Belgium, Malaysia, the Netherlands, and Ukraine, in Bunnik, Netherlands. Moscow continued to deny involvement in the destruction of Malaysia Airlines Flight 17, even as an international team of investigators said that detailed analysis of video images and photos had unequivocally established that the Buk missile that brought down the plane over eastern Ukraine nearly four years ago came from a Russian-based military unit. (Photo by Francois Lenoir, Reuters)

- (2) disorientation of the political and military leadership;
- (3) spreading dissatisfaction among the population;
- (4) support of internal opposition in other countries;
- (5) preparing and deploying armed opposition;
- (6) deployment of special forces;
- (7) conduct of subversive acts; and
- (8) employment of new weapon systems.²⁸

Some exemplars can help demonstrate how the General Staff may consider influencing actions through the competition phase and initial phase of warfare. (This is not meant to be a definitive list or analysis of events.)

Political, economic, informational, and psychological pressure. As an influence method, political, economic, informational, and psychological pressure can include commonly practiced military engagements and multilateral exercises that Russia uses to develop and to shape political and military relations and partnerships. For instance, military advancements in robotics and increased presence in the Arctic encourage a sense of competitive advantage to outsiders. This is classic, effective military propaganda in accordance with the Russian definition.

Disorientation of the adversary's political and military leadership. Most major Russian media remain quasi-controlled by the Kremlin and thus serve to disseminate Kremlin-approved messages at home and abroad. Each of the major television and radio stations also offer military-themed programs, many of which are supported by the Ministry of Defence and not only highlight the latest military developments and promote the image of the military but also inculcate the Kremlin's threat portrayal. President

Vladimir Putin's descriptions of new "invincible" weapon systems promote a sense of Russian strength and an alternative strategic security environment in which Russia has advantage. These activities have propaganda value in promotion of Russian objectives but can also disorient outside observers and decision-makers.

Spreading dissatisfaction among the target population. Many Russian influence activities have made headlines. One such event is the Malaysian airliner (MH-17) that was shot down over a separatist-controlled territory in Ukraine. In this case, the Russian military establishment supported its government's response with the use of outdated satellite imagery,

dubious weapons transfer documentation, and simulations of a fabricated Ukrainian surface-to-air missile or military aircraft attack. Today, a majority of Russians believe that their country was blameless as do some Ukrainians and even the Malaysian prime minister at the time, Mahathir Mohamad, who stated his support of Russia's "no-proof" position.²⁹ Overall, this effort could be seen as an array of decoy actions that fragmented unifying condemnation of Russia.

Support of internal opposition in other countries.

One way Russia supports internal opposition abroad is with state-sponsored paramilitary organizations. The use of these quasi-state forces develops pro-Russian constituency, discredits other narratives, and acts as an

instigating force or alternative police. This could be considered a disorganizing activity. The Cossacks who were deployed as alternative, pro-Russian police forces in the immediate aftermath of the Crimean seizure are an example of these citizen militias coordinating and integrating in Russian military operations. In the current Russian military encyclopedia, the



Col.-Gen. Andrei Kartapolov, chief of the Main Operational Directorate of the Russian General Staff, conducts a press conference 19 November 2015 detailing the results of Russian air strikes in Syria. (Photo courtesy of Ministry of Defence of the Russian Federation)

Union of Cossacks is specifically noted as a legitimate organization of the "defensive work of the masses."³⁰

Preparing and deploying armed opposition.

Within the targeted state, the support of separatist militias in Eastern Ukraine has many examples. In late May 2014, for instance, a group of outside fighters who supported Ukrainian separatists—the Vostok Battalion—led a series of attacks in and around Donetsk. The fighters, many of whom said they were Chechen, appeared in Ukraine less than one month after Chechen head of state Ramzan Kadyrov threatened to send troops to fight in Ukraine. (Chechnya is a federal territory of Russia.)

Deployment of special forces. The deployment of special forces may include a range of military forces, so “special” in this case means more than just special operations forces. The iconic “Polite People” who facilitated the takeover of Crimea are one example. Another example includes regular armed forces soldiers deployed in deception, such as those members in support of Ukrainian separatists groups. More recently, special forces can be seen in its broadest, interagency sense in November 2018 when three Ukrainian navy ships were seized en route to a Ukrainian port in the Sea of Azov.³¹ The coordinated operation included forces from several agencies and services including the Russian military. In Syria, the Russian Military Police, as the principal force in securing and delivering humanitarian aid, support the strategic Russian image in this conflict. This demonstrates the whole-of-government part of new-type war and might be considered “specially packaged information” aimed to reflexively influence the opinions of other states.

Conduct subversive acts. Russia will conduct subversive acts such as its role with General Staff’s Main

the competition period. Unit 26165, the military’s cyber hacking unit, is one well-known example. It was widely noted that during the Ukrainian conflict, other cyber/software spying and attacks anonymously contacted adversary soldiers on their cell phones to intimidate or persuade them into quitting their posts.³² Russia also jammed GPS signals during NATO military exercises and conducted provocative proximity and laser operations against various commercial and military satellites.³³ Although obviously offensive, the tests of hypersonic munitions fit the new-type war paradigm by informationally “defending” Russia in the competition period.

Taken together as prescribed by the Russian General Staff and viewed as methods of Russian military science, the framework that Kartapolov anointed may be richer than other sociocultural and strategic models and provide a holistic understanding of how the Russian military may observe and deal with influence activities.

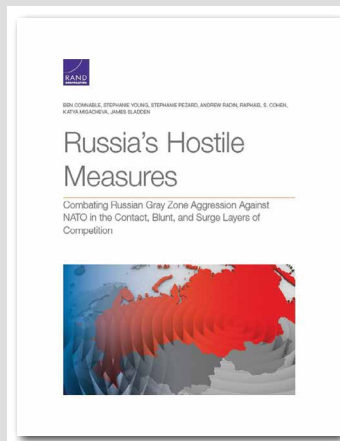
“ВнепреД!” (Forward!)

The General Staff is gaining a central role among Russian security organizations for the development,

integration, and coordination of the national concepts and the doctrine for the defense of the state. Specifically, in a draft of an upcoming presidential decree, the General Staff is designated as the supervising organization for the armed forces, the National Guard troops, the other military formations and agencies

such as the Federal Security Service, Federal Protective Service, Ministry of Emergencies, and the country’s defense industrial complex, as well as other law enforcement agencies and local authorities regarding issues of defense. Putin himself declared this to be “the military organization,” creating a legal bridge over any gaps between the military and nonmilitary space in terms of coordinating state efforts and evolving that security

The RAND report *Russia’s Hostile Measures: Combating Russian Gray Zone Aggression Against NATO in the Contact, Blunt, and Surge Layers of Competition* provides analysis stemming from research focused on examining the diverse means and methods Russia is using to threaten the security and undermine the stability of members of NATO. It is part of the larger research project, “Russia, European Security, and ‘Measures Short of War,’” sponsored by the U.S. Army Deputy Chief of Staff, G-3/5/7. The purpose of the overall project was to provide recommendations to inform the options that the Army presents to the National Command Authorities to leverage, improve upon, and develop new capabilities and address the threat of Russian aggression in the form of measures short of war. To view *Russia’s Hostile Measures*, visit https://www.rand.org/pubs/research_reports/RR2539.html.



Intelligence Directorate officers in a spate of assassination, sabotage, and other *mokroye delo* (wet work) abroad. Besides achieving objectives of the attack, the informational and influencing aspects of these operations also serve to disorient, fragment, and disorganize in accordance with Russian operational art.

Employing new weapons systems. Russia has been employing new weapons systems to achieve influence in



collective from what was previously described in the national military policy.³⁴ It also makes good use of the General Staff's deep culture and institutional design for detailed planning. The General Staff has downplayed this, indicating that the decree mostly provides clearer legal authorities for functions already undertaken such as mobilization and arms exports. However, concomitant initiatives that are enhancing centralized, secure command and control (e.g., the National Defence Management Center, the consolidated National Guard, and sovereign and military communication networks) make it easy to imagine more integrated, whole-of-government defense and security activities networked through the General Staff. It is also not hard to see how the Russian military, in such a supervisory position, will be able to better argue for desired funding and other state resources. At the very least, such development will help the General Staff develop doctrine that overcomes the inherent confusion it loathes while waging more effective influence in the competition period.

In the period of conflict that precedes actual combat, competition for influence is the most prevalent.

Not far from the Donetsk International Airport in Donetsk, Ukraine, a man from the Vostok battalion of the Donetsk's People's Republic patrols the city's Oktyabrsky residential area 16 December 2014. (Photo by Valery Sharifulin/TASS/Alamy Live News)

According to the Russian General Staff, this period is persistent and pervasive. It is seen and experienced by many but can also be elusive to investigation and analytic frameworks. Not everything is an information operation. To get better clarity, Russian military science provides a useful porthole. From doctrinal discussions over time, the General Staff has revealed a structured perspective aimed at justifying a broad use of information warfare and other supportive activities, especially for the competition period. That framework and consensus on the key forms and methods—derived from their military science—gives an outside observer a Russian-based opportunity to consider influencing actions that can simultaneously range from sociocultural to strategic to tactical. It gives the Russians their best institution to bring that together. ■

Notes

Epigraph. Makhmut Akhmetovich Gareev and Vladimir Slipchenko, *Future War* (Fort Leavenworth, KS: Foreign Military Studies Office [FMSO], 2007), 33.

1. U.S. Army Training and Doctrine Command (TRADOC) Pamphlet 525-3-1, *The U.S. Army in Multi-Domain Operations 2028* (Fort Eustis, VA: TRADOC, 6 December 2018), vi, 6–7.

2. *Ibid.*, vi.

3. For highlights of implementation of Russian influence actions and information operations in the Ukrainian conflict, see Michael Kofman et al., *Lessons from Russian Operations in Crimea and Eastern Ukraine* (Santa Monica, CA: RAND Corporation, 2017).

4. Sarah A. Topol, "What Does Putin Really Want?," *New York Times* (website), 25 June 2019, accessed 11 February 2020, <https://www.nytimes.com/2019/06/25/magazine/russia-unit-ed-states-world-politics.html>. Quoting Ruslan Pukhov, director of the Centre for Analysis of Strategies and Technologies, a Russian military think tank: "Every time some Western observer says 'Russians did this, Russia did that,' I say: 'You describe Russians like they are Germans and Americans. We are not ... if you don't know the word bardak, you are an idiot and not an analyst of Russia. Because bardak is disorder, it's fiasco.'"

5. I. A. Chicharev, D. S. Polulyah, and V. Yu. Brovko, "Hybrid War: Reconstructionism vs. Deconstructionism," *The Journal of the Academy of Military Science* 65, no. 4 (2018): 58.

6. Dmitry (Dima) Adamsky, "Moscow's Syria Campaign," *Russie.Nei.Visions*, no. 109 (Paris: Institut français des relations internationales [Ifri], July 2018), 7–8. Using the Syrian campaign, Adamsky outlines strategic principles of preservation of controlled tensions, reasonable sufficiency in military involvement, and flexibility.

Also see, for example, Katri Pynnoniemi, "Information-Psychological Warfare in Russian Security Strategy," in *Routledge Handbook of Russian Security*, ed. Roger E. Kanet (Abingdon, UK: Routledge, 2019), 222, which notes a Russian model based on the Russian mentality and national traditions as having four aspects: "formation of positive image of Russia as a country that is effectively solving international conflicts; conduct of psychological operations at the individual and mass consciousness level both in the conflict zone and beyond; the role of Russian special services in conducting psychological operations; [and] protection of the domestic audience and state decision-making bodies from the foreign information-psychological influence."

See also Graeme P. Herd, "Putin's Operational Code and Strategic Decision-Making in Russia," in Kanet, *Routledge Handbook of Russian Security*, 17. Herd explains that "Putin's 'operational code' is driven by the personality of Putin (a function of his education, training, life experiences and psychological-emotional state)."

Also see Janis Berzins, *Russian New Generation Warfare in Ukraine: Implications for Latvian Defence Policy*, Policy Paper #2 (Riga, Latvia: Center for Security and Strategic Research, National Academy of Defence of Latvia, April 2014), 6. The eight-phase model is derived from Russian General Staff Academy work in S. G. Chekinov and S. A. Bagdonov, "The Nature and Content of a New-Generation War," *Military Thought*, no. 10 (2013): 13–15.

Heather A. Conley et al., *The Kremlin Playbook: Understanding Russian Influence in Central and Eastern Europe* (Washington, DC: Center for Strategic and International Studies, October 2016), accessed 14 February 2020, <https://www.csis.org/analysis/kremlin-playbook>. The authors describe a "unvirtuous cycle" of corrupt political and economic influence resulting in "state capture."

See also a comparison of several models in James P. Farwell, "Adversarial Tactics to Undercut US Interests in New Generation Warfare 2019" (Boston: NSI, 3 May 2019), 6–9.

See also Timothy L. Thomas, *Russian Military Thought: Concepts and Elements*, MITRE MP190451V1 (McLean, VA: Mitre Corporation, August 2019), 1-1. Thomas describes a deliberate process of "disorganizing an opposing force, reflexively controlling them, examining numerous forms and methods of applying force by branch of service, and finding innovative ways to employ military art," particularly with a focus on the initial phase of war. Thomas additionally lists the military process as a "mixture of vision, deception, deterrence, outright power, innovative thought, preparation, and the development of alternate realities" (*ibid.*, 12-7).

7. I. N. Vorobyev and V. A. Kiselev, "From Modern Tactics to the Tactics of Network-Centric Actions," *Military Thought* 17, no. 3 (2008): 84–91, quoted in Timothy L. Thomas, *Kremlin Kontrol* (Fort Leavenworth, KS: FMSO, 2017), 186.

8. For example, the Russian General Staff discusses the need for new procedures to overcome shortcomings between national level and armed forces level security assessments in S. P. Belokon and O. V. Kolomoiez, "Scientific-Methodological Problems of Estimating National and Military Security of the Russian Federation," *The Journal of the Academy of Military Science* 61, no. 4 (2017): 4–17. Compare that with Ruslan Pukhov's bardak quote in Sarah A. Topol, "What Does Putin Really Want?"; and Mark Galeotti's coined condition "ad hococracy," in Mark Galeotti, "What Exactly are Kremlin Ties," *The Atlantic* (website), 12 July 2019, accessed 14 February 2020, <https://www.theatlantic.com/international/archive/2017/07/russia-trump-putin-clinton/533370/>.

9. "Military Doctrine of the Russian Federation," Presidential Decree No. Pr-2976 (Moscow: The Kremlin, 2014), sec. 1, para. 8a, accessed 14 February 2020, <https://www.offiziere.ch/wp-content/uploads-001/2015/08/Russia-s-2014-Military-Doctrine.pdf>.

10. *Ibid.*, sec. 2, para. 9.

11. *Ibid.*, sec. 1, para. 5.

12. *Ibid.*, sec. 2, para. 11.

13. V. K. Novikov and S. V. Golubhikiv, "Analysis of Information War in the Last Quarter of a Century," trans. Harry Orenstein, *The Journal of the Academy of Military Science*, no. 3 (2017): 1–14, referenced in Thomas, *Russian Military Thought*, 8-20.

14. "Doctrine on Information Security of the Russian Federation," Presidential Decree No. 646 (Moscow: The Kremlin, 5 December 2016), sec. 23(a) and 23(b), accessed 14 February 2020, http://www.mid.ru/en/foreign_policy/official_documents/-asset_publisher/CptlCk6B6Z29/content/id2563163. Section 21 notes the military's policies and obligations, particularly protecting Russia's "historical foundations and patriotic traditions"; "Putin's Russian World," *The Moscow Times* (website), 6 May 2014, accessed 14 February 2020, <https://www.themoscowtimes.com/2014/05/06/putins-russian-world-a35150>.

15. Michael Connell and Sarah Vogler, "Russian's Approach to Cyber Warfare" (Arlington, VA: CNA, March 2017), 3, accessed 14 February 2020, https://www.cna.org/CNA_files/PDF/DOP-2016-U-014231-1Rev.pdf; Timothy Thomas, "Russian Information Warfare Strategy: Can the Nation Cope in Future Conflicts?," *The Journal of Slavic Military Studies* 27, no. 1 (2014): 101–2; Pynnoniemi, "Information-Psychological Warfare in Russian Security Strategy," 220; *Condensed Encyclopedic Dictionary*, s.v. "Operations of Informational-Psychological Warfare," comp. V. B. Venprintsev (Moscow: Goryachaya Liniya–Telekom, 2011).
16. Pynnoniemi, "Information-Psychological Warfare in Russian Security Strategy," 218–19.
17. There are numerous examples spread over official Russian military literature. See, for example, A. A. Bartosh, "A Model of Hybrid Warfare," *Military Thought* 28, no. 2 (2019): 9.
18. See, for instance, "Doctrine on Information Security of the Russian Federation," sec. 21(e), which outlines the military policy using the expression "countervailing information and psychological information." See a comparison of "purposeful propaganda" and avoidance of the term in Bartosh, "A Model of Hybrid Warfare," 9, 14–17. Also see the sort of term avoidance in description of "protection against adversary information and psychological impact" in L. A. Kolosova et al., "Moral and Psychological Support System for Combat Troops," *Military Thought* 28, no. 2 (2019): 167.
19. The selected terms (propaganda, counterpropaganda, sabotage, deception, misdirection, defense, controlled chaos technology, information packet, simulacra, reflexive control, disorganization, fragmentation, information strikes, and specially created channels) were compared among the official Russian Ministry of Defence online encyclopedia, accessed 1 July 2019, <http://encyclopedia.mil.ru/encyclopedia/dictionary/list.htm>; N. N. Tyutyunnikov, "Military Thought in Terms and Definitions," *Military Thought* 27, nos. 1–3 (2018); *Condensed Encyclopedic Dictionary*, s.v. "Operations of Informational-Psychological Warfare"; *Military Encyclopedic Dictionary*, ed. A. P. Gorkin et al., vol. 2 (Moscow: Institute of Military History of the Ministry of Defence of the Russian Federation, 2001); *Soviet Military Encyclopedia*, ed. A. M. Prokhorov (Moscow: Military Press, 1986).
20. Tyutyunnikov, "Military Thought in Terms and Definitions," 242.
21. Bartosh, "A Model of Hybrid Warfare," 15; A. S. Brychkov, V. L. Dorokhov, and G. A. Nikonorov, "The Hybrid Nature of Future Wars and Armed Conflicts," *Military Thought* 28, no. 2 (2019): 30; for enhanced explanations and references regarding reflexive control, see Thomas, *Kremlin Kontrol*, 175–98.
22. Tyutyunnikov, "Military Thought in Terms and Definitions," 1:319–20.
23. *Ibid.*, 3:137.
24. Russian Ministry of Defence online encyclopedia.
25. Chekinov and Bagdonov, "The Nature and Content of a New-Generation War," 13–15. The authors continued their argument with the observation about the necessity of information superiority in S. G. Chekinov and S. A. Bagdonov, "A Forecast for Future Wars: Meditation on What They Will Look Like," *Military Thought*, no. 10 (2015): 45; in Thomas, *Kremlin Kontrol*, 98. The 4:1 ratio is available at Valery Gerasimov, "The Value of Science is in the Foresight: New Challenges Demand Rethinking the Forms and Methods of Carrying out Combat Operations," trans. Robert Coalson, *Military-Industrial Kurier*, 27 February 2013. Charles Bartles, "Getting Gerasimov Right," *Military Review* 96, no. 1 (January–February 2016): 34. In his analysis of this work, FMSO analyst Bartles writes, "The important point is that while the West considers these nonmilitary measures as ways of avoiding war, Russia considers these measures as war."
26. A. V. Kartapolov, "Lessons of Military Conflict, Perspectives on the Development of the Related Forms and Methods," *The Journal of the Academy of Military Science* 51, no. 2 (2015): 26–36.
27. See verbatim use of Kartapolov without reference in Chiharev, Poluyak, and Brovko, "Hybrid War: Reconstructivism vs. Deconstructivism"; Brychkov, Dorokhov, and Nikonorov, "The Hybrid Nature of Future Wars and Armed Conflicts," 20–32.
28. Kartapolov, "Lessons of Military Conflict," 36. Also see a discussion of this at Timothy L. Thomas, "Thinking Like A Russian Officer: Basic Factors and Contemporary Thinking on the Nature of War" (Fort Leavenworth, KS: FMSO, April 2016), accessed 14 February 2020, <https://community.apan.org/wg/tradoc-g2/fmsom/fmsom-monographs/194971>.
29. Marnie O'Neill, "Malaysian PM Declares 'No Evidence' Russia Shot Down MH17," news.com.au, 31 May 2019, accessed 22 June 2020, <https://www.news.com.au/travel/travel-updates/incidents/malaysian-pm-declares-no-evidence-russia-shot-down-mh17/news-story/7cb88ca51f21007b625d1603a4d183bf>.
30. Russian Ministry of Defence online encyclopedia.
31. Roland Oliphant and Rob Crilly, "Russian Special Forces Storm Three Ukrainian Navy Ships Sailing through Disputed Waters Off Crimea," *The Telegraph* (website), 26 November 2018, accessed 25 March 2020, <https://www.telegraph.co.uk/news/2018/11/26/russia-fsb-special-forces-seize-ukraine-navy-ships-crimea/>, accessed 14 February 2020.
32. Victoria Vlasenko, "Spam Weapons: In Avdeevka, the Russian Army Used SMS Scare to Deter," RBC-Ukraine, 3 February 2017, accessed 25 March 2020, <https://daily.rbc.ua/rus/show/avdeevke-rossiyskaya-armiya-ispolzovala-ustrasheniya-1486123672.html>.
33. Ryan Browne, "Russia Jammed GPS during Major NATO Military Exercise with US Troops," CNN, 14 November 2018, accessed 25 March 2020, <https://www.cnn.com/2018/11/14/politics/russia-nato-jamming/index.html>; W. J. Hennigan, "Exclusive: Strange Russian Spacecraft Shadowing U.S. Spy Satellite, General Says," *Time* (website), 10 February 2020, accessed 25 March 2020, <https://time.com/5779315/russian-spacecraft-spy-satellite-space-force/>, accessed 10 February 2020.
34. Alexei Ramm, Alexei Kozachenko, and Roman Kretsul, "The Army at Centre of Defence: General Staff Appointed Senior among Security Agencies. It Is Planned to Make General Staff Responsible for Military Organisation in Russia," *Iz.ru*, 26 November 2019, accessed 18 February 2020, <https://iz.ru/930009/aleksei-ramm-aleksei-kozachenko-roman-kretsul/v-tcentre-oborony-genshtab-naznachaiut-starshim-sredi-siloviko>. Putin's expanded "military organization," described in Ramm, Kozachenko, and Kretsul, lists the nonmilitary actors much more specifically those in "a complex of state administration" found in the military policy "Military Doctrine of the Russian Federation," sec. 1, para. 8(j)).

Operationalizing Artificial Intelligence for Algorithmic Warfare

"FIGHT'S ON!"

Courtney Crosby, PhD



Conflict can be won or lost based on military offsets, or means with which defense units can asymmetrically combat adversarial advantages. With great-power competition, adversarial technology overmatch, and ever-expanding theaters, conventional offsets are often augmented by artificial intelligence (AI).¹ Yet, the Department of Defense's (DOD) ability to operationalize AI is nascent.² Initial AI programs adopted by the Pentagon focus on the transfer of commercial capabilities to the defense sector, thus highlighting technical performance and deemphasizing mission-oriented function.³ As a result, initial pilot projects have failed to move into real-world operational environments (OE).

Operationalizing Artificial Intelligence

Operationalization hinges on the understanding that AI is not an end state but rather one way of achieving a military advantage. To that end, the technical execution of AI-related methodologies must be married to the OE. This consideration diverges from traditional thought because AI solutions are typically developed to achieve a certain statistical threshold (e.g., recall, precision), rather than a military objective (e.g., increased standoff distance).⁴

This dynamic is confounded by the term "algorithmic warfare," which currently conflates technical and military characterizations. Algorithmic warfare intends to reduce the number of warfighters in harm's way, increase decision speed in time-critical operations, and operate when and where humans are unable to operate.⁵ Yet, none of those objectives speak to mathematics or computer science; they are grounded squarely in military end states. The problem is that the bridge between science, technology, engineering, and mathematics disciplines and military end states was never established before the Pentagon embarked on its AI trajectory.

The desired bridge is a framework for guiding and assessing AI operationalization, with algorithm performance on one side and mission utility on the other. Such a combination ensures that mathematical equations can prove or numerically validate an AI system while qualitative benchmarks guarantee practical application. The result is algorithmic warfare based not just on statistics but a broader architecture for operational relevancy. That relevancy is couched in five requirements:

- ♦ minimum viability,
- ♦ the ability to adapt to unknown and unknowable scenarios,
- ♦ the prioritization of insight over information,
- ♦ the requisite level of autonomy for the application, and
- ♦ battlefield readiness.

For the first time, such requirements lay the foundation for assessing military AI programs and defining success.

Marines with Marine Corps Forces Cyberspace Command observe computer operations 5 February 2020 in the cyber operations center at Lasswell Hall, Fort Meade, Maryland. Marines conduct offensive and defensive cyber operations in support of U.S. Cyber Command and operate, secure, and defend the Marine Corps Enterprise Network. (Original photo by Staff Sgt. Jacob Osborne, U.S. Marines. Photo has been modified.)



Marrying Technical Methodologies and Defense Doctrine

Developing measures of effectiveness (MOE) for military AI programs necessitates mapping research and technical methodologies (e.g., grounded theory) to DOD doctrine.⁶ Without that mapping, algorithmic warfare is reduced to the process of algorithm development rather than operational deployment. For example, a computer vision algorithm designed to detect objects in a video (e.g., geospatial intelligence analysis) is reduced to the number of vehicles the model finds or how accurately it finds those vehicles. Success, then, is something to the effect of *the algorithm correctly finds vehicles 85 percent of the time*.

But what use is detecting vehicles 85 percent of the time to a military campaign? This is where preserving doctrinal integrity introduces context. Taking the example from above, the same algorithm is assessed not for how frequently it detects vehicles correctly but rather its impact to the mission: *analysts identify a vehicle of interest 95 percent faster* because of the model. Such an approach associates how well the algorithm was designed with its mission deployment. While this seems like common sense, and the relationship may

even be represented ambiguously in project documentation, there is no single standard for one representation anywhere in the DOD.

Assessment criteria still need to remain solution independent (i.e., the criteria apply regardless of the type of intelligence, algorithm used, operational environment deployed to, or mission requirements). Thus, for this research, AI principles were codified into quantifiable properties and indicators that were system and program agnostic. Assessment criteria

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were also couched in a go-no-go fashion to create a logical, top-down hierarchy synonymous with relevant joint publications. The result is a baseline for regulating, monitoring, and evaluating DOD AI systems.

A Framework to Operationalize Defense Artificial Intelligence

As previously stated, operationalized AI is AI defined by five aspects of mission utility: minimum viability, the ability to adapt to unknown and unknowable scenarios, the prioritization of insight over information, the requisite level of autonomy for the application, and battlefield readiness. Each of these MOEs is fundamental to algorithmic warfare.⁷ Analysis of this information results in a comprehensive framework of indicators and effects for each of those MOEs. The entire framework is underpinned by doctrinal definitions and procedures.

Measuring Effectiveness

The military process for measuring effectiveness relies on a go-no-go, top-down architecture. This means that a measure exists only if every single *indicator* of that measure also exists. Similarly, an indicator is present only if all *effects* of that indicator are also present.⁸ It is a binary, all-or-nothing process that can be applied to AI as readily as conventional military activity.

In the conventional case of high-value target (HVT) pattern-of-life analysis, an MOE would define *one* desired result of a military campaign (e.g., the HVT moves out of the area of responsibility [AOR]). All defined indicators of that MOE must be met so that success cannot be called arbitrarily or selectively. For example, intelligence should indicate that (a) the HVT is detected in a new AOR, (b) known HVT associates are detected in the new AOR, and (c) the HVT acquires basic life support systems (e.g., housing, transportation) in the new AOR. Subsequent effects follow the same process: effects that support indicator “a” may include identification of known physical signatures and detection of communication signals.

So, while conventional and AI MOEs differ in their tactical execution, the underlying system for decision-making validation is the same. AI MOEs can only be validated if there is a baseline understanding of the AI domain, much in the same way that MOEs developed by the intel branch could not be validated by combat arms.



Describing Effectiveness— a Technical Wave Top

Algorithmic warfare is warfare conducted through artificially intelligent means. Artificially intelligent means are those that are not only intelligent (collecting and applying insight) but also artificial (acting on intelligence in a way that humans cannot). Without human intervention, systems must learn how to represent data for themselves.⁹ Another term for this is called *machine learning*. There are different types of machine learning, but when it comes to the battlefield, *unsupervised* machine learning will become the gold standard due to its flexibility and capacity to derive outputs from unknown and unstructured information.¹⁰ Within this gold standard, a specific methodology called *deep learning* is unique in its ability to represent complex

A display demonstrates a vehicle and person recognition system for law enforcement 1 November 2017 during the NVIDIA GPU Technology Conference in Washington, D.C. The conference showcased artificial intelligence, deep learning, virtual reality, and autonomous machines. (Photo by Saul Loeb, Agence France-Presse)

problems more precisely.¹¹ Given the dynamic nature of the battlefield, the ability to represent complex problems more precisely is paramount.

Thus, algorithmic warfare can only be enabled by (a) working systems (minimally viable) capable of (b) learning on their own from unknown and unknowable scenarios (unsupervised) while (c) converting a complex battlefield environment into a useful insight (deep-learning enabled) (d) with little to no guidance

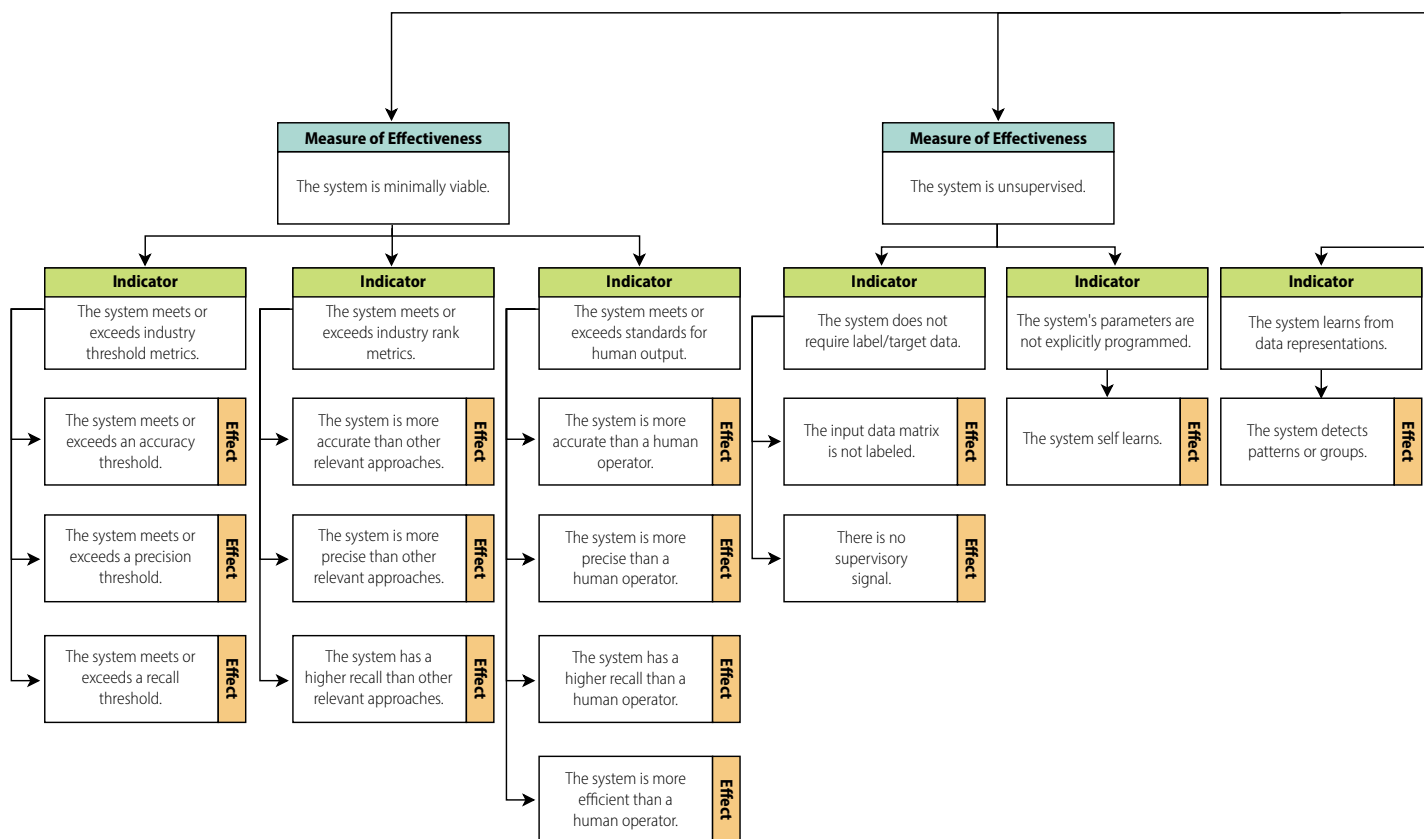


Figure. Measures of Effectiveness for Algorithmic (Artificially Intelligent) Warfare

(autonomous) and (e) in a live mission environment (battlefield ready). These MOEs and the architecture in the figure are the first steps in operationalizing AI; they lay the groundwork for how to coalesce technical and operational factors while also standardizing “success” across any AI program.

Operational Artificial Intelligence has to Work

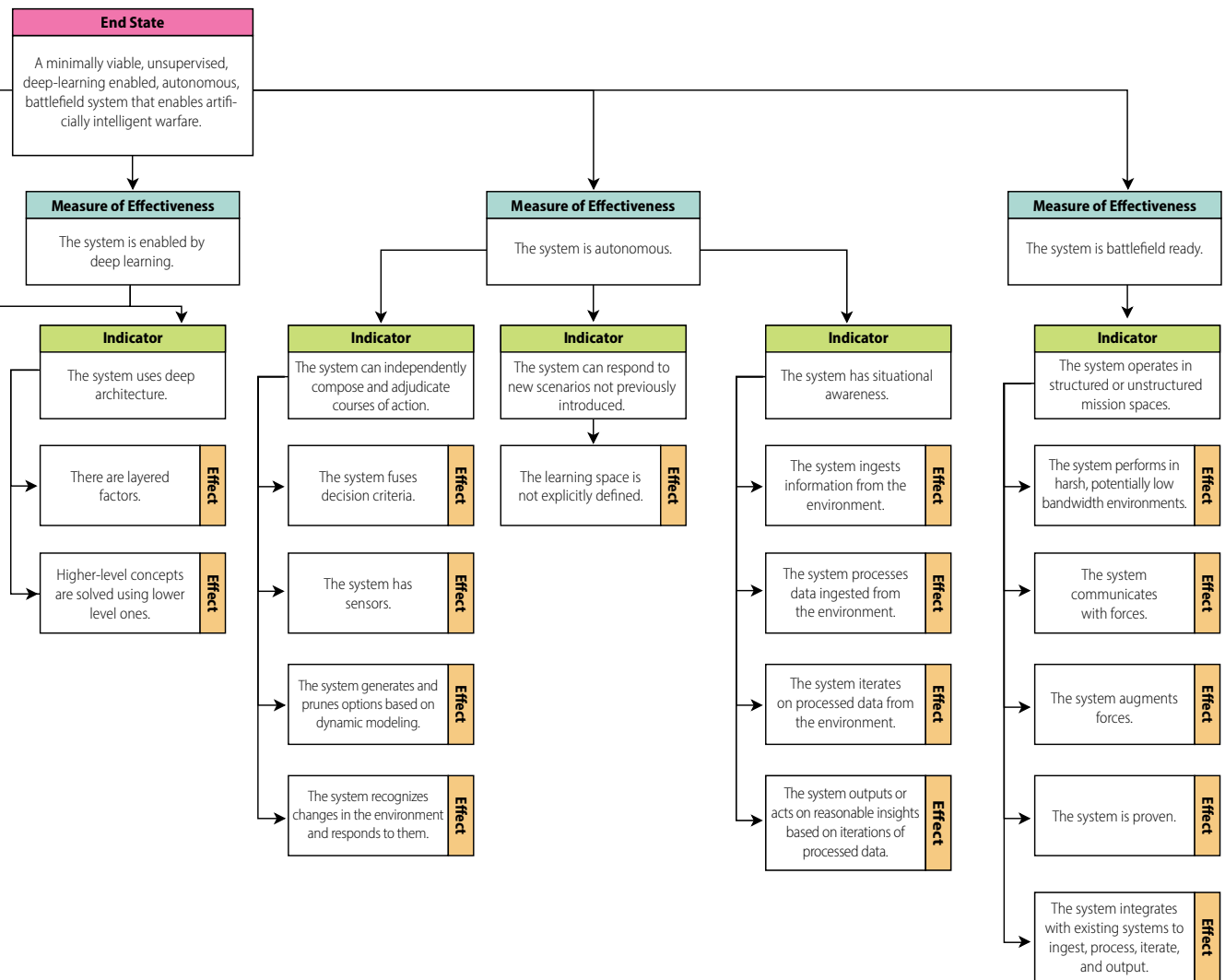
Minimum viability tests whether algorithmic warfare positively changes the operational environment. “Positively changing the OE” means that there exists a competitive advantage and performance improvement justifying AI deployment. That justification comes from industry metrics (technical factors), ranking against similar systems, and utility to the human operator.

In the example of translation, a natural language processing algorithm would be minimally viable if (1) industry metrics confirmed that it accurately translated ground truth data from and into the correct languages, (2) the algorithm outperformed other available algorithms in the same technical class and OE, and (3) the machine translation outperformed a human.

The competitive advantage and performance improvement factors associated with minimum viability are necessary because without them, nonalgorithmically derived warfare would be more effective—thus, negating the need for operationalized AI.

Flexible and Adaptable Systems

Remember that unsupervised algorithms are ideal for live missions due to their flexibility and ability to derive insight even in unknown scenarios.¹² In short, unsupervised



(Figure by author)

systems can operate without predetermined information and learn as new information becomes available.

A conventional equivalent can be drawn from an enemy engagement example. For instance, deployed service members do not know how a firefight will unfold until after it is over. Yet, they are expected to respond appropriately to enemy fire without warning and draw relevant conclusions about novel adversarial movement and activity.

Successful algorithmic warfare programs will need to exhibit the same adaptability of service members in their tactical execution and ability to learn over time.

Reducing Mission Complexity

Recall that deep learning reduces complexity.¹³ Complexity reduction in a live mission is about how

information is represented and understood. Just as with humans, effective algorithmic warfare is predicated on pattern detection, reasoning, and problem-solving.

Pattern detection is essentially acquiring knowledge that can then be generalized to predict future, unknown scenarios. Suppose that a nonaviation-branch service member deployed to an airfield sees a helicopter fly overhead. That person notices the helicopter's unique physical features, such as the overall size or a tandem rotor. The unique features differentiate the helicopter from other variations, and over time, the service member can down select the correct helicopter within an entire fleet using the learned visual cues. AI recognizes visual patterns much in the same way; helicopter characteristics are learned repetitively with subsequent sightings. Then those characteristics are

generalized to differentiate one helicopter from another or a helicopter from a nonhelicopter.

Reasoning refines that knowledge acquisition in order to detect subtleties in the environment and to logically associate those subtleties. For example, if helicopters are never seen with certain weather patterns, reasoning would deduce that weather (a secondary

system has to recognize changes in the current state and respond to new information generated by that change (i.e., an aerial asset's time on station is ending so deconfliction is no longer needed).

Responsiveness complements decisiveness. That is, can the system respond appropriately to a scenario it has never seen before on the timeline required? To do

“ Since mission constraints are vast, artificial intelligence cannot be developed in a laboratory without forethought on how it will operate in the real world. ”

element of the OE) influences flyability. With AI, poor weather would add secondary confirmation that a flying object without a rotor was not a helicopter.

Finally, sequential problem-solving breaks a large problem (i.e., how to fly a helicopter) into smaller problems (i.e., what is the flight path, how much fuel is available, how many pilots are needed, etc.). Thus, without complexity reduction, algorithm warfare would lack the ability to convert information to insight.

Operating with Little to No Guidance

Since algorithmic warfare assumes that other-than-human means are leveraged, AI must independently compose and adjudicate courses of action. And AI has to complete that adjudication based on its own decision-making, responsiveness, and situational awareness.

Decision-making is a matter of developing and resolving choices within the environment. In a convention setting, a commander faced with conflicting intelligence, surveillance, and reconnaissance flight paths would develop an asset prioritization matrix and then deconflict based on those requirements. This is not a matter exclusively of producing viable options but also figuring out which of those options is most beneficial to the overall mission. In order to do that, the system must be able to fuse decision criteria (e.g., number of assets, collection requirements, flight times, etc.). Sensors must be present to define decision criteria (e.g., aircraft fuel gauges or human/verbal cues). Then, all available options have to be pruned. Finally, the

so, the system has to have the requisite functions for situational awareness: ingestion, processing, iteration, and action. All indicators together ensure that operationalized AI improves decision timelines, not inhibits them.

Moving Artificial Intelligence into the Real World

Battlefield readiness is a measure of whether the system can function in live mission spaces. Since mission constraints are vast, AI cannot be developed in a laboratory without forethought on how it will operate in the real world. To be clear, the limitations of laboratory AI are not circumvented by the battlefield; they are amplified. Open architectures are restricted by military infrastructure. Agnostic pipelines are bogged by siloed, legacy systems. Pervasive, high-speed networking becomes sporadic or intermittent once deployed forward. And the uncleared experts universal to the commercial sector are replaced by access-limited user communities with little to no AI expertise.

In short, AI must complement, rather than confuse, ongoing operations. Addressing mission constraints from the onset must then include integration and communication with existing systems. Additionally, that integration should be tested or qualified so utility, and the left/right limits of that utility, is proven prior to deployment. This would occur much in the same way that military personnel are range qualified for deployability, or conversely, how poor fitness testing can result in nondeployability.

Together, the five MOEs for operationalized AI represent standard thresholds for initial and full operating



One objective of the development of military artificial intelligence is to network soldiers directly with unmanned vehicles on the battlefield in human-intelligent agent teams that will speed the collection of intelligence, identification of targets, and execution of fire missions. (Illustration courtesy of the U.S. Army)

capabilities (IOC/FOC). IOC/FOC determinations made using the decision gates in the MOE framework will accelerate AI adoption and improve the United States' positioning in the algorithmic warfare domain.

Recommendations

Without a framework for operationalizing AI in support of algorithmic warfare, current DOD programs will fail. The framework presented in this article is the first to define success within the defense AI space and will provide necessary accountability measures for government oversight.

While the intent of this article is an agnostic solution to algorithmic warfare, additional research is necessary. Funding should be earmarked for cascading this framework to specific systems, disciplines, and programs. In support of that effort, access to both classified materials and quantitative experimentation of classified systems will be critical. Quantitative

experimentation would not only serve to validate the premise of this article but also begin creating a network to compare and improve defense AI testing and evaluation. That is, continued, consistent use of the MOE architecture across multiple environments, systems, and problem sets would align AI projects under a single, common assessment framework. To that end, the MOE architecture presented in this article supports two functions: (1) to realize a more effective system by iteratively improving go-no-go decision gate results and (2) to decide between various systems by comparing respective MOEs.

Strategically, the architecture outlined in the figure (on pages 46–47) should be integrated into DOD acquisition, technology, and logistics processes. Current paradigms are not built for the exponential growth and nontraditional nature of AI programs. Calibrating current and future DOD AI solutions around prevailing evaluation criteria will enable standardization while

speeding up time-consuming acquisition processes. Further, organizations responsible for enterprise AI activities should standardize the framework across their efforts for more rapid transition of applied research and development into operational use.

Organizational efforts should not stop at policy though. Currently, the DOD has no mechanism for leveraging military personnel for AI activities. Specifically, there is no military occupational specialty (MOS) related to artificial intelligence and also no official system for identifying and assigning skilled personnel to AI programs. The result is a lack of available hybrid talent; that is, personnel versed in both AI and the mission. Standing up a data science or AI-oriented MOS, similar to what occurred in the cyber domain, would make the operationalization of AI capabilities more sustainable. It would also augment the small pool of cleared AI professionals with an increasing number of qualified military personnel. Alternatively, the traditional MOS could adapt to the modern characteristics of warfare. For example, discipline-specific intelligence analysts may not be relevant in a world where multi-intelligence fusion is pervasive. Modifying or adding AI skills identifiers or specializations would curb MOS relevancy decline.

Tactically, the Pentagon's push for AI needs to be accompanied by a ground-up movement so that adopting organizations are not simply handed a capability without context. Instead, they should have an active voice in the offsets they bring to the fight. Grassroots efforts may include conducting impact analyses and stress tests at the unit level prior to IOC/FOC design plans to understand vulnerabilities and prioritize requirements.

Conclusion

Operationalizing AI is an inherently mission-centric endeavor that must make sense tactically for there to be any strategic impact. Until there is tangible return on investment for units on the ground, widespread hesitation around the value of algorithmic warfare will persist; as a result, adversarial overmatch will become an increasingly unwinnable reality.

The DOD cannot continue to execute AI programs without a framework for operationalizing those programs.¹⁴ The architecture presented in this article does just that by accelerating and standardizing the government's efforts to develop AI capabilities through highly inventive, operationally appealing technology.¹⁵ ■

Notes

1. U.S. Deputy Secretary of Defense Memorandum, "Establishment of an Algorithmic Warfare Cross-Functional Team (Project Maven)," 26 April 2017, accessed 4 March 2020, https://www.govexec.com/media/gbc/docs/pdfs_edit/establishment_of_the_awcft_project_maven.pdf; Andrew Ilachinski, "AI, Robots, and Swarms: Issues, Questions, and Recommended Studies" (Arlington, VA: CNA, January 2017), accessed 4 March 2020, https://www.cna.org/CNA_files/PDF/DRM-2017-U-014796-Final.pdf.

2. Defense Science Board, *Report of the Defense Science Board Summer Study on Autonomy* (Washington, DC: Department of Defense, June 2016), table 1, accessed 11 March 2020, <https://www.hsdl.org/?view&did=794641>; *Unmanned Systems Integrated Roadmap, FY2013–2038* (Washington, DC: Department of Defense, 2013), accessed 5 March 2020, <https://archive.defense.gov/pubs/DOD-US-RM-2013.pdf>.

3. Jesse Ellman, Lisa Samp, and Gabriel Coll, *Assessing the Third Offset Strategy* (Washington, DC: Center for Strategic and International Studies, March 2017), 6–8, accessed 5 March 2020, https://csis-prod.s3.amazonaws.com/s3fs-public/publication/170302_Ellman_ThirdOffsetStrategySummary_Web.pdf; Peter Stone et al., *Artificial Intelligence and Life in 2030: One Hundred Year Study on Artificial Intelligence* (Stanford, CA: Stanford University, September 2016), accessed 5 March 2020, <http://ai100.stanford.edu/2016-report>; U.S. Army Training and Doctrine Command (TRADOC) Pamphlet (TP) 525-3-1, *The U.S. Army Operating Concept: Win in a Complex World,*

2020–2040 (Fort Eustis, VA: TRADOC, 2014 [obsolete]), superseded by TP 525-3-1, *The U.S. Army in Multi-Domain Operations 2028* (Fort Eustis, VA: TRADOC, 6 December 2018), accessed 5 March 2020, <http://www.tradoc.army.mil/tpubs/pams/tp525-3-1.pdf>.

4. *Advancing the Science and Acceptance of Autonomy for Future Defense Systems: Hearing Before the Subcommittee on Emerging Threats and Capabilities of the Comm. on Armed Services*, 114th Cong. 1 (2015), accessed 5 March 2020, <https://www.hsdl.org/?view&did=793840>; U.S. Army Capabilities Integration Center, *Robotic and Autonomous Systems Strategy* (Fort Eustis, VA: TRADOC, March 2017), accessed 5 March 2020, https://www.tradoc.army.mil/Portals/14/Documents/RAS_Strategy.pdf; Defense Science Board, *Report of the Defense Science Board Summer Study on Autonomy*; Executive Office of the President, *Preparing for the Future of Artificial Intelligence* (Washington, DC: Office of Science and Technology, October 2016), accessed 5 March 2020, https://obamawhitehouse.archives.gov/sites/default/files/whitehouse_files/microsites/ostp/NSTC/preparing_for_the_future_of_ai.pdf.

5. Defense Science Board, *Report of the Defense Science Board Summer Study on Autonomy*.

6. Yoshua Bengio, Aaron Courville, and Pascal Vincent, "Representation Learning: A Review and New Perspectives" (Ithaca, NY: Cornell University, 23 April 2014), accessed 5 March 2020, <https://arxiv.org/pdf/1206.5538.pdf>; Li Deng, "Three Classes of Deep Learning Architectures and Their Applications: A Tutorial Survey"

(New York: Asia-Pacific Signal and Information Processing Association Transactions on Signal and Information Processing, January 2012), accessed 5 March 2020, <https://pdfs.semanticscholar.org/5b-d4/177440c17dad736f1e0d2227694d612f5a59.pdf>; Francesco Gagliardi, "The Necessity of Machine Learning and Epistemology in the Development of Categorization Theories: A Case Study in Prototype-Exemplar Debate," in *AI*IA 2009: Emergent Perspectives in Artificial Intelligence*, Lecture Notes in Computer Science series, ed. Roberto Serra and Rita Cucchiara, vol. 5883 (Berlin: Springer, 2009), 182–91; Geoffrey E. Hinton et al., "Improving Neural Networks by Preventing Co-adaptation of Feature Detectors" (Ithaca, NY: Cornell University, 2012, accessed 5 March 2020, <https://arxiv.org/abs/1207.0580>; Nikolaus Kriegeskorte, "Deep Neural Networks: A New Framework for Modeling Biological Vision and Brain Information Processing," *Annual Review of Vision Science* 1 (2015): 417–46; Rufin VanRullen, "Perception Science in the Age of Deep Neural Networks," *Frontiers in Psychology* 8 (2 February 2017); Melanie Birks and Jane Mills, *Grounded Theory: A Practical Guide*, 2nd ed. (New York: Sage, 2015); Kathy Charmaz, *Constructing Grounded Theory* (London: Sage, 2014), accessed 5 March 2020, http://www.sxf.uevora.pt/wp-content/uploads/2013/03/Charmaz_2006.pdf.

7. Chairman of the Joint Chiefs of Staff, *The National Military Strategy of the United States of America, 2015* (Washington, DC: Joint Chiefs of Staff, 2015), accessed 5 March 2020, http://www.jcs.mil/Portals/36/Documents/Publications/2015_National_Military_Strategy.pdf.

8. TP 525-3-1, *The U.S. Army Operating Concept*, 21; Richard K. Bullock, "Theory of Effectiveness Measurement" (PhD diss., Air Force Institute of Technology, 2006), 58, accessed 5 March 2020, <http://www.dtic.mil/dtic/tr/fulltext/u2/a472028.pdf>; Army Doctrine Reference Publication (ADRP) 1-02, *Operational Terms and Military Symbols* (Washington, DC: U.S. Government Printing Office, 2012 [obsolete]), superseded by ADRP 1-02, *Terms and Military Symbols*, 24 September 2013; Chairman of the Joint Chiefs of Staff, *The National Military Strategy of the United States of America, 2015*.

9. Arthur L. Samuel, "Some Studies in Machine Learning Using the Game of Checkers," *IBM Journal of Research and Development*

3, no. 3 (1959): 210–29; Jürgen Schmidhuber, "Deep Learning in Neural Networks: An Overview," *Neural Networks* 61 (January 2015): 85–117.

10. Alain Droniou, Serena Ivaldi, and Olivier Sigaud, "Deep Unsupervised Network for Multimodal Perception, Representation and Classification," *Robotics and Autonomous Systems* 71 (September 2015): 83–98; Mehryar Mohri, Afshin Rostamizadeh, and Ameet Talwalkar, *Foundations of Machine Learning* (Cambridge, MA: MIT Press, 2012), accessed 5 March 2020, <https://mitpress.mit.edu/books/foundations-machine-learning>; Kriegeskorte, "Deep Neural Networks."

11. Volodymyr Mnih et al., "Human-Level Control Through Deep Reinforcement Learning," *Nature* 518, no. 7540 (26 February 2015): 529–33; Deng, "Three Classes of Deep Learning Architectures and Their Applications"; Kriegeskorte, "Deep Neural Networks"; Schmidhuber, "Deep Learning in Neural Networks."

12. Droniou et al., "Deep Unsupervised Network"; Kriegeskorte, "Deep Neural Networks"; Mnih et al., "Human-Level Control"

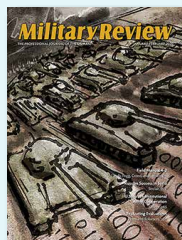
13. Deng, "Three Classes of Deep Learning"; Kriegeskorte, "Deep Neural Networks"; Schmidhuber, "Deep Learning in Neural Networks."

14. Stew Magnuson, "DoD Making Big Push to Catch Up on Artificial Intelligence," *National Defense* (website), 13 June 2017, accessed 5 March 2020, <http://www.nationaldefensemagazine.org/articles/2017/6/13/dod-making-big-push-to-catch-up-on-artificial-intelligence>; JASON [advisory group], *Perspectives on Research in Artificial Intelligence and Artificial General Intelligence Relevant to DoD* (McLean, VA: MITRE Corporation, January 2017), accessed 5 March 2020, <https://apps.dtic.mil/dtic/tr/fulltext/u2/1024432.pdf>.

15. Mark A. Milley, Memorandum for all Army leaders, "Army Readiness Guidance, Calendar Year 2016–17," 20 January 2016, accessed 5 March 2020, https://www.army.mil/e2/downloads/rv7/standto/docs/army_readiness_guidance.pdf; U.S. Army Capabilities Integration Center, *Robotic and Autonomous Systems Strategy*; Defense Science Board, "Report on the Defense of the Science Board"; TP 525-3-1, *The U.S. Army Operating Concept*; Noel Sproles, "Coming to Grips with Measures of Effectiveness," *Systems Engineering* 3, no. 1 (2000): 50–58.

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Ensuring the Political Loyalty of the Russian Soldier

Maj. Ray C. Finch, U.S. Army, Retired

A good Cause puts life and courage into mens Hearts.

—*The Souldiers Catchisme*, 1644

Ever since returning to the Russian presidency in 2012, Vladimir Putin has placed patriotic renewal at the top of the Kremlin's agenda. Nationalist rhetoric escalated after the country's armed annexation of Crimea in 2014 and its military involvement in both southeast Ukraine and Syria. During his annual press conference in December 2019, Putin suggested that

“patriotism is the only possible ideology in the modern democratic society.”¹ Although the Kremlin practices a peculiar brand of democracy, there is no question that patriotism has become its new ideological centerpiece. The ideological void that developed after the collapse of communism, and the subsequent failure of liberal democracy to take hold during the economically painful 1990s, has been partially filled with a renewed sense of patriotism.

Reflecting on or wary of its communist past, the Russian constitution prohibits a state ideology. However, there is an emerging

formula that captures Russia's developing dogma: Russia was, is, and will remain a great power, reflected in the country's history, culture, size (resources), people, and military prowess.² The Soviet Union's victory in the Great Patriotic War during World War II has become the focal point and defining characteristic of this new ideology. While the country celebrated the seventy-fifth anniversary of this victory in June 2020, the memory of this horrific war remains the prism through which Russians understand their world today. As Deputy Defence Minister Col.-Gen. Andrei Kartapolov recently suggested, “the victory of the USSR [Union of Soviet Socialist Republics] over fascist Germany should become the basis of the national identity of the Russians.”³

Religion makes up another potent ingredient in the Kremlin's patriotic recipe. For instance, the traditional close association between the Russian Orthodox Church and the Kremlin leadership has correlated a divine sanction to its understanding of patriotism: God is on Russia's side. The construction of a huge military-themed cathedral at Patriot Park, located outside of Moscow, is an apt metaphor for this heavenly support. This state-sponsored, religiously sanctioned patriotism has helped to compensate for the Kremlin's greater authoritarian tendencies, slower economic growth, and domestic political repression. It has also helped to drive a more aggressive foreign policy.

Over the past decade, alongside the patriotic rhetoric, the Kremlin leadership has worked to ensure the loyalty and devotion of those charged with defending the Russian state. Despite pressing domestic needs (e.g., mediocre schools, housing, roads, medical care, etc.), funding for military and internal security forces remains high. The Kremlin-sponsored media continues to blanket the information space with praiseworthy coverage of every military and security achievement. The formation of the Russian National Guard in 2016 and the continued

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Newly appointed unit-level Russian political officers attending a special military-political meeting in the Southern Military District of Russia examine a copy of a military publication 21 November 2019 that has been prepared for dissemination to members of the Russian military. (Photo courtesy of the Russian Ministry of Defence)

development of a nationwide patriotic youth group (Юнармия, or Young Army) have strengthened domestic security while enlisting the loyalty of younger Russians to the Kremlin's patriotic cause.

Against this backdrop of rising (managed) patriotism, in early 2018, the Russian Ministry of Defence (MOD) announced the reintroduction of the Main Military-Political Directorate (MPD) into the Armed Forces of the Russian Federation. This Soviet-era organization was originally designed to guarantee that the military remain devoted to the Communist Party and to help with morale, discipline, and education. The organization fell into disrepair after the collapse of the USSR in 1991, when a newly independent Russia ostensibly depoliticized the military.

According to the head of the new MPD, Kartapolov, the main goal of this organization today "is to form a warrior-statesman, a reliable and loyal defender of the Fatherland, a bearer of the traditional spiritual and moral values of Russian society: spirituality and patriotism."⁴

Background

Russians celebrate "Defender of the Fatherland Day" (День защитника Отечества, or *Den' zashchitnika Otechestva*) on 23 February, where the nation honors those who have defended the country or anyone who wears a uniform today.⁵ The holiday was first observed during the Russian Civil War (1917–22) by Bolshevik leaders who were celebrating the first mass conscription of Russian men into the recently created Red Army, which was fighting (among others) former tsarist soldiers of the White Army. This red "workers' army" would ultimately prevail in crushing its domestic opponents in the civil war and would later serve as the nucleus of the Soviet military that defeated the Nazi threat some twenty years later.

Since many former tsarist officers had been dragooned into fighting for the Red Army cause, there were doubts surrounding their political loyalty. There were strong grounds for concern, since many former tsarist officers had pledged "to defend the [tsarist] dynasty to his

last drop of blood” and where many had taken up arms against the new Bolshevik leadership.⁶ The institution of political commissars was created to ensure tsarist officer allegiance, to maintain discipline, and to boost morale. These commissars were responsible for making sure the party’s orders were carried out as well as handling propaganda and education (less than half of the Russian population was literate in 1920).⁷

The role of these political commissars fluctuated over time. Once the Bolshevik leadership prevailed in the civil war, the commissars’ role was reduced, and they focused more on propaganda and education. Commissars were no longer required to cosign a commander’s orders. During the latter portion of the Great Terror in the 1930s when the Kremlin leadership purged the upper ranks of the military and every officer’s loyalty was in question, the commissar’s role again became more controlling. After the initial fiasco in the Soviet-Finnish War of 1939–40, the party leadership temporarily reduced the authority of the commissar. The commissar’s authority was reinstated after the devastating losses in 1941–42 when Nazi forces reached the Moscow city limits. Once the Red Army

turned the tide after the Battle of Stalingrad, however, commanders were able to issue orders without the commissar’s approval once again.

The Soviet victory in World War II had “proven” the rectitude of the communist cause. After the war, the role of the commissar was formalized within the MPD of the Soviet army and navy (GlavPUR). It has been described as “the channel through which the Party influences all aspects of the Armed Forces’ life and activity, enhances their combat readiness, strengthens military discipline, raises the personnel’s political level and boosts their morale.”⁸ A major part of their work dealt with “ensuring the ideological purity of the Soviet Armed Forces. Political officers prepare and teach Marxist-Leninist studies to all personnel and also supervise the educational system throughout the military structure.”⁹

The Main Cathedral of the Armed Forces of the Russian Federation, Cathedral of the Resurrection of Christ, under construction 28 April 2020 in Patriot Park outside of Moscow. (Photo courtesy of the Russian Ministry of Defence)



Like the Communist Party structure in the wider Soviet society, GlavPUR grew into an enormous organization within the armed forces with its own “Military-Political Academy named after Lenin and 14 higher military-political schools.”¹⁰ GlavPUR was also represented in “the Department of Social Sciences at twenty military academies and more than 150 higher military schools.”¹¹ Besides producing trained political officers and

by type of service and branch. They could theoretically fill in “to carry out training and combat missions for the purpose of their unit,” whether driving a tank or performing “combat duty in the Strategic Rocket Forces.”¹³ In actual practice, political workers focused more on propaganda and morale.

While an integral part of the Soviet military, GlavPUR had its own personnel department with its



Russian Minister of Defence Sergei Shoigu (*foreground*) checks on the construction progress of the Main Cathedral of the Armed Forces of the Russian Federation 22 April 2020 at Patriot Park outside of Moscow. (Photo courtesy of the Russian Ministry of Defence)

huge quantities of military-political literature, GlavPUR managed a variety of cultural detachments that dealt with music, theater, art, and film, as well as museums and cultural centers. According to Lt.-Gen. (reserve) Victor Buslovsky, who served as lead author of a recently completed book describing the history and achievements of GlavPUR, “If the General Staff is the brain of the army, then the Main Political Directorate was the face, soul and parental home of the Soviet Armed Forces.”¹²

In the Soviet military, trained political officers were assigned down to the company level to inculcate Marxist-Leninist dogma, and they were also trained

own measure of officer effectiveness. These political deputies played a key role within the regular officer promotion system. Without their strong recommendation, an officer would not likely advance in rank.¹⁴ Given their separate management system and influence over officer advancement, political officers were often not highly respected by their regular officer comrades. The anecdotal evidence corroborates this poor reputation.

In the Soviet army, which many of us found in all its glory and all its grim grandeur, the political officers were a special and most despised caste among officers. With rare exceptions, they



did not enjoy any respect in the troops—and this sharply contrasted with their official position and conceit. The political instructor was, of course, not a commander—but someone who was standing very close to him, and yet without experience in leading troops, without real military training, without a real understanding of the personnel. Their privileges were almost the highest, and the benefits of them to the troops were truly the smallest.¹⁵

Not surprisingly, as faith in the communist system began to wane, the role of the political officers in the military became even more problematic. They had the unenviable task of defending and promoting an ideology that simply was not working. Attempting to revive the floundering communist economy, the last Soviet leader, Mikhail Gorbachev,

introduced reforms that inadvertently both weakened party control and the Soviet military. *Glasnost*, or openness, revealed several serious problems within the hitherto secretive military (e.g., personnel losses in Afghanistan, hazing, corruption, etc.). Gorbachev's decision to radically downsize the military and convert a portion of the Soviet industrial complex toward civilian production caused considerable grumbling within the ranks, further exacerbating the mission of GlavPUR.

Were they themselves role models? Not at all. Political leaders were spokesmen, as they would say today, of double standards. For this,

they were hated. Amidst these political leaders there were plenty of alcoholics, womanizers, and swindlers, but they, unlike many others of that ilk, were always covered by the party. It is not surprising that such two-faced creatures instantly changed rhetoric after the country's collapse, or that they began to sing the praises of democracy using the same pathos once

reserved for communism.¹⁶

The Soviet military played an ambiguous role during the dramatic political events of August 1991, when a handful of Soviet hardliners (to include the minister of defense) attempted to seize power and use force to reestablish party control over the splintering country. Military units were sent into the streets of Moscow as a show of force and to isolate the country's popular president, Boris

Yeltsin. However, when the order finally came to seize the building where Yeltsin and his followers were defying the coup, these military personnel lacked the zeal or determination to carry out their mission.¹⁷

Some of the military's hesitation to use force likely stemmed from a sense of betrayal resulting from the country's political authorities that had developed earlier under Gorbachev. As the nationalist seams of the USSR were beginning to fray, the party leadership had ordered the military to intervene to neutralize or crush ethnic tensions. In the process of restoring order throughout the crumbling Soviet Union, many civilians had been killed or injured. When confronted by the country's more independent media or Western leaders to explain why force was employed, the Kremlin leadership disavowed its political involvement, blaming instead the military.¹⁸

After the unsuccessful coup attempt of August 1991, Gorbachev signed a decree to eliminate all the



The widely promoted iconic picture of a Soviet commissar/political officer (usually identified as Aleksei Gordeyevich Yeryomenko of the 220th Rifle Regiment, 4th Rifle Division) leading fellow soldiers in an infantry assault against Nazi forces in Ukraine minutes before he was reputedly killed 12 July 1942. (Photo by Max Alpert via RIA Novosti via Wikimedia Commons)

Previous page: A Russian political commissar stands behind German and Soviet officers in conversation 22 September 1939 at the German-Russian victory parade in Brest-Litovsk, Poland. (Photo courtesy of Bundesarchiv via Wikimedia Commons)

military-political organs in the USSR armed forces. In December 1991, when the Soviet flag was lowered over the Kremlin, there were no protests either in the streets or within the military ranks. Despite the massive investment in propaganda, most Russians welcomed the dissolution of the USSR, along with the denunciation of the Communist Party and its leadership.¹⁹ The lack of any protest may have partially stemmed from near economic collapse, as the new independent countries of the former Soviet Union wrestled with challenges of moving from a centralized economy toward something resembling a market-driven model. Former Soviet republics were also challenged with developing their own governments, bureaucracies, and militaries.²⁰

Former political workers in the Soviet military were rebranded as education officers in the newly formed Russian military, and they were assigned to assist with education, morale, and psychological training. Over the next twenty years, as the military tried to figure out how to use these assets, its exact mission remained ill-defined and was not helped by numerous organizational changes. In 2010, as part of reforms to streamline the military education system, many of the former political officers' billets were finally eliminated and the educational structure received a new name—the Main Directorate for Work with Personnel of the Armed Forces of the Russian Federation.²¹ This organization would serve as the precursor to the MPD, which was officially reconstituted in July 2018.

Why Reactivate the Main Political Directorate?

There has been considerable conjecture as to what prompted the MOD to reestablish the MPD. Recall that in early 2018, Putin was reelected to another (and presumably final) six-year presidential term.²² Prior to this “election,” there had been relatively large protests in Moscow and other major cities, where Russians (many from the younger generation) protested government corruption and the country's *faux* democracy. The Kremlin leadership likely determined that the West was either responsible for sparking or exploiting these protests.²³ As the first line of defense against any foreign threat, in reconstituting the MPD, the military leadership moved to ensure that its personnel would not fall prey to such attacks.

Although presidential elections are not slated until 2024, the military (and those who control it) may have also felt the need to begin preparing for the possible

transfer of power. Throughout history, the transition of Kremlin authority has often been fraught with tension, and the return of a political branch within the military could help ensure the loyalty of the rank and file. This may have also been a contributing motive behind the creation of the Russian National Guard. Similarly, it should be noted that the MOD is just one of many power ministries under Kremlin control. In the struggle for budget resources, creating a department designed to strengthen political loyalty could translate into greater appropriations.

A couple months after his appointment to head the MPD, Kartapolov confirmed that the primary reason for reconstituting political training within the ranks was predicated upon a need to defend against external information attacks “to counteract the many lies and slander” that were trying to corrupt Russian youth with “extremist ideologies.”²⁴ The MOD has written extensively on the dangers of defending against what it terms as “color revolutions.” Kartapolov warned that this information onslaught can “change the political consciousness of society, which in modern conditions can lead to very serious consequences. With some of our neighboring states, this is clearly visible.”²⁵

In the same interview, Kartapolov explained that “the main goal of the newly created military-political bodies is to form a warrior-statesman, a reliable and loyal defender of the Fatherland, a bearer of the traditional spiritual and moral values of Russian society: spirituality and patriotism.”²⁶ The objective is not only to raise the “patriotic consciousness of military personnel and civilian personnel of the RF [Russian Federation] Armed Forces” but also includes “military-patriotic work with all citizens of Russia, especially youth.”²⁷ In a later interview, Kartapolov insisted that “depoliticization was a mistake” and that “it has become obvious that without an effective system of forming the political consciousness of military personnel it is impossible to solve the tasks of ensuring military security.”²⁸

Kartapolov's rationale was echoed by Russian Minister of Defence Sergei Shoigu in September 2019, when Shoigu stated that re-creating the Main Political Directorate “became apparent when we saw how actively the West is meddling in the affairs of the army—they are interfering completely—ceremoniously and shamelessly.”²⁹ Shoigu went on to assert that the West is making up fake stories about the Russian military and trying to hack



into the Russian military's communication networks. He pointed to the new NATO strategic communications center operating in Riga, which he claimed is applying a "psychological pressure on the military."³⁰

Less ominously, some have pointed to the education tasks assigned to the MPD. The chairman of the State Duma Committee on Defence and former commander of the airborne forces, retired Col.-Gen. Vladimir Shamanov, suggested that given the higher ratio of contract soldiers in the Russian military, these new political deputies would serve as something like "non-commissioned officers between the soldiers and the officer corps who [would help] to solve educational problems and deal with domestic problems."³¹

One source claimed that "discussions about the revival of political officers have been going on for a long time, since it became apparent that the greatly curtailed function of the educational system in the military has ceased to cope with new tasks in the face of constantly growing threats and deepening military confrontation."³² The source goes on to suggest that the ongoing Russian military involvement in Syria demonstrated the "need to intensify the political, educational, moral and psychological training of all categories of military personnel."³³

Tanks on Moscow's Red Square 19 August 1991 during a failed coup attempt by disgruntled Soviet leaders who had ordered troops to enter Moscow to overthrow the government of President Mikhail Gorbachev. (Photo by SPUTNIK via Alamy Stock Photo)

Analysts and pundits have proposed other reasons as to what prompted the return of the MPD. There is a widespread belief among older Russians that the younger generation is not well versed in the country's history and traditions, particularly within the military realm. Besides giving young soldiers the basics of military training, the MPD will allow the Kremlin to inculcate its patriotic message within the annual conscript pool.³⁴

Other observers suggest that as Russia moves toward creating a professional military, mere material benefits alone will not motivate soldiers to make the ultimate sacrifice to defend their country. They echo what Kartapolov has stated regarding the mistake in depoliticizing the military in the early 1990s, and that it is incumbent upon the military leadership to explain to soldiers today why they are defending their country.³⁵

A recent article from the liberal news source, *Obschaya Gazeta*, describes two other possible reasons



Then commander of the Russian Western Military District, Col.-Gen. Andrei Kartapolov (left) attends an oath ceremony 1 September 2016 for first-year cadets of the Saint Petersburg Suvorov Military School in Saint Petersburg, Russia. (Photo by Peter Kovalev, TASS via Alamy Live News)

behind reactivating this directorate. It suggests that “the project is needed to provide generals with career growth,” since staffing the new MPD will entail an increase in senior officer billets.³⁶ The article also posits that the new MPD could provide employment to the thousands of “staff officers [among them, former education officers] who were dismissed from military service” under the previous defense minister.³⁷

Soviet nostalgia may have also played a role. Over the past twenty years, the Kremlin-supported media has worked hard to discredit the democratic changes that the country experienced during the 1990s, praising instead the stability, security, and great power reputation the country enjoyed during the Soviet Union. In reestablishing the MPD, the Kremlin may be hoping that it can replicate the sense of solidarity and purpose depicted in communist party literature.

As mentioned previously, this initiative also aligns with a wider focus on patriotism throughout all

Russian society. Over the past decade, the Russian authorities have expended considerable effort and resources in improving patriotic awareness among the younger generation. The Юнармия (Young Army) movement now boasts over six hundred thousand members (ages eight to seventeen) throughout all of Russia and in other countries, where it provides both patriotic training and the fundamentals of military service as well as other educational, sporting, and cultural opportunities. A similar organization, DOSAAF (Volunteer Society for Cooperation with the Army, Aviation and Navy) that dates from the Soviet period, provides additional training and vocational opportunities (many related to the military) for young Russians.

Now that the MPD has been reactivated, young Russians who missed out on earlier opportunities for patriotic indoctrination will learn the basics while serving as conscripts in the military. Besides studying the basics of soldiering, the annual military-draft

Curriculum: Military-Political Training (MPT) (for conscripts)

Section I

State and military structure (26 hours total)

- Russia in the modern world and the main priorities of its military policy. Tasks of soldiers (sailors) of a military unit (4 hours)
- Government structure and system of state power in the Russian Federation (4 hours)
- President of the Russian Federation - Head of State, Supreme Commander of the Armed Forces of the Russian Federation (2 hours)
- Armed Forces of the Russian Federation (2 hours)

Section II

Patriotic education, military history of Russia, traditions of the army and navy, days of Russian military glory (66 hours total)

- Wars and battles of the 19th century (2 hours)
- Hero cities and cities of military glory are symbols of courage and steadfastness of the people and army in the Great Patriotic War of 1941–1945 (4 hours)
- XVIII century—the century of Russian military glory (4 hours)
- The most important battles of the Great Patriotic War of 1941–1945. World historical significance of the Victory of the Soviet people in the Great Patriotic War of 1941–1945 (8 hours)
- Russia in the era of wars and revolutions (1914–1922) (6 hours)
- Traditional religious associations of the Russian Federation. The interaction of the Russian army and navy with traditional religious associations: history and modernity (2 hours)
- The army of Russia and the Russian state in the struggle for independence and territorial integrity of the Fatherland in the IX–XVII centuries (4 hours)
- History of state and military symbols of Russia (2 hours)
- Military reforms of Peter I, strengthening Russian statehood (2 hours)
- Glorious victory of Russian weapons in the Russian-Turkish war of 1877–1878 (2 hours)

Section III

Legal basis for military service (12 hours total)

- Responsibility of the military (4 hours)
- Russian legislation on freedom of conscience and religious freedom. Features of the implementation of religious needs of military personnel (2 hours)
- The basics of conscript military service in the Armed Forces of the Russian Federation. Social guarantees and compensations provided to conscripts (4 hours)

Section IV

The moral, political, and psychological foundations of military service (16 hours total)

- The military collective and the rules of conduct of servicemen (4 hours)
- Modern combat and its impact on the psyche of military personnel (4 hours)
- Psychological training of military personnel during active hostilities (4 hours)

Section V

Training and education (18 hours total)

- Defense of the Fatherland is the duty of a citizen of the Russian Federation. Worldview, moral and spiritual foundations of dedicated service to the Fatherland (2 hours)
- Military etiquette and the culture of communication of military personnel (4 hours)
- Know and strictly comply with security measures during combat training and daily activities of the unit (4 hours)
- Discipline is the most important quality of a warrior's personality (4 hours)
- Social and medical consequences of the use of narcotic and psychotropic substances. Criminal and administrative liability for drug-related offenses (2 hours)

Section VI

International humanitarian law, human rights (6 hours total)

- Key provisions of international humanitarian law (6 hours)

Review and testing (16 hours total)

“Учебные планы военно-политической подготовки в Вооруженных Силах Российской Федерации на 2019 год” [Lesson plans for military-political training in the armed forces of the Russian Federation in 2019], Armeiskiy Sbornik [Army digest], no. 11 (November 2018): 92–102.





contingent (approximately 250,000 men) will be exposed to the Kremlin's view of history, Russia's place in the world, the role the military plays, and similar subjects designed to create stronger patriots. While the training is not quite as extensive, officers and contract soldiers will receive similar MPD training.

In commemoration of the seventieth anniversary of Victory in the Great Patriotic War of 1941–1945, a World War II veteran walks with his great-grandchildren 9 May 2015 in Moscow's Victory Day Parade through the Red Square. (Photo courtesy of the Office of the President of Russia)

Establishing the Main Political Directorate

Kartapolov described a three-phase approach toward building the new MPD.³⁸ The first two phases have already been completed; that is, to create the central apparatus and to identify MPD slots down to the regiment and separate unit levels. The third, and likely most challenging phase, is training the requisite number of personnel to staff these billets.

Since the new MPD will not have its own separate personnel system, questions have arisen regarding what type of officers will man these billets. Once trained, former education officers will likely fill some of the positions, but it is not clear where the remainder will come from. In a recent interview, Kartapolov proposed that filling an MPD billet would be, if not mandatory, then a “desirable step in the formation of the future great military leader.”³⁹

The Actual Duties of the New Military-Political Deputies

While it will likely be contingent upon the actual billet, open sources suggest that the average political officer will be responsible for “military-political training; propaganda and informational work; moral and psychological preparation; spiritual and patriotic work; military-legal work to strengthen military discipline and the rule of law; military-social work with all categories of personnel and members of their families; individual educational work with all categories of military personnel; cultural and educational work in places of constant deployment and in the field.”⁴⁰

In addition to the tasks above, the political officer “is expected to maintain ties with parents and relatives of military personnel, interact with religious representatives of traditional faiths, participate in military-patriotic education of civilian youth, [and] study and disseminate the best practices of the top military specialists who have

distinguished themselves in military training and during exercises or training sessions.”⁴¹

A journalist from *Obschaya Gazeta* posited that “the political officers will replace the current deputies for educational work, who are engaged exclusively in discipline in the armed forces. The return of political officers to the army has a much wider range of responsibilities—they will deal with ‘military-political information’ of the personnel, will monitor the ‘moral-political and psychological state’ of the fighters, report to the leadership (writing petty complaints and denunciations) about the situation in the military unit, keep track of crews ‘taking into account their psychological compatibility, religiosity and attitude to service,’ fight drug addiction and extremism, and even organize leisure activities for military personnel.”⁴²

According to published guidance in *Armeiskiy Sbornik* for 2019, military-political training comprises “one of the main subjects of training for the personnel of the Armed Forces of the Russian Federation and the most important form of military-political, state-patriotic, spiritual, moral, military and legal education of military personnel.”⁴³ The training is designed to strengthen “spiritual and moral readiness and psychological ability of military personnel to selflessly and courageously fulfill military duty.”⁴⁴

The training is broken down into separate curricula designed for officers, contract soldiers, and conscripts. Officers receive upward of 60 hours of training and discussion; contract soldiers receive about 80 hours, and conscripts receive about 160 hours.⁴⁵ The accompanying sidebar (on page 61) breaks down the major categories for the conscript soldier. It is not clear whether these categories are merely guidelines or whether commanders and the political deputy are required to schedule the full 160-hour course load during the conscript’s single year of service.

Positive Implications

After the sharp decline of patriotic sentiments in the traumatic 1990s, over the past two decades, patriotic sentiments among Russians have gradually increased. Today, the overwhelming majority of Russians regard themselves as patriots.⁴⁶ This positive attitude toward the country is also reflected among those who serve in the military. While the Kremlin’s patriotic rhetoric has played a role, so too have higher military wages, improved living conditions, a shorter period of conscription, and greater funding for training and equipment.

The Russian military role in regaining Crimea and successful intervention in Syria have also helped to improve the image of the Russian armed forces. In 2018, the approval rating for the Russian military reached its highest level within post-Soviet Russia, and today, trust in the military is higher than that of the president.⁴⁷

The MPD, capitalizing on these widespread patriotic sentiments, will likely have an easier time with instilling positive military morale within the ranks. This morale-building process among soldiers will likely be aided by the country’s Kremlin-supported media juggernaut and greater restrictions on military personnel in accessing alternate sources of information. Besides providing the soldier with practical lessons in financial literacy, the MPD instruction will inculcate information that highlights the military’s rich history and prowess as well as the belief that the Russian cause is just.

The strength in the Kremlin’s ability to shape the narrative has been on full display ever since Russian-supported separatists inadvertently shot down a civilian airliner over southeast Ukraine in July 2014. Instead of accepting blame for this tragic accident (the crew thought they were shooting at a Ukrainian military transport aircraft), the Kremlin has spared no time and expense to clutter the information space with alternative theories as to who was responsible. Their efforts have paid off—at least among the Russian domestic audience—where today, the majority of Russians believe that either Ukraine or the United States was responsible for this tragedy.⁴⁸ This power to shape the narrative will be used as a force-multiplier for those wearing a Russian military uniform.

Negative Implications

While it is too early to determine the effectiveness of the new MPD, there are some negative factors that could mitigate its overall usefulness. First and foremost, should the gap continue to widen between the Kremlin’s patriotic rhetoric and the mediocre reality of the average Russian soldier and his or her family? Military personnel may think twice before fully adopting and supporting the Kremlin’s narrative. As the Soviet experience illustrated, there is a relatively short shelf life in blaming the West for all the country’s social and economic ills. While the Kremlin has proven to be extremely adept in media manipulation, sources of alternative information are increasingly available to the Russian soldier. Today’s Russian soldier may become at least as skeptical of the Kremlin’s

patriotic message as were his or her Soviet ancestors, particularly if the income divide continues to grow.

This gap between rhetoric and reality is particularly wide regarding the low number of children of the Russian elite serving today within the military. Those who enjoy high-level connections or wealth avoid conscript service or finagle a way to complete their military obligation without ever serving in the ranks. Online commentaries suggest that this lack of elite representation within the ranks has weakened the Kremlin's patriotic message and has led to the sentiment that the common soldier is now being asked to sacrifice "to increase the wealth of oligarchs."⁴⁹

There also remains a bitter residue from the Soviet period. Many senior officers in today's Russian military have firsthand experience of working with political officers when they served in the Soviet armed forces. While some Soviet MPD officers certainly helped with

training, discipline, and soldier welfare, their attempt to defend a failing political and economic system left a bad impression among a wide swath of the Soviet military. Given the number of negative anecdotes regarding MPD officers, it appears their poor reputation was well deserved. Senior military officers likely still hold an adverse attitude toward those responsible for propagating state-approved patriotic training.⁵⁰

Moreover, given the challenges of training one-year conscripts in basic soldier skills, commanders today may not place a high priority upon formal political training. According to the 2019 guidance, conscripts are to receive up to 160 hours of military-political training annually. As during the Soviet period, units might adopt a pro-forma, checklist mentality, treating this political training as a mere extra duty.

Despite optimistic claims by those running this department, questions and problems remain over both



the actual content of MPD training and trained cadre to carry out this mission. The huge MPD infrastructure that developed under the USSR has long been abolished, and while the new MPD now claims to have more than eleven thousand personnel, it is not clear how many are actually trained to carry out the mission.⁵¹

Conclusion

A century ago, the Bolshevik leaders instituted the system of political commissars to ensure the loyalty of those charged with defending the new workers' state. Having achieved victory in the civil war, the commissar's mission evolved to include training, education, and improving the morale of the Soviet soldier. While these political officers did their share in helping to defend the USSR from external aggression, their primary mission was to make sure that the military remained devoted to the communist cause. As this

ideology fell into disrepute, the role of the political officer became discredited.

Reinstituting the MPD within the Russian armed forces was predicated upon many factors, but the primary reason stems from concerns that "dangerous ideas" will influence today's Russian soldier. While radical Islamic teachings remain a concern, the most threatening appear to be those that question the political legitimacy of the ruling class. Fears that Russian society (to include those in uniform) will demand genuine political representation and a more equal distribution of the country's wealth, via protests (color

Cadets from the Ryazan Guards High Military Airborne Command School march in celebration 8 April 2019 during the first rehearsal of the 2019 Moscow Victory Day Parade at Alabino training ground, which is an exact model of Russia's Red Square. (Photo courtesy of Vitaly Kuzmin, www.vitalykuzmin.net)



revolution), have caused the Kremlin to rely upon other tools of legitimacy. Chief among these tools are the glorification of the country's history, claims of divine sanction, and assertions of foreign aggression. Somewhat like his or her communist predecessor, today's political officer is responsible for helping to ensure that Russian military personnel are protected from "revolutionary" thoughts and subscribe instead to the patriotic dogma of the current Kremlin leadership.

Outside of political indoctrination, there are many tasks within today's Russian military where the new political officers can make a positive difference. Whether working to solve individual personnel issues, helping to maintain discipline, or instructing young

soldiers the basics of financial literacy, today's political officer can do much to strengthen unit morale.

Learning about the exploits of great Russian military leaders like Mikhail Kutuzov, Alexander Suvorov, or Georgy Zhukhov can certainly boost morale, though such patriotic instruction presents a danger if today's leaders pale in comparison. While there is much within the MPD curriculum that appears to support a healthy love of country, there are concerns that the new MPD could adopt the form of its Soviet predecessor. By aligning itself so closely with the current Kremlin leadership, the MPD may find itself focused more on defending a corrupt political system than with a genuine concern for the country. This will be bad for both Russia and its military. ■

Notes

Epigraph. J. Wright, *The Souldiers Catechisme: Composed for the Parliaments Army: Consisting of Two Parts: Wherein Are Chiefly Taught: 1 the Justification 2 the Qualification of Our Souldiers. Written for the Incouragement and Instruction of All That Have Taken Up Armes in the Cause of God and His People; Especially the Common Souldiers* (London: The Cresset Press, 1644), 10, quoted in Norman Copeland, preface to *Psychology and the Soldier* (Harrisburg, PA: Military Service Publishing, 1942), accessed 27 March 2020, <https://collections.nlm.nih.gov/catalog/.nlm.nlmuid-14320680R-bk>.

1. "Putin Considers Patriotism the Only Possible Ideology in Modern Society," TASS, 19 December 2019, accessed 13 February 2020, <https://tass.com/politics/1101043>.

2. Konstitutsiia Rossiiskoi Federatsii [Constitution of the Russian Federation], art. 13 (English), accessed 4 March 2020, <http://www.constitution.ru/en/10003000-02.htm>. The drafters of the country's first post-Soviet constitution deliberately stated that "ideological diversity shall be recognized" and that "no ideology may be established as state or obligatory." As of March 2020, the Kremlin is in the process of amending the current constitution, where it will not only allow Putin to extend his presidential term indefinitely but will also include a reference to "God."

3. "Минобороны предложило сделать победу в ВОВ основой национального самосознания" [Defence ministry proposes to make the victory in World War II the basis of national identity], Interfax, 28 January 2020, accessed 13 February 2020, <https://www.interfax.ru/russia/693027>.

4. Oleg Falichev and Andrei Kartapolov, "Право первым подняться в атаку" [The right to attack first], *Voyenno-Promyshlennyi Kuryer* [Military-industrial courier] (website), 11 September 2018, accessed 6 February 2020, <https://vpk-news.ru/articles/44913>.

5. The holiday has evolved over the past two decades and has now become something of a Russian version of "Father's Day," where all Russian males are recognized and celebrated.

6. William C. Fuller Jr., *Civil-Military Conflict in Imperial Russia, 1881-1914* (Princeton, NJ: Princeton University Press, 1985), 31.

7. Boris N. Mironov, "The Development of Literacy in Russia and the USSR from the Tenth to the Twentieth Centuries," *History of Education Quarterly* 31, no. 2 (1991): 229–52, accessed 27 March 2020, <https://www.jstor.org/stable/368437>.

8. A. Y. Khmel, ed., *Education of the Soviet Soldier: Party-Political Work in the Soviet Armed Forces* (Moscow: Progress Publishers, 1972), 23.

9. Harriet Fast Scott and William Scott, *The Armed Forces of the USSR*, 3rd ed. (Boulder, CO: Westview Press, 1984), 288.

10. Mikhail Sukhorukov, "Замполиты-политруки, но уж точно не комиссары. Часть 1-3" [Deputy political officers, but certainly not commissars. Part 1-3], *Voennoye Obezreniye* (website), 29 December 2018, accessed 13 February 2020, <https://topwar.ru/151956-zampolity-politruki-no-uzh-tochno-ne-komissary-chast-1.html>.

11. Boris Pavlovich Utkin, "ГЛАВПУР: взгляд сквозь годы" [GlavPUR: A look through the years], *Krasnaya Zvezda* [Red star] (website), 15 May 2014, accessed 13 February 2020, <http://archive.redstar.ru/index.php/siriya/item/16083-glavpur-vzglyad-skvoz-gody>.

12. Viktor Byslovskiy, "ГЛАВПУР – ВЗГЛЯД СКВОЗЬ ГОДЫ" [GlavPUR-A look through the years], *Rossiyskoe Voennoye Obezreniye* [Russian military review] (April 2019): 24–29.

13. Sukhorukov, "Замполиты-политруки, но уж точно не комиссары. Часть 1-3."

14. Alexander Golts, *Military Reform and Militarism in Russia* (Washington, DC: Jamestown Foundation, 2018), 240.

15. "В советской армии их презирали! Зачем восстанавливать институт политруков" ["They were despised in the Soviet army." Why restore the institution of political officers], *Noviye Izvestiya*, 6 March 2019, accessed 13 February 2020, <https://newizv.ru/news/politics/06-03-2019/v-sovetskoj-armii-ih-prezirali-zachem-vosstanavlivat-institut-politrukov>.

16. Ibid.

17. To get a sense of the confusion and tension for senior Soviet military personnel during the dramatic events of August 1991, see Alexander Lebed, *My Life and My Country* (Washington, DC: Regnery, 1997), 297–391.

18. Dale Herspring, *The Kremlin and the High Command: Presidential Impact on the Russian Military from Gorbachev to Putin*

(Lawrence, KS: University Press of Kansas, 2006), 49–51. See Tbilisi, 1989; Baku, 1990; and Vilnius, 1991.

19. Much has been written on these events from nearly thirty years ago. For a good English source, see David Remnick, *Resurrection: The Struggle for a New Russia* (New York: Vintage Books, 1998), 37–83. Not all of those in uniform welcomed the changes going on in Russia. The loyalty of those in the military would again be sorely tested in the autumn of 1993, when the executive and legislative branches struggled for supremacy on the streets of Moscow. The conflict was ultimately resolved when President Boris Yeltsin personally ordered tanks to fire upon the Russian White House to subdue those Russian legislators who had dared to question his authority.

20. Much has been written on this topic over the past thirty years. For a work that captures some of the initial trauma of trying to build fifteen new national militaries during near economic collapse, see William A. Odom, *The Collapse of the Soviet Military* (New Haven, CT: Yale University Press, 1998).

21. Maxim Artemyev, "Военная пропаганда. Почему российская армия не может обойтись без политруков" [Military propaganda. Why the Russian army cannot do without political officers], *Forbes* (website), 1 August 2018, accessed 27 March 2020, <https://www.forbes.ru/biznes/365393-voennaya-propaganda-pochemu-rossiyskaya-armiya-ne-mozhet-oboitis-bez-politrukov>.

22. The Kremlin is currently in the process of amending the country's constitution that would permit Vladimir Putin to remain as president through 2036. However, there is considerable speculation today whether Putin will actually choose to remain as Russia's top leader.

23. Evgenia Kuznetsova, "Сенаторы вступили в борьбу за молодежь" [Senators fight for youth], *RBC* (website), 29 November 2017, accessed 6 February 2020, <https://www.rbc.ru/newspaper/2017/11/30/5a1d6fd89a79477bd2caa703>.

24. Ibid.; Falichev and Kartapolov, "Право первым подняться в атаку"; Andrei V. Kartapolov, "Наша цель – формирование воина-государственника" [Our goal is the formation of a warrior-statist], *Krasnaya Zvezda*, 15 May 2019, accessed 12 June 2020, <http://red-star.ru/nasha-tsel-formirovanie-voina-gosudarstvennika/>.

25. Falichev and Kartapolov, "Право первым подняться в атаку."

26. Ibid.

27. Ibid.

28. Kartapolov, "Наша цель – формирование воина-государственника."

29. Mikhail Rostovskiy, "Сергей Шойгу рассказал, как спасали российскую армию" [Sergei Shoigu told how they saved the Russian army], *Moskovskiy Komsomolets* (website), 22 September 2019, accessed 13 February 2020, <https://www.mk.ru/politics/2019/09/22/sergey-shoigu-rasskazal-kak-spasali-rossiyskuyu-armiyu.html>.

30. Ibid.

31. "Шаманов: в российской армии появятся замполиты в новом качестве" [Shamanov: New politicians will appear in the Russian army], *TASS*, 31 July 2018, accessed 13 February 2020, <https://tass.ru/armiya-i-opk/5415903>; see also "Main Military-Political Administration (GVPU)," *GlobalSecurity.org*, accessed 5 February 2020, <https://www.globalsecurity.org/military/world/russia/mo-gvpu.htm>.

32. Ibid.; Sukhorukov, "Замполиты-политруки, но уж точно не комиссары. Часть 1-3."

33. Sukhorukov, "Замполиты-политруки, но уж точно не комиссары. Часть 1-3."

34. Vladimir Vorsobin, "Товарищ политрук: нужна ли эта должность в современной армии?" [Comrade political instructor: Does the modern army need this position?], *Radio Komsomolskaya*

Pravda, 4 September 2018, accessed 13 February 2020, <https://www.kp.ru/radio/26876/3920155/>. Listen to the remarks of retired Capt. G. F. Sivkov, who is a popular conservative military expert, for a common Russian view on why the Main Military-Political Directorate should be reestablished and some of the challenges that the military is now facing with regard to soldier education.

35. Svetlana Gomzikova, "ГлавПУР, как выяснилось, бессмертен" [GlavPUR, as it turned out, is immortal], *Svobodnaya Pressa* (website), 31 July 2018, accessed 13 February 2020, <https://svpressa.ru/war21/article/206749/#mc-container>.

36. Yuri Dmitriev, "Слушай то, что говорит наш товарищ замполит" [Listen to what our comrade political officer says], *Obschaya Gazeta* (website), 14 September 2018, accessed 27 March 2020, <https://og.ru/society/2018/09/14/99048>.

37. Ibid.; see also Gomzikova, "ГлавПУР, как выяснилось, бессмертен"; Igor Egorov, "Возвращение комиссаров" [Commissars return], *Versiya* (website), 11 February 2018, accessed 12 June 2020, <https://versiya.ru/zachem-minoborony-vozvrashtaet-v-armiyu-politupravlenie>.

38. Ibid.; Falichev and Kartapolov, "Право первым подняться в атаку."

39. Ibid.; Sukhorukov, "Замполиты-политруки, но уж точно не комиссары. Часть 1-3."

40. Ibid.

41. Ibid.; Dmitriev, "Слушай то, что говорит наш товарищ замполит."

42. Ibid.

43. "Учебные планы военно-политической подготовки в Вооруженных Силах Российской Федерации на 2019 год" [Lesson plans for military-political training in the armed forces of the Russian Federation in 2019], *Armeiskiy Sbornik* [Army digest], no. 11 (November 2018): 92–102.

44. Ibid.

45. Ibid.

46. "Patriotism in Russia at Highest Level in 18 Years – Poll," *RT*, 9 June 2018, accessed 13 February 2020, <https://www.rt.com/russia/429231-patriotism-level-russia-highest/>.

47. "РОССИЯНЕ ДОВЕРЯЮТ ПРЕЗИДЕНТУ МЕНЬШЕ, ЧЕМ АРМИИ" [Russians trust president less than armies], *Levada Center*, 24 October 2019, accessed 13 February 2020, <http://www.levada.ru/2019/10/24/rossiyane-doverayut-prezidentu-menshe-chem-armii/>.

48. "Опрос: россияне не верят в причастность России к катастрофе МН17" [Survey: Russians do not believe in Russia's involvement in the MH17 disaster], *Gazeta.ru*, 6 October 2016, accessed 13 February 2020, https://www.gazeta.ru/social/news/2016/10/06/n_9189161.shtml.

49. For a recent example of this sentiment, listen to this podcast: Vladimir Vorsobin, "Николай Стариков: Мы проиграли войну Японии потому, что наша армия долго не воевала. Поэтому тренировка нашей армии в Сирии так важна" [Nikolai Starikov: We lost the war of Japan because our army did not fight for a long time. Therefore, the training of our army in Syria is so important], *Komsomolskaya Pravda Radio*, 24 February 2020, accessed 13 February 2020, <https://www.kp.ru/radio/27095/4168565/>.

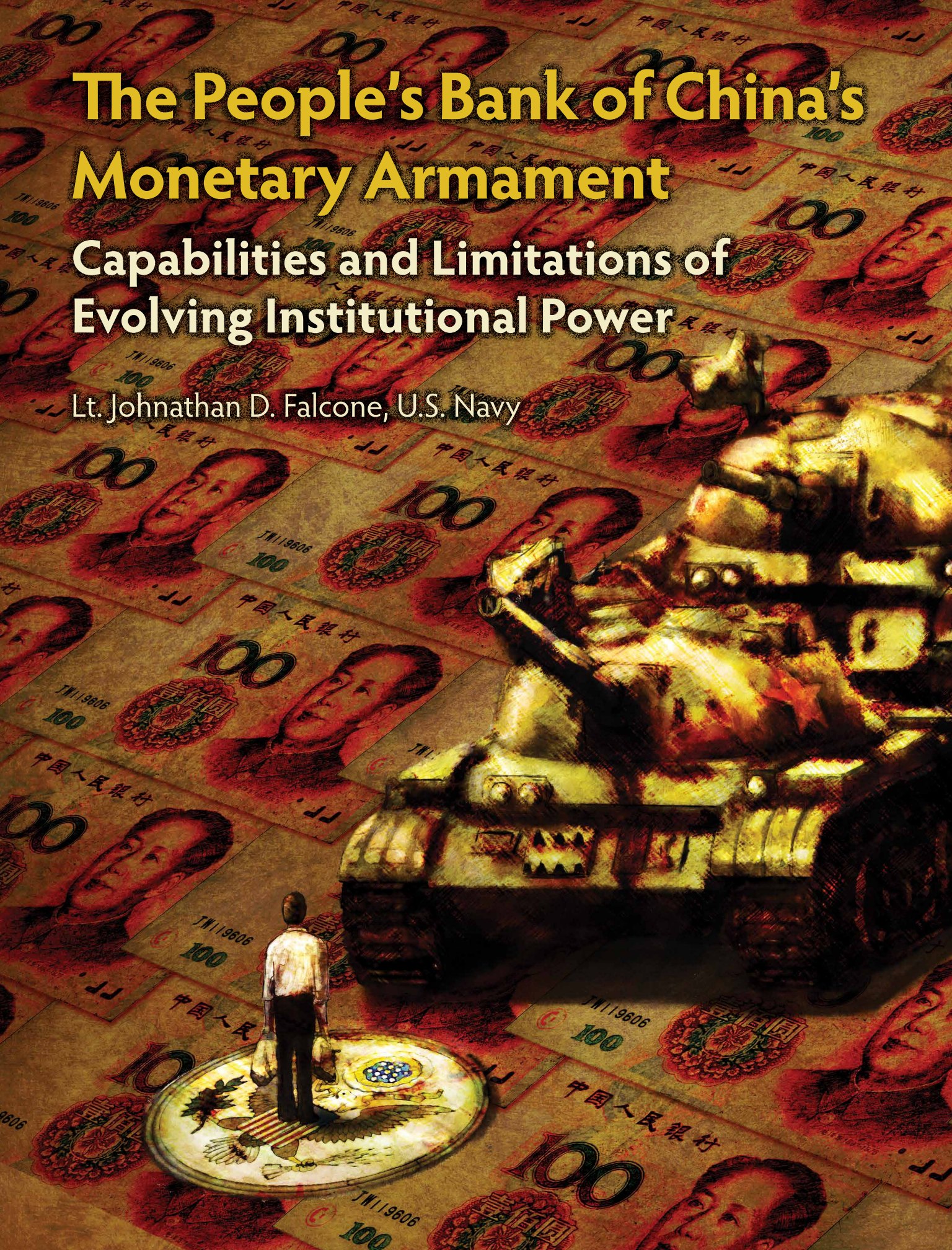
50. For an example of this acidic commentary, see Pavel Aptekar, "Чем российский политработник отличается от советского" [How a Russian political worker differs from a Soviet], *Vedomosti* (website), 15 May 2019, accessed 14 February 2020, <https://www.vedomosti.ru/opinion/articles/2019/05/16/801500-rossiiskii-politrabotnik>.

51. Ibid.

The People's Bank of China's Monetary Armament

Capabilities and Limitations of Evolving Institutional Power

Lt. Johnathan D. Falcone, U.S. Navy





Two nations, nearly seven thousand miles apart, are engaged in a great-power conflict. Many of the strategies that guide this conflict are undergoing development in the Pentagon, Arlington's five-cornered symbol of military might, and also in its counterpart headquarters found in Beijing's August 1st Building, a Sino-influenced yet Soviet-styled compound. However, arguably the most consequential strategic plans are being developed in the Eccles Federal Reserve Board Building in Washington, D.C., and in the People's Bank of China's Beijing headquarters. The economic front of the present U.S.-China conflict is being executed from these ill-recognized halls of national security policy. Although U.S. military leadership may be vaguely familiar with the consequences of American monetary policy on this conflict, the strategic potential of the monetary policy of China's central bank is largely unknown and much underappreciated. As a result, today's U.S. warfighters may not feel compelled to track Chinese capital flow rates with the same urgency with which they mine intelligence reports for the latest ballistic missile profiles. But given China's central banks institutional subordination to the Chinese Communist Party (CCP) and increasing international impact, its actions must be interpreted as an extension of CCP strategic objectives.

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Many may argue that the financial markets are not legitimate battlespaces, and that real war can only be defined as military "kinetic" conflict. Ironically, the same voices that may be willing to recognize cyber and information warfare as potent nonkinetic forms of conflict, and as new battlespaces, are reluctant to expand their conception of warlike conflict to the economic domain. However, if the consequences of a combatant's deliberate

economic actions are comparable to the consequences of kinetic engagement (e.g., social destruction, political and economic collapse, and death), then why is it not equally of concern to a military who has sworn an oath to defend American values? One has to look no further than Ukraine or those countries that experienced the Arab Spring to recognize that economic conditions can undermine society's stability with real national security consequences. In this sense, economic actors have expanded the scope of international conflict to include institutions that can decisively affect economic conditions across borders to achieve the same kinds of political objectives formerly thought to reside exclusively in the domain of armed conflict.

The 2018 *National Defense Strategy* clearly alludes to this emerging warfare domain when it articulates the need for a "seamless integration of multiple elements of national power—diplomacy, information, economics, finance, intelligence, law enforcement, and military."¹ But in our nation's war colleges, where current and future military leaders engage intellectually with the principles of warfare, strategy is still strictly circumscribed by the theories of such classical military thinkers as Antoine-Henri Jomini and Carl von Clausewitz with little attention given to the impact of money in conflict as propounded by economic theorists such as Karl Marx and Robert Gilpin.

In stark contrast, America's strategic competitors including China have fostered a more inclusive understanding of strategic disciplines and warfare's domains. For example, in the highly influential book *Unrestricted Warfare*, published in the 1990s, People's Liberation Army (PLA) theorists Qiao Liang and Wang Xiangsui declared, "There is no longer any distinction between what is or is not the battlefield [to include] social spaces such as the military, politics, economics, culture, and the psyche."² Though decades old, this work nevertheless provides insight into the warfare principles that continue to guide the CCP and the PLA. Money flows, financial markets, and macroeconomic decisions have an impact beyond the domestic economy but are synchronized with other elements of national power to aggressively achieve international political objectives. In China, the primary forum for this centrally planned, economic line of attack is the Central Economic Work Conference.

Every December in Beijing, the unassuming Jingxi Hotel hosts CCP leadership and national economic



experts for the Central Economic Work Conference. This annual meeting for party leaders, government officials, and economic policy makers provides a forum to discuss the national economic agenda for the following year. As the 2019 meeting approached, it became apparent that domestic economic growth and the internationalization of the Chinese currency would be the primary agenda items. CCP administrators vocally pushed for additional market-based reforms that previously drove the rise of China's economy. Concomitantly, planners found themselves battling multiple economic headwinds to include a slowing growth rate, a weakening yuan, and continuing trade fears with the United States.

These challenges and the potential economic actions required to overcome reforms intensified the spotlight on the People's Bank of China (PBOC), China's central bank. Historically, the bank was tasked to simply carry out strict credit plans and ensure its provincial branches could underwrite party-directed investment projects. Today, the bank is equipped with monetary policy tools similar to those of other developed nations; yet, it remains another opaque institution employed to

Black Audis, the vehicle of choice for senior party officials, drive up to the entrance of the Jingxi Hotel in western Beijing. Ordinary travelers have never been allowed past the forty-eight-year-old hotel's drab, Soviet-style exterior. The heavily guarded hotel is where the Communist Party elite meet to make high-stakes personnel decisions and map out future policies. (Photo from *South China Morning Post*)

achieve party objectives that have the ability to affect China's financial markets, strategic policy objectives, and markets around the world.³

Considering China's increasing capital account liberalization and participation in international financial markets, the role and global impact of the PBOC is on the rise. As far as the CCP exerts influence over the institution, PBOC monetary policy decisions are also a reflection of the party's near and long-term interests. From the perspective of U.S. military and political strategists, understanding the PBOC's monetary capabilities and limitations illuminates the strategic repercussions of China's actions in a way that is comparable to the value of tracking the development of more traditional military capabilities associated with great-power

conflict. We will assess the institution's evolving role within the Chinese economy and the changes in its policy tool kit during the market liberalization era. The results of this analysis will show that the PBOC is sufficiently equipped to exert economic influence in international markets to achieve CCP strategic aims.

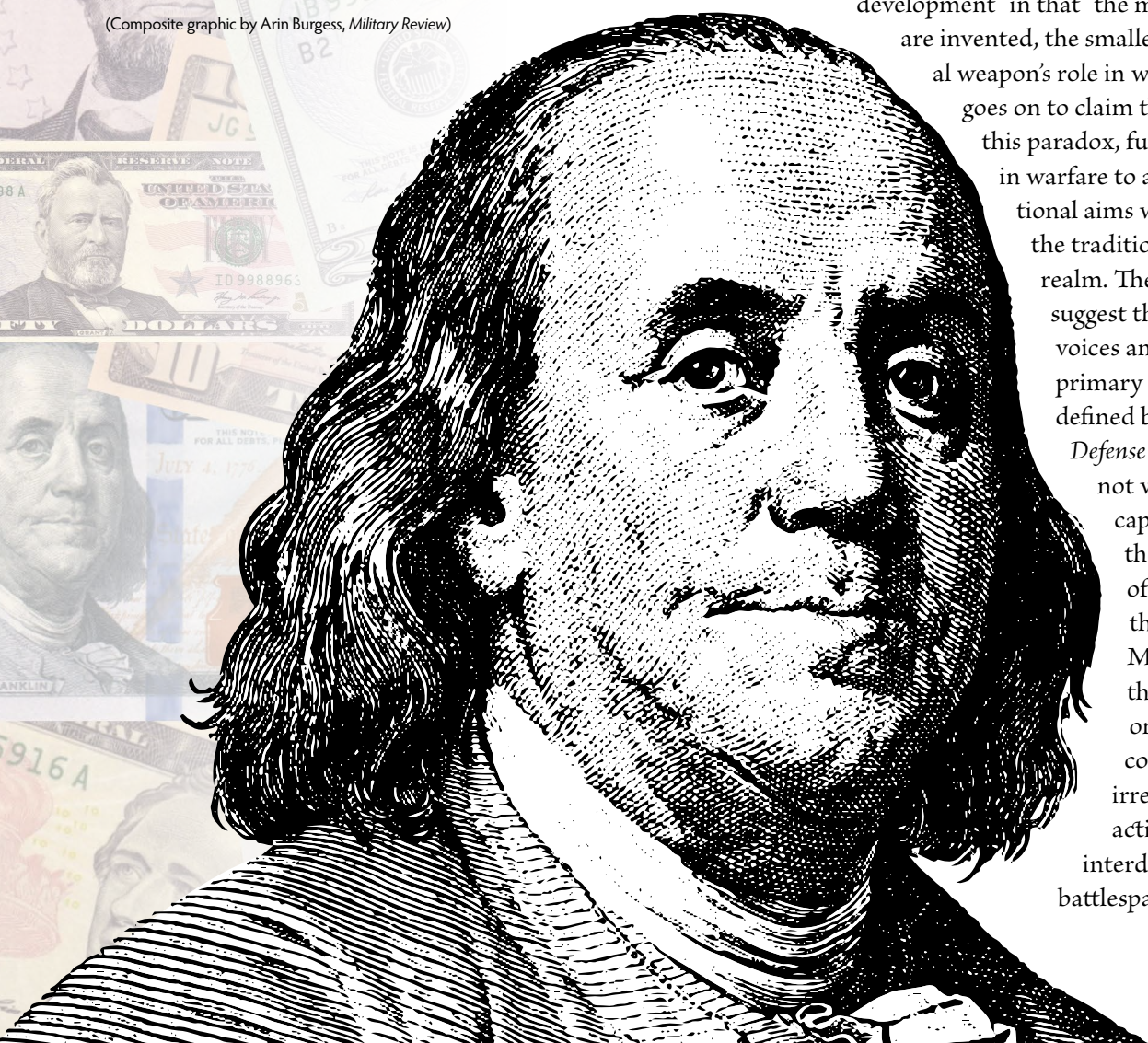
It is important to note that the lack of transparency from domestic Chinese institutions and the PBOC's recent policy shifts create a unique challenge to gather information related to this subject. First, the nature of the CCP and Chinese authoritarian regime underlies the general lack of transparency. Second, in 2017, major doctrinal changes took place to reflect lessons learned from the 2008 financial crisis.⁴ The relatively recent advent of these changes has limited the quantitative-based analytical literature available. As a result, most of the information presented is derived from PBOC reports and documents, PBOC-released policy papers, qualitative academic articles, and Western media analysis.

(Composite graphic by Arin Burgess, *Military Review*)

Evolving Battlespaces and Institutions of Conflict

The characteristics of war have been defined, debated, revised, and restructured for millennia. In 2013, Gen. Valery Gerasimov, chief of the Russian General Staff, published an article in the Russian newspaper *Military-Industrial Courier* that articulated his understanding of modern warfare. In the article, Gerasimov notes that "the very 'rules of war' have changed. The role of non-military means of achieving political and strategic goals has grown, and, in many cases, has exceeded the power of force of weapons in their effectiveness."⁵ In March 2019, Gerasimov again alluded to the interdisciplinary nature of military strategy referencing "the emergence of new spheres of confrontation in modern conflicts, the methods of struggle and increasingly shifting towards the integrated application of political, economic, informational and other non-military measures."⁶ *Unrestricted Warfare* presaged these sentiments. It proposed a "paradox of weapons

development" in that "the more weapons are invented, the smaller an individual weapon's role in war."⁷ The book goes on to claim that because of this paradox, future weapons in warfare to achieve national aims will be outside the traditional military realm. These claims suggest that influential voices among America's primary competitors, as defined by the *National Defense Strategy*, do not view military capabilities as the sole means of achieving their objectives. Modern conflict, therefore, not only connotes conventional and irregular military action but also interdisciplinary battlespaces.



Chinese leadership learned from Russia's Soviet predecessors that empires can fall without direct hostile engagement. The Soviet Union's failures during the Cold War undoubtedly informed Gerasimov's perspective. Specifically, he alludes that the Soviet Union's inability to compete in other arenas led to its defeat, despite advanced and capable military technology. Chinese leadership appears to view its current strategic position vis-à-vis the United States as akin to the Soviet Union's Cold War. As such, they have internalized the Soviet Union's failures and are crafting strategy with this lesson in mind.⁸ With a vague recognition that the cost to compete militarily with the United States may not be an effective strategy, China has sought "new concept weapons." These weapons include "all means which transcend the military realm, but which can still be used in combat operations. As [China] see[s] it, a single man-made stock-market crash, a single computer virus invasion ... that results in a fluctuation in the enemy country's exchange rates ... can be included in the ranks of new-concept weapons."⁹ China's apparent desire to weaponize economic markets highlights the need for American planners to account for all potential institutions of conflict.

Professor Harry Harding, a political scientist specializing in Chinese foreign affairs, wrote that "since the 1970s, China has called for a new international economic order, in which commodity prices, capital flows, and terms of technology transfer would be adjusted in favor of the interests of the third world."¹⁰ Successfully effecting such a change would require shifting the economic landscape from a great-ocean maritime-centric order to one characterized by Eurasian land and Indian Ocean trade routes. Throughout the 1970s, China took a hard stance to bring about this alternate economic sphere outside of the U.S.-led system. The reform period and increased economic integration moderated China's position and pushed CCP leadership, however unwillingly, to putatively operate within the present economic order. Despite its participation, Beijing remains a fierce critic of Washington's position in the international economic landscape. It has used forums such as the World

Bank and vehicles such as the Asian Infrastructure Investment Bank to reveal its ultimate objective: to bring about a fundamental shift in the international financial system that favors its own interests and expansion of influence.¹¹ Today's PBOC operates at the frontline to achieve that ultimate objective.

Like many other central banks in the world, the PBOC is tasked to "formulate and implement monetary policies" in an effort to "maintain financial stability."¹² Specifically, monetary policy is employed to stabilize "the value of the currency and thereby promote economic growth."¹³ Simply put, the bank's policies aim to control the credit environment—the risk associated with money lending—and the money supply—the amount of money available for lending and commercial transactions. Although these policies may appear to be aimed at domestic-focused outcomes,



monetary policy actions have ripple effects abroad and impact overseas commodity prices, credit availability, and capital market access. As China's economic influence and capacity grows, this reach suggests that Chinese monetary policy makers have become increasingly powerful international actors. The institution's primary constraint is its subordination to the CCP by means of the State Council. In other words, the party exercises control over the central bank.

As per the "Law of the People's Republic of China on the People's Bank of China" (Law of the PBOC), the State Council—the executive branch of the Central People's Government—holds authority over the PBOC. This means that the PBOC, unlike most other central banks in the world, is not an independent agency. The Law of the PBOC states that the State Council must approve most major decisions.¹⁴ This governance structure naturally tethers monetary policy to the party's political objectives.

The People's Actual Bank

Throughout the Maoist era, the PBOC was the primary financial intermediary in China. The institution was responsible for both central and commercial banking, and clientele ranged from regular citizens to state-owned enterprises (SOEs) to the government itself. This meant that not only did the PBOC apply what could only be described as rudimentary monetary policy, but it accepted household deposits as well. Above all, acting in its capacity as a central bank within a planned economy, the PBOC kept strict control over the money supply by limiting the amount of loans it underwrote.¹⁵

When the central government demanded that its banking sector do more than tightly control the money supply, the first set of banking reforms were directly aimed at encouraging economic growth. The banking landscape transformed, and the impacts of this transformation are still seen today. First, the PBOC was separated from the Ministry of Finance in 1976.¹⁶ Then, starting in 1979, commercial banking operations were distributed among the "Big Four" state-owned banks in China: the Agricultural Bank of China was split from the PBOC to provide government financing for rural development; the Bank of China managed the state's foreign currency portfolio and became the primary foreign financing channel; next, in 1984, the Industrial and Commercial Bank of China became the financier of China's SOEs; and finally, the China Construction Bank,

formerly a separate arm in the Ministry of Finance, became operationally independent but continued to provide loans to long-term state investment projects.¹⁷ As these commercial operations rolled out of the PBOC and Ministry of Finance, a pattern began to develop. As markets reformed and opened up, economic growth was fueled by monetary policy aimed at increasing the monetary base and access to credit.

Despite these institutional reforms, central planners continued to conduct control over the money supply through "direct credit control" and apply quantitative-based measures rather than market-based measures. Specifically, these measures dictated the amount of financing that was available at the national, provincial, and sectoral levels. This type of control enabled planners to support growth in predetermined regions and business sectors. More than just control the amount of financing available, planners—by way of the PBOC—also dictated the allocation of financing between working capital and fixed-asset investments.¹⁸ Annually, the State Council would codify these financing determinations in a "national credit plan." At that time, this rather blunt policy measure represented the sharpest monetary tool granted to the PBOC.

In 1995, banking operations underwent reform as a result of a rapidly expanding monetary base and inflationary pressures.¹⁹ By 1998, credit ceilings were phased out and an indirect management framework was established. At this point, the central bank began to apply monetary instruments to manage base money and credit to achieve intermediate goals and ultimately policy objectives.²⁰

Party Control of the Central Bank

Though somewhat liberalized to provide additional flexibility in terms of bank administration, the PBOC still does not have the freedom to employ monetary strategies outside the purview of government and party leadership. So how is this relationship defined? In 1995, when the PBOC was codified in law, article 5 of the Law of the PBOC states,

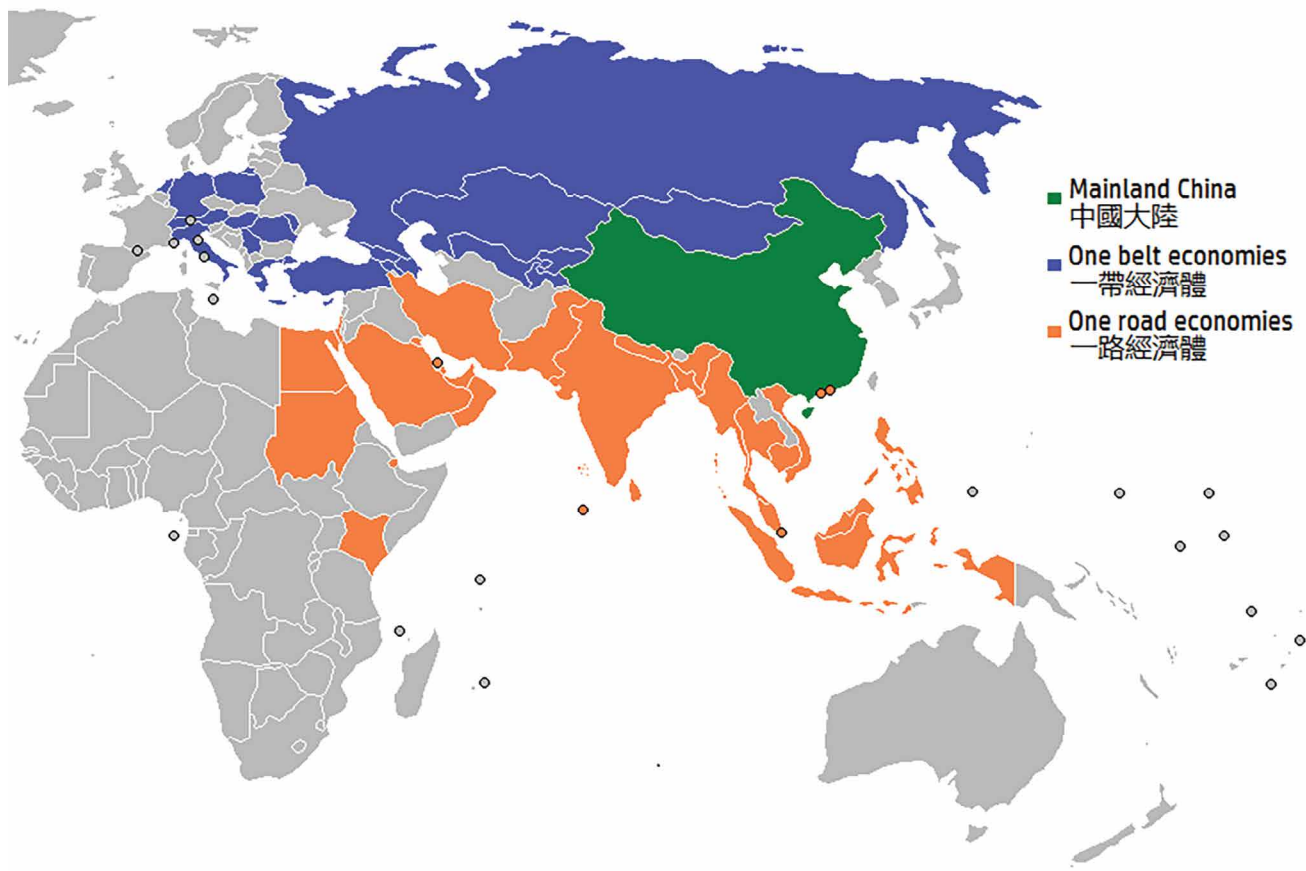
The People's Bank of China shall report its decisions to the State Council for approval concerning the annual money supply, interest rate, foreign exchange rates and other important matters specified by the State Council before they are implemented.²¹



The State Council consists of thirty-five members and is chaired by the premier. The premier is also the second-highest ranking member of the Politburo Standing Committee, subordinate only to the Party General Secretary. Although the PBOC administratively sits in the Chinese government, guidance and influence still originates from the CCP. In fact, the PBOC 2017 Annual Report acknowledges that PBOC actions were “under the leadership of the CPC Central Committee and the State Council.”²² This influence manifests itself in the bank’s policy decision-making process, as described by Professor Yiping Huang of Peking University and former member of the Monetary Policy Committee at the PBOC.²³ Most likely, this process begins with the State Council deciding upon key economic policy objectives. Then, the PBOC will follow up with proposed monetary actions to achieve these targets, and finally the State Council will approve or veto this proposal.

A photo of the People’s Bank of China headquarters taken 4 November 2016 in Beijing. (Photo by Max12Max via Wikimedia Commons)

Professor Victor Shih, University of California San Diego, adds that “despite the establishment of institutions that resemble those seen in a Western banking system, administrative decrees rather than monetary instruments ... still played the dominant role in controlling the money supply.”²⁴ These “decrees” are aimed at achieving economic policy objectives, which include rapid economic growth, a stable currency, and a balanced external account. In the Chinese view, pursuing these objectives has been fundamental to their growth and development. Given the stakes, it is likely that Chinese leadership will continue to exercise political control over the central bank as they perceive it to be imperative to achieving national goals.²⁵



(Original figure by Xxjkingdom, modified by Tart via Wikimedia Commons, 9 July 2016)

One Belt, One Road Economies

Exploiting the U.S.-Led Financial System

Today, the PBOC—much like all other institutions in China—focuses on implementing “Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era” (or Xi Jinping Thought).²⁶ As it impacts economic policy practice, this thought has called for the application of a “double-pillar framework combining monetary and macro-prudential policy.”²⁷ Similar to past objectives of the PBOC, the focus of monetary policy is liquidity in the banking system. But many analysts are now trying to understand this new buzzword, “macro-prudential policy,” and what it means for the economy.

The Macro Prudential Assessment (MPA) framework was introduced during the 19th National Congress of the CCP and describes PBOC operations today. It represents China’s attempt to balance

market reforms and capital liberalization with the exposure to systemic risks that participating in the global economy entails.²⁸ Fundamentally, Chinese officials are asking how China continues to open up its economy while hedging against uncertainties in the global marketplace.²⁹ In more direct strategic terms, how China can lean on the structures held in place by the U.S.-led financial system for its present benefit, minimize exposure to risk, and pursue its structural economic objectives. To answer these questions, the MPA framework directly contradicts economic dogma that has been held in place by the U.S.-led system: the policy trilemma, or impossible trinity.

The impossible trinity is a concept in international economics that an economy cannot simultaneously maintain the following three policies: a fixed foreign exchange rate, free capital flows, and an independent monetary policy. In theory, countries choose two of the

aforementioned characteristics but cannot apply all three and maintain economic stability.

For example, an analysis of a country that chooses to have free capital flows and a fixed foreign exchange rate could be useful. According to the impossible trinity, this country has surrendered its ability to conduct independent monetary policy. We see this is true if we consider what would happen if such a country faced inflationary pressures and raised interest rates. An increase in national interest rates would draw investors to purchase

Three types of policy regimes are born from these compromises:

Free float system. If a central bank wishes to have an independent monetary policy and capital flows (as in the United States), then it cannot have a fixed foreign exchange rate.

Monetary standard. The Eurozone is an example of a group of countries that maintain a fixed, single currency and have free capital flows, but each state is beholden to the standardized monetary policy decided upon by the European Central Bank.

Capital controls system. This system attempts to maintain control over the exchange rate and have monetary autonomy. This is the regime type that the PBOC is currently battling by controlling the amount of capital flows into and out of the Chinese economy. China's "double-pillar" framework, comprised of macro-prudential and monetary policy as described by Xi Jinping Thought, is an attempt to maneuver around the "impossible."

China's central

bank has pushed back against this trilemma—typically depicted as an equilateral triangle with equal consideration given to free capital flows, floating exchange rates, and independent policy. Instead, policy strategists at the bank believe that balancing monetary policy making against a "scalene trinity"—placing greater emphasis on cross-border capital flows—would promote greater stability. In other words, China is choosing not to commit to two of the aforementioned factors as a true free-market participant and would rather implement a dynamic policy that observes and reacts to global conditions.³⁰ Concretely,



U.S. Dollar Exchange Rate versus Chinese Offshore Yuan, 2014–2019

the currency because of its higher yielding returns. The increased demand would place appreciation pressures on the fixed currency. Although policy makers could conduct open-market operations or sell foreign exchange reserves to ease this pressure, eventually policy makers would have to give in and allow the currency to appreciate. If they do not, domestic prices would rise, goods would become more expensive relative to the rest of the world, and domestic economic performance would be hampered. When policy makers give way to the pressures created by their independent monetary policy, exchange rate stability will be lost, illustrating the trinity in action.

China weakens its currency to increase the value of the U.S. dollar on the global currency market, relative to the yuan.



The cost to purchase U.S. export goods increases relative to the cheaper cost to purchase Chinese goods.



U.S. export revenues fall, together with associated tax collections, as demand for U.S. goods fall and Chinese revenues increase.



Falling revenues and tax collections weaken the U.S. economy and make it dependent on international borrowing; primary lenders to U.S. are Chinese banks.

it suggests that Chinese policy makers believe that if a country institutes no capital controls (free capital flow), “it could only achieve relatively stable exchange rate and relatively independent monetary policy” because it is impacted by the decision-making of other international players.³¹

China’s MPA framework accounts for this reality, and theoretically, has devised a monetary model that can optimize the amount of capital flows, reacting as needed to global market conditions. Party leadership believes that the “double-pillar” framework enables China’s financial system to liberalize while protecting its domestic economy from shock.

Undoubtedly, if this alternative monetary model were to succeed, the PBOC will have achieved a true operational success. However, the opportunity for success takes advantage of the U.S.-led, rules-based financial system. Unlike the U.S. dollar, the yuan does not currently impact worldwide flows at the systemic level. It is neither a major reserve currency nor considered a global currency. As such, China can engage in this capital controls experimentation with minimal consequences. If unsuccessful, the CCP and the PBOC can reinstate capital flow restrictions and hedge against any detrimental domestic effects. If successful, the

Economic Warfare in a Nutshell

As a condition for admission to the International Monetary Fund and the World Trade Organization, prospective members agree not to artificially manipulate their national currencies in order to gain an unfair trade advantage in world markets. This is a commitment that China has regularly ignored since admission to those organizations. In order to lower the cost of China’s products sold overseas, The Bank of China, which is an appendage of the People’s Liberation Army and government, has periodically weakened the value of its currency artificially as an expedient measure to gain trade advantages. The graphic on page 77 highlights that throughout 2019, in response to U.S. efforts to hold China accountable to past trade agreements as well as force compliance with other agreements such as not providing state sponsorship to industrial espionage, it artificially lowered the value of the yuan (basic Chinese unit of money) to make it equate to more than seven yuan to the U.S. dollar making Chinese products much cheaper in the global market. (Graphic by Arin Burgess, *Military Review*)

Chinese monetary model may offer an alternative for developing countries to follow. This may result in an increase in the yuan's global prominence, bolster China's position in international institutions, and undermine U.S. economic influence among developing countries. The irony is that without the present-day stability that the United States affords, the PBOC would be unable to engage in such experimentation. As described in previous sections, the PBOC does not execute monetary policy as an independent institution. Rather, CCP leadership oversees it to support the party's strategic objectives. In turn, its policies drive to achieve the shift in the international economic order that China has desired since the 1970s.

Inside the Monetary Armory

Domestically, the PBOC aims to manage the growth of the money supply and credit to produce conditions that are conducive to "high-quality economic growth."³² To achieve influence and prosperity through international markets, the PBOC ensures the exchange rate and capital flows promote stability in trade and foreign investment.³³ The bank's website lists the available monetary tools to achieve these objectives. These monetary policy instruments "include reserve requirement ratio, central bank base interest rate, rediscounting, central bank lending, open market operation, and other policy instruments specified by the State Council."³⁴ Some of these are applied more than others, but they all work in concert to target liquidity, credit, and flows in the system.

Reserve requirement ratio. The reserve requirement ratio (RRR) is the least complicated and most blunt instrument available to the bank. This ratio dictates the amount of deposits that banks must hold relative to their loans outstanding.³⁵ Through the money multiplier effect, a lower ratio would expand the state's money supply and a higher ratio would reduce it. If the RRR was lowered, liquidity increases because commercial banks have to hold less money in reserves and can lend this to people or businesses. The CPC and the PBOC may want to encourage more lending to combat slowing growth or to make more money available for state-sponsored projects. The PBOC is able to affect this ratio for all financial institutions or for a targeted group.

China's Belt and Road Initiative (BRI) is an infrastructure project aimed at establishing a new "silk road"

across the Eurasian landmass. According to the Council on Foreign Relations, "the vast collection of development and investment initiatives significantly expand[s] China's economic and political influence."³⁶ The United States and other Asian nations have expressed fear "that the BRI could be a Trojan horse for China-led regional development and military expansion."³⁷ At a minimum, the fundraising and development of these trade routes helps to increase the use of yuan globally.

Unlike the United States, commercial banking in China is dominated by the "Big Four" state-owned banks established during earlier reforms. To finance the BRI, China's SOEs have turned to these state-owned banks for the bulk of their financing.³⁸ This creates the opportunity to deploy banking tools such as the RRR to help finance these strategic projects. If party officials determine that they want to fund more BRI projects, the PBOC policy makers could be directed to lower the RRR to increase the amount of money available, thus enabling the state-owned banks to lend to SOEs to complete BRI-related projects. Since 2018, the RRR has been cut eight times, and the January 2020 cut released \$115 billion into the economy.³⁹

The most infamous BRI project was the Hambantota Port Development Project in Sri Lanka that was financed by China's Export Import Bank, a policy bank subordinated to the State Council. This port is strategically located at the southern end of Sri Lanka with access to the Indian Ocean. Although other lenders refused to fund the project citing financial viability concerns, China was willing to provide the loans necessary to complete it. The project, as expected, was a commercial failure, and Sri Lanka could not make its debt payments. As a result of a negotiated deal, China now owns the port and fifteen thousand acres of surrounding land for the next ninety-nine years.⁴⁰ Currently, Beijing touts additional large development projects in developing countries such as the Maldives and Djibouti, whose outstanding debt owed to China stands at 30 percent and 80 percent of their national GDPs, respectively.⁴¹

Central bank loan prime rate and other lending rates. Starting in August 2019, the PBOC announced the loan prime rate (LPR) formation mechanism "to deepen reform to strengthen the market's role in setting interest rates, raise the efficiency of interest rate transmission and lower financing costs."⁴² This rate is set by state-owned banks, rural banks, and foreign-funded

banks in a manner similar to other interbank rates. Although this may give the appearance of greater market exposure, banks must submit LPR quotations within a few basis points of the medium-term lending facility (MLF), which is set by the PBOC. In reality, the LPR acts as coordinated guidance to lenders, serving as the primary reference for bank loans and a pricing benchmark for floating-rate contracts.

In addition to the LPR, the PBOC affects facility instruments that have an impact on rates system-wide. These forms of central bank lending include the standing lending facility, MLF, and pledged lending facility. The primary difference between them is time-to-maturity. The standing lending facility is meant to meet the temporary liquidity demands of commercial institutions, similar to the Federal Reserve's discount window, with overnight, seven-day, or one-month maturities. The MLF aims to provide base money to commercial or policy banks. These three-month to one-year facilities help adjust medium-term funding costs of financial institutions and in turn the real economy. Finally, the pledged lending facility is a long-term lending instrument that provides large amounts of financing to support key economic areas and prop up laggards.⁴³

Whereas the Federal Reserve interest rate (colloquially, the Fed Rate) is the primary monetary tool in the U.S. armament, this is not the case in China. As just one tool available to the PBOC, adjustments to China's LPR may not connote the same message that an equivalent change in the Fed Rate might. Changes in the Fed Rate may be applied to spur or cool down investment both domestically and internationally. However, because the LPR and other facilities are just one tool available to the PBOC, smaller changes can be made in a more-targeted attempt to encourage small business lending or to affect the exchange rate.

As opposed to the more offensive-minded example in the previous section, rate changes can contribute to an effective defensive economic posture. Consider today's trade tensions. Among the challenges in the U.S.-China trade relationship, one of the most relevant to this discussion is intellectual property theft in key future industries that includes robotics and satellite communications and imagery.⁴⁴ In an effort to effect behavioral change, President Donald Trump's administration implemented tariffs on billions of dollars' worth of Chinese goods during trade negotiations.

Through changes in the LPR and other rates, Beijing can attempt to offset the impact of American tariffs. For example, if the PBOC lowered the LPR, investors would seek higher interest-bearing instruments elsewhere, which would weaken the yuan relative to other currencies. If the yuan is weaker, Chinese goods become relatively cheaper to the outside world, creating favorable conditions for Chinese exporters. Additionally, the PBOC has the ability to offer targeted preferential rates to affected companies to create favorable internal lending conditions for these domestic businesses. In total, the LPR and other facility rates offer a mechanism to evade the tariffs' effects meant to deter China's economic espionage.

Open market operations. Open market operations (OMO) consist of short-term collateralized loans and borrowing. These operations are conducted via repurchase, sometimes called "repo," or reverse repo agreements to adjust reserve money supply. Repurchases are when the PBOC sells short-term bonds, removing liquidity from the market. Reverse repos do the opposite, adding liquidity to the market through the purchase of short-term bonds from commercial banks. Whereas changes to the RRR are considered blunt actions, OMO is more precise and has an impact on a shorter time horizon. Currently, the seven-day reverse repo is the most frequently used in practice. These operations have a direct and immediate impact on the interbank liquidity conditions and are conducted on a near daily basis.⁴⁵

Through the first two months of 2020, the PBOC has conducted reverse repo operations on eleven different dates injecting over \$5.5 trillion worth of yuan into the Chinese economy.⁴⁶ The U.S. Federal Reserve also conducts OMO, but these sales and purchases are directly aimed at maintaining the Fed Rate, which has been set. In China, the LPR and OMO are independent monetary functions. As such, when analyzing PBOC actions, it is necessary to observe changes across the toolkit and consider their net effects. In other words, what may appear to be only a moderate change in one instrument might be coupled with a large change in another, significantly impacting any analysis. OMO tends to be that auxiliary monetary tool that amplifies modest changes elsewhere.

In the past, the PBOC conducted OMO only twice per week. Today, OMO can occur daily.⁴⁷ This

encourages us to ask why the PBOC needs to conduct these more frequently. Some suggestions are related to China's increased capital outflows, market interventions to stabilize the yuan, and consistent attempts to internationalize the currency.⁴⁸ Capital outflows, when domestic Chinese money goes out to foreign markets while inflows are restricted, causes China's money supply to shrink. Similarly, as the PBOC attempts to stabilize the yuan against inflationary pressures, the central bank will sell dollars from its foreign exchange reserves and buy yuan. Again, this action shrinks the money supply. Without compensating action to increase liquidity, credit markets would be impacted, and domestic growth could be stifled. From China's perspective, appropriately managing capital outflows and stabilizing its exchange rates without disrupting the domestic economy is critical to the CCP's long-term objective to increase the yuan's global role. OMO is the most-targeted monetary instrument to accomplish this.

The aforementioned policy tools form the crux of the PBOC's monetary tool kit. The examples illustrate some of the direct impacts that these tools have on financial markets in an effort to undermine or directly strike against the U.S.-led financial order. Predatory lending practices in developing countries undermine the role of Western development banks and grant China access to militarily strategic ports and regions. Currency manipulation enables Beijing to evade consequences of its actions and limits the effectiveness of American economic diplomacy efforts. Market liberalization reforms that take advantage of the opportunities offered by the world's open markets while limiting access to Chinese markets lean on the rules-based system to introduce fractures in the world economy for China's great power benefit.

The derivative effects of simultaneously taking advantage of and undermining free market principles, which helped propel China to the world's second largest economy, must be acknowledged as well. Chinese

sovereign wealth funds, funded by the excess foreign exchange reserves built largely through admittance to the World Trade Organization, act as vehicles to capture access to U.S. technology and intellectual property.⁴⁹ The development and funding of the Asian Infrastructure Investment Bank challenge the World Bank's role in China's near-abroad.⁵⁰ Closer to the U.S. home front, preferential financial terms granted to Chinese "national champions" in the steel industry have incentivized overproduction and have impacted American manufacturing jobs and steel prices.⁵¹ Real estate purchases by wealthy Chinese citizens, totaling over \$30 billion in 2018, have distorted housing prices in many American communities.⁵² Finally, the Chinese Ministry of Education currently funds eighty-six Confucius Institutes at U.S. colleges to "teach Chinese language and promote culture," a critical soft power tool.⁵³

In total, the PBOC's monetary armament has demonstrated the capacity to "weaponize" policy, funding, and economic power across multiple domains. Effectively translating this information into intelligence requires American strategists to look at the sum total of China's economic actions as opposed to evaluating individual policy pursuits. It would be a challenging and foolhardy exercise to analyze PBOC actions in isolation. Further complicating this analysis, the PBOC has historically used multiple monetary instruments to affect single policy objectives. However, context provided by CCP statements, the international financial environment, and regional economic aims may help

Among many economic initiatives, China is developing a Beijing-based cryptocurrency system that it hopes will undermine and replace the current global monetary system that is based on the U.S. dollar. (Graphic elements courtesy of Freepik, www.freepik.com; composite graphic by Arin Burgess, *Military Review*)



transform seemingly innocuous monetary policy action into insights on larger strategic visions.

Strategic Outlook

The international financial system is characterized by economic actors and institutions that facilitate capital flows and global trade. Ostensibly leading and regulating

investment funds are raised in dollars. But if Beijing is successful in making the yuan a global currency through efforts such as the petroyuan, it would offer an even greater economic boost to the world's second-largest economy. Transaction costs for Chinese businesses would be cut, China's economic influence relative to the United States would increase, and Beijing would be

“To preserve America's power, it is strategically necessary for the United States and Federal Reserve to maintain influence over the international financial system.”

this system are institutions such as the International Monetary Fund, the World Bank, and the World Trade Organization. In reality, however, the U.S. Federal Reserve and its monetary policy decisions wield awesome authority in this arena. The U.S. dollar's role as “a key marker in exchange rate regimes and as an essential reserve currency” has elevated the United States' ability to exert its influence and protect its national security interests through financial markets.⁵⁴ Fundamental to the dollar's power is its role and hegemony over oil markets.⁵⁵

After past failed attempts, China successfully launched a crude oil futures contract (colloquially termed the petroyuan). It was introduced on the Shanghai International Energy Exchange in March 2018, and it appears that international traders have been receptive to the instrument.⁵⁶ In Singapore and Dubai, the petroyuan's trading volume has surpassed dollar-denominated oil futures.⁵⁷ For now, this trade volume remains well below Brent and the West Texas Intermediate crude futures, but it does signal traction in China's efforts to compete in dollar-denominated and dominated oil markets.

The natural result of increasingly traded yuan-denominated oil futures is the further internationalization of the yuan and a rising challenge to the dollar-denominated economic order. A more globally traded yuan would give China more control over its economy and the economies in its near-abroad. Today, the dollar's near-hegemonic status allows it to serve as the world's global currency. As such, many of China's exports are priced in U.S. dollar contracts, and its offshore

empowered and better equipped to offer an alternative to the international financial system currently grounded in U.S. and Western rules. To this end, tracking and identifying PBOC monetary policy initiatives that impact capital flows—making the yuan more attractive to investors, growing use in commodity markets, or increasing the amount of trade denominated in yuan—all indicate China's intention to undermine the current financial system over time.

Fortunately, this is not a simple undertaking. For instance, let us examine a scenario where the CCP directs the PBOC to make the yuan more attractive to foreign investors. To accomplish this, the PBOC must decrease the money supply to create an appreciation of the exchange rate. The specific monetary policy tools employed would be a higher reserve requirement ratio or open market repurchases. At first, the currency would become more attractive and appreciate, resulting in a positive capital flow. Then, due to an appreciating currency, exports will become relatively expensive to foreign consumers and could adversely impact the domestic economy, requiring more action to counter these policies. Constant manipulation by the PBOC, however, will have unintended market consequences outside of the CCP's control. Namely, yuan instability in exchange markets will weaken investor confidence. This weakening will subvert the CCP and the PBOC's larger ambitions to internationalize the yuan, despite their intentions to the contrary.

Another factor in the United States' favor is that, for now, the Chinese yuan is not in a position to be a

viable alternative to the dollar. First, the yuan sits sixth among global currency reserves, comprising only about 2 percent of global reserves.⁵⁸ Second, Chinese domestic markets are “not deep or liquid enough to absorb vast global flows.”⁵⁹ In order for the yuan to become a global currency, the PBOC and Chinese system would have to undergo much greater market and governance reforms. At the same time, the United States continues to be considered the world’s strongest economy. Ninety percent of foreign exchange trading involves the dollar, nearly 40 percent of the world’s debt is dollar denominated, and one-third of global GDP is generated by countries with currencies fixed to the dollar.⁶⁰ As such, an effort by the Chinese to use monetary policy to bifurcate the world financial system, one overseen in part by the United States and the other overseen by China, in a single economic assault would be severely limited by the world’s entrenchment in the U.S.-led system. More likely, China will tactically and operationally employ the totality of its monetary armament over a long time period to gradually shift the international economic center of gravity.

Conclusion

To conclude, the battlespace in modern warfare has expanded to the economic domain. In order to preserve America’s power, it is strategically necessary for the United States and the Federal Reserve to maintain influence over the international financial system. Further, as suggested by this article, minding the PBOC’s actions relative to sustaining or undermining the international economic system’s structure may

signal the CCP’s intentions to apply monetary policy for strategic purposes. For the moment, it is likely that America will continue to be in control. Maintaining this in the long term will require forward-leaning action on the international scene. To accomplish this, the United States must be the leading proponent of open markets and fair trade practices, and it must foster existing and new trade relationships. Retracting, or even the appearance of stepping back, from the global marketplace would yield space for alternative leadership to emerge. Military leadership must be ready to define their operations to support these strategic necessities. To be capable of developing operations in these terms, rising and current leaders must be versed in the tenants of economic warfare. PLA commanders have written that the new concept of weapons will cause ordinary people and military men alike to be greatly astonished at the fact that commonplace things that are close to them can also become weapons with which to engage in war. They believe that some morning people will awake to discover with surprise that quite a few gentle and kind things have begun to have offensive and lethal characteristics.⁶¹

If states in the global market believe that America is no longer providing economic leadership, the same structures that have established and financed America’s power may be weaponized against it. Next December’s Central Economic Work Conference could be used by the CCP and the PBOC to plan and cultivate the economic relationships to launch and sustain an alternative financial channel. Without a shot fired, America could wake up to a system that is corrosive to its economic, social, and political way of life. ■

Notes

1. Department of Defense, *Summary of the 2018 National Defense Strategy of the United States of America: Sharpening the American Military’s Competitive Edge* (Washington, DC: U.S. Government Publishing Office, 2018), 4.

2. Qiao Liang and Wang Xiangsui, *Unrestricted Warfare: China’s Master Plan to Destroy America* (Beijing: PLA Literature and Arts Publishing House, 1999), 206.

3. Michael McMahon, Alfred Schipke, and Xiang Li, “China’s Monetary Policy Communication: Frameworks, Impact, and Recommendations,” Working Paper No. 18/244 (Washington, DC: International Monetary Fund Asia and Pacific Department, 16 November 2018), 3.

4. *Bank of China Annual Report 2017* (Beijing: The People’s Bank of China [PBOC], 29 March 2018), 28.

5. Valery Gerasimov, “The Value of Science Is in Foresight: New Challenges Require Rethinking the Forms and Methods of Warfare,” *Voenno-Promyshlennyy Kurier* (Military-industrial courier), 27 February 2013.

6. Anastasia Sviridova, “Vectors of the Development of Military Strategy,” *Красная Звезда* [Red star], 4 March 2019, accessed 24 March 2020, <http://redstar.ru/vektory-razvitiya-voennoj-strategii/>.

7. Liang and Xiangsui, *Unrestricted Warfare*, 16.

8. *Ibid.*, 23.

9. *Ibid.*, 25.

10. Harry Harding, *A Fragile Relationship: The United States and China since 1972* (Washington, DC: Brookings Institution, 1992), 338.

11. Reuters, “China Says AIB Will Have Better Understanding of Developing World’s Needs Than Other International

Development Banks," *South China Morning Post* (website), 20 July 2018, accessed 24 March 2020, <https://www.scmp.com/news/china/policies-politics/article/1981780/china-says-aiib-will-have-better-understanding>. When discussing the AIIB, Finance Minister Lou Jiwei's statements position the Asian Infrastructure Investment Bank (AIIB) as a competitor to other multilateral banks. For example, he has stated that "compared with the Asian Development Bank, World Bank and other multilateral development banks, the AIIB's advantage lies in its keener understanding of the successful experience and lessons of developing countries' years of development." Further, he challenges the West's development expertise stating, "I will not agree to anything which could be considered international best practice unless this kind best practice incorporates the development experience of China and many countries in Asia and elsewhere over the last three or four decades."

12. Law of the People's Republic of China on the People's Bank of China (promulgated by the National People's Congress, 31 October 2006, effective 1 January 2007), chap. 1, art. 2.

13. *Ibid.*, chap. 1, art. 2 and 3.

14. Gregory T. Chin, "Understanding Currency Policy and Central Banking in China," *Journal of Asian Studies* 72, no. 3 (August 2013): 527, <https://doi.org/10.1017/S002191181300051X>. By contrast, the U.S. Federal Reserve decisions need not be approved by any political body.

15. Victor C. Shih, *Factions and Finance in China: Elite Conflict and Inflation* (New York: Cambridge University Press, 2008), 30–45.

16. Chin, "Understanding Currency Policy and Central Banking in China," 527.

17. Shih, *Factions and Finance in China*, 37.

18. *Ibid.*, 33.

19. *Ibid.*, 36. These inflationary pressures were caused by "relending" practices. Relending was the result of political pressures at the central and local levels. Relending was simply a longer-term loan from the central or local branches of the PBOC to commercial banks to inject the liquidity necessary to meet reserve requirements. This practice was made worse by the multilevel nature of the political pressure. Political reactions at the local level typically originated from central political pressure. As a result, both local and central PBOC branches were relending, rapidly expanding the monetary base.

20. Sarah Chan, "Understanding China's Monetary Policy: An Institutional Perspective," *Post-Communist Economies* 31, no. 1 (2019): 3–4, <https://doi.org/10.1080/14631377.2018.1505695>.

21. Law of the People's Republic of China on the People's Bank of China, chap. 1, art. 5.

22. *Bank of China Annual Report 2017*, 25.

23. Yiping Huang and Tingting Ge, "Assessing China's Financial Reform: Changing Roles of the Repressive Financial Policies," *Cato Institute*, 5 March 2019, accessed 24 March 2020, <https://www.cato.org/cato-journal/winter-2019/assessing-chinas-financial-reform-changing-roles-repressive-financial>.

24. Shih, *Factions and Finance in China*, 32.

25. Chin, "Understanding Currency Policy and Central Banking in China," 528. Development goals may include "objectives such as regional and sectoral redistribution, rapid growth, industrial modernization, and employment creation."

26. Xiang Bo, "Backgrounder: Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era," *Xinhua News*, 17 March 2018, accessed 3 April 2020, http://www.xinhuanet.com/english/2018-03/17/c_137046261.htm.

27. Liansheng Zheng, "The Macro Prudential Assessment Framework of China: Background, Evaluation and Current and Future

Policy," CIGI Paper No. 164 (Waterloo, Canada: Centre for International Governance Innovation [CIGI], 7 March 2018), 1, accessed 24 March 2020, https://www.cigionline.org/sites/default/files/documents/Paper%20no164web_0.pdf.

28. *Bank of China Annual Report 2017*, 28.

29. *Ibid.*, 1. Chinese officials frame this as competing demands "for international regulation cooperation and the domestic demand to deal with potential systemic risks."

30. Guofeng Sun and Wenzhe Li, "Monetary Policy, Exchange Rate and Capital Flow—From 'Equilateral Triangle' to 'Scalene Triangle,'" *The People's Bank of China Working Paper Series No. 2017/3* (30 March 2017), 2–3, <https://dx.doi.org/10.2139/ssrn.2949307>. These insights were inspired by the 2008 global financial crisis and quantitative easing regimes that took root in response.

31. *Ibid.*, 3–4.

32. "Financial Sector to Adhere to Serving the Real Economy for the Accomplishment of Economic and Social Development Goals," *The People's Bank of China press release*, last updated 20 March 2020, accessed 24 March 2020, <http://www.pbc.gov.cn/en/3688110/3688172/3982741/index.html>.

33. *Ibid.*

34. "Monetary Policy Instruments," *The People's Bank of China*, accessed 24 March 2020, <http://www.pbc.gov.cn/english/130727/130870/index.html>.

35. Yen Nee Lee, "China's Monetary Policy Is Complex and Shifting. Here's What You Need to Know," *CNBC*, last updated 7 October 2018, accessed 24 March 2020, <https://www.cnbc.com/2018/08/06/china-monetary-policy-how-pboc-controls-money-supply-interest-rate.html>.

36. Andrew Chatzky and James McBride, "China's Massive Belt and Road Initiative," *Council on Foreign Relations*, last updated 28 January 2020, accessed 24 March 2020, <https://www.cfr.org/backgrounders/chinas-massive-belt-and-road-initiative>.

37. *Ibid.*

38. "Financing and Funding for the Belt & Road Initiative," *Belt and Road News*, 17 May 2019, accessed 24 March 2020, <https://www.beltandroad.news/2019/05/17/financing-and-funding-for-the-belt-road-initiative/>.

39. A. Dreher et al., "Aid, China, and Growth: Evidence from a New Global Development Finance Dataset," *AidData Working Paper #46* (Williamsburg, VA: AidData, 2017), accessed 24 March 2020, <https://china.aiddata.org/projects/33256>.

40. Maria Abi-habib, "How China Got Sri Lanka to Cough up a Port," *The New York Times* (website), 25 June 2018, accessed 24 March 2020, <https://www.nytimes.com/2018/06/25/world/asia/china-sri-lanka-port.html>.

41. "China Building 'International Network of Coercion through Predatory Economics': US," *Economic Times*, last updated 9 May 2019, accessed 24 March 2020, <https://economictimes.indiatimes.com/news/international/business/china-building-international-network-of-coercion-through-predatory-economics-us/article-show/69257396.cms>.

42. "Announcement of the People's Bank of China No. 15 [2019]," *The People's Bank of China*, accessed 24 March 2020, <http://www.pbc.gov.cn/en/3688229/3688335/3730276/3877490/index.html>.

43. Lee, "China's Monetary Policy Is Complex and Shifting."

44. "How China's Economic Aggression Threatens the Technologies and Intellectual Property of the United States and the World" *White House Office of Trade and Manufacturing Policy* (Washington, DC: The White House, June 2018), 2, accessed 24 March

2020, <https://www.whitehouse.gov/wp-content/uploads/2018/06/FINAL-China-Technology-Report-6.18.18-PDF.pdf>.

45. Lee, "China's Monetary Policy Is Complex and Shifting."

46. Author's calculations based on "Open Market Operations," The People's Bank of China, accessed 24 March 2020, <http://www.pbc.gov.cn/en/3688229/3688335/3730267/e8e68c6c/index1.html>.

47. Gabriel Wildau, "Q&A: The People's Bank of China's Open Market Operations," *Financial Times* (website), 18 February 2016, accessed 24 March 2020, <https://www.ft.com/content/d56a1a6c-d635-11e5-969e-9d801cf5e15b> (subscription required).

48. Ibid.

49. "How China's Economic Aggression Threatens the Technologies and Intellectual Property of the United States and the World," 18–19.

50. Reuters, "China Says AIIB Will Have Better Understanding of Developing World's Needs than Other International Development Banks."

51. "How China's Economic Aggression Threatens the Technologies and Intellectual Property of the United States and the World," 1.

52. Jacob Passy, "The Chinese Purchase More U.S. Residential Real Estate than Buyers from Any Other Foreign Country, but Trump's Trade War May Change That," *MarketWatch*, 16 May 2019, accessed 24 March 2020, <https://www.marketwatch.com/story/chinese-investors-buy-more-us-residential-real-estate-than-any-other-country-but-trumps-trade-war-could-soon-end-that-2019-05-15>.

53. "About Confucius Institutes," Confucius Institute Headquarters (Hanban), accessed 24 March 2020, http://english.hanban.org/node_7716.htm; "How Many Confucius Institutes Are in the United States?," National Association of Scholars, 9 April 2018, accessed 24 March 2020, https://www.nas.org/blogs/article/how_many_confucius_institutes_are_in_the_united_states; Larry Diamond and Orville Schell, eds., *China's Influence and American Interests: Promoting Constructive Vigilance*, rev. ed. (Stanford, CA: Hoover Institution Press, 29 November 2018), accessed 24 March 2020, <https://www.hoover.org/research/chinas-influence-american-interests-promoting-constructive-vigilance>.

54. Sara Hsu, "The Almighty Dollar: Is US Dominance In the Oil Trade Waning as China Begins Using RMB for Payment?," *Forbes*

(website), 5 April 2018, accessed 24 March 2020, <https://www.forbes.com/sites/sarahhsu/2018/04/05/the-almighty-dollar-is-us-dominance-in-the-oil-trade-waning-as-china-begins-using-rmb-for-payment/#37fbd030bc87>.

55. John A. Mathews and Mark Selden, "China: The Emergence of the Petroyuan and the Challenge to US Dollar Hegemony," *The Asia-Pacific Journal* 16, no. 3 (2018): 1–12, accessed 24 March 2020, <https://apjif.org/-Mark-Selden--John-A--Mathews/5218/article.pdf>.

56. Daniel Ren, "China's First Crude Oil Futures Contract to Start Trading March 26," *South China Morning Post* (website), 9 February 2018, <https://www.scmp.com/business/commodities/article/2132765/chinas-long-heralded-crude-oil-futures-contract-start-trading>.

57. John A. Mathews, "The Rise of China's Petroyuan: From Oil Futures to the World," *South China Morning Post* (website), 4 December 2018, accessed 24 March 2020, <https://www.scmp.com/comment/article/2176256/chinas-petroyuan-going-global-and-gunning-us-dollar>.

58. Karen Yeung, "China Yuan Gains as Reserve Asset but Still Well behind US Dollar," *South China Morning Post* (website), 2 October 2018, accessed 24 March 2020, <https://www.scmp.com/business/money/wealth/article/2166652/chinas-yuan-more-popular-reserve-currency-despite-trade-war>.

59. Christopher Smart, "The Future of the Dollar and Its Role in Financial Diplomacy," Carnegie Endowment for International Peace, 16 December 2018, accessed 24 March 2020, <https://carnegieendowment.org/2018/12/16/future-of-dollar-and-its-role-in-financial-diplomacy-pub-77986>; Hsu, "The Almighty Dollar." For comparison, the euro—the second-largest held reserve currency—comprises 20 percent and the yen is 4.5 percent. These percentages matter because it reflects the amount of liquidity that exists in these markets. It should also be noted that although China's currency makes up a small percentage, its share has rapidly grown.

60. Kimberly Amadeo, "Why the U.S. Dollar Is the Global Currency," *The Balance*, last updated 13 December 2019, accessed 24 March 2020, <https://www.thebalance.com/world-currency-3305931>; Hsu, "The Almighty Dollar."

61. Liang and Xiangsui, *Unrestricted Warfare*, 26.

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The National Liberation Army (ELN), Early 2020

Lt. Col. Geoff Demarest, JD, PhD, U.S. Army, Retired

The *Ejército de Liberación Nacional* (National Liberation Army, or ELN) is one of the most prominent and virulent guerrilla force structures in northern South America. The ELN is in ascendance, but it should not be analyzed as though it were an independent entity. Instead, it should be considered as one of the armed units, on par with the *Fuerzas Armadas Revolucionarias de Colombia* (Revolutionary Armed Forces of Colombia, or FARC),

within the greater Bolivarian hierarchy. While the ELN's subunits and lesser associates exercise some autonomy of action, the ELN as a cohesive identity is subordinate strategically to the *Partido Comunista de Cuba* (Communist Party of Cuba, or PCC) and to the *Partido Socialista Unido de Venezuela* (United Socialist Party of Venezuela, or PSUV). The PSUV, in any case, is a subordinate sister of the PCC, which is the apex geopolitical organization.¹



Members of the Ernesto Che Guevara Front, belonging to the *Ejército de Liberación Nacional* (National Liberation Army, or ELN) guerrillas, shoot 26 May 2019 during a training exercise in the Chocó jungle, Colombia. The ELN is Colombia's last rebel army and one of the oldest guerrilla groups in Latin America. (Photo by Raul Arboleada, Agence France-Presse)

The ELN is currently the go-to Bolivarian assault force that has been and will increasingly be used to attack targets within Colombian territory. These attacks are part of a multiform war waged by the PCC and the PSUV to gain control over most of northern South America. The PCC has effectively consolidated strategic control over Venezuelan geography, at least in terms of international interference with that control. The principal theater of war is now Colombia. The Bolivarian military operational modus operandi appears to be to raid into Colombia with the ELN's light infantry forces while using the more highly capitalized forces (such as antiaircraft missile batteries) of Venezuela's *Fuerza Armada Nacional Bolivariana* (Bolivarian Armed Forces, or FANB) to provide the ELN's withdrawing subunits sanctuary inside Venezuela. The intermediate geographic objective

of the military portion of the strategy is the lines of communication (smuggling routes) from and through Colombia.² Securing these lines against effective interference and interdiction assures a major stream of income and financial sustainability. An emerging tactical concern is the possible use of armed aerial drones by the FARC or ELN against targets inside Colombia.

The Relationships

Members of the ELN recently celebrated the guerilla organization's fifty-fifth anniversary.³ The Colombian army had all but wiped the ELN out in the 1970s; in 1978, the strength of the ELN



was said to be little more than thirty *compañeros* divided in two locations in Colombia.⁴ It survived on a thread, however, and today is prospering as a dominant armed force in a region crisscrossed by an array of other iniquitous outlaw groups.⁵ At its inception, the ELN was “implanted” into Colombia through Cuban effort as an extension of the Cuban revolution.⁶ It does not appear that the link between the ELN and the Cuban communist revolutionary vanguard was lost. Today, the ELN headquarters is effectively in Havana.⁷ Meanwhile, Colombia’s other major communist guerrilla organization, the FARC, which entered into a peace agreement with the Colombian government in 2016, appears to have never really abandoned its military cadre or intentions.⁸ In step with the ELN, the FARC now has a more clearly subordinate relationship to the Bolivarian hierarchy.⁹ Not surprisingly, given the greater influence of the PCC and PSUV over senior leaders of the two Colombian groups, relations today between the FARC and the ELN subunits are marked less by confrontation and more by collaboration as sister units under the Bolivarian coordinating umbrella.¹⁰

A recent military intelligence report confirms that the processes of alliance between the FARC and the ELN have arrived at unheard of levels. ... At this time an agreement exists among members of the so called dissident groups of the FARC, or armed wing of the FARC, and the guerrilla of the ELN, in order to try and begin to hit politically and militarily, the Caquetá, Putumayo, and Guaviare regions.¹¹

Theirs is not just an alliance but an alliance within a larger movement and common strategic project.¹²

General Navarro said, “There are more or less some 1,000 men in arms and terrorist support networks that are found in the border states of Venezuela with Colombia,” and also assured that, “the connivance and complicity

of the Venezuelan [National] Guard is total and absolute, and I’m not saying it, the inhabitants and authorities of the local zones are saying it, and this is totally confirmed.”¹³

The relationship between the ELN and regular formations of the Bolivarian armed forces of Venezuela is concordant.¹⁴ In mid-2019, a major article was published in Colombia’s *Semana* magazine to this effect.¹⁵ A follow-up interview published by the newspaper *El Tiempo* states the following:

Interviewer María Isabel Rueda:

General Navarro, although we all knew that Venezuela protected guerrillas of the FARC and ELN, this is the first time that we are presented documents with the proof, like what *Semana* magazine just did in its last issue. Do those orders surprise you, or are the nothing new for you?

Colombian Armed Forces

Commander, General Luis

Fernando Navarro: We ourselves, since the government of Hugo Chávez, have been familiar with this type of information. The Colombian guerrilla has considered Venezuela its rearguard area. But in this new stage, when the FARC is in the peace process with the Colombian State and is now demobilizing, turning in weapons, there remains a group of residuals that park themselves in Venezuela, where they begin an important growth and development while protected in that territory. [President Nicolás] Maduro said it in the framework of the Forum of Sao Paulo: “Welcome ‘Santrich’ and welcome ‘Márquez.’” But, obviously, they have been there since long ago. “Iván Márquez has hailed from Venezuela since the year 2004, 2005.”¹⁶

Like the FARC, the ELN for a long time has been given sanctuary in Venezuelan and Cuban territory by the Bolivarian parties. It seems now, however, that hushed impunity has evolved through occasioned





In 2017, National Liberation Army (ELN) leaders Pablo Beltrán, Antonio García, and Nicolás Rodríguez meet with demobilized Revolutionary Armed Forces of Colombia (FARC) leader Timoleón Jiménez in Havana. (Photo by Juvenal Balán via Resolver, www.resolver.se)

cooperation to open incorporation into the overall Bolivarian project.¹⁷

The Physical Geography

The geographic prizes and physical centers of gravity of the region's organized armed competition are the systems of smuggling corridors, routes, and *trochas* (border-crossing alleys). Colombian export products vary over time, and their markets evolve, but the geography of the clandestine movement of things—smuggling—is generally more stable. The specific locations within that geography change somewhat in accordance with the intensity of violent competition for the routes and for the most valuable nodes thereon. While lesser criminal gangs may have to satisfy themselves with localized cultivation, extraction, processing, theft of valuables, or the direct action of kidnapping, the more dominant armed organizations can specialize as toll road operators and wholesalers. Heightened THC content marijuana is a recent example.¹⁸ The genetically modified strain called “creepy marijuana” is a desirable hybrid that requires some technically sophisticated greenhouse cultivation, which means that the smuggling begins

at specific growth locations. A distinct or fixed route protection may be needed near the new sources, but routes through and out of the country for the new product will be the same as for heroin, cocaine, or any of a number of other established commodities. In relationship to these routes, the ELN logically benefits to the extent it maintains comparative advantages in mobility, firepower (in correlations of force on contact), extent of historical presence, leadership experience, and transnational alliances. It can afford to avoid upstream management problems of illicit activities (e.g., ecological damage of illegal mining activities), which facilitate legal impunity for some of its leaders, even while such impunity has become a national political issue.¹⁹

A measure of success regarding these smuggling routes is their relevant commodity flow. According to the U.S. Drug Enforcement Agency, Colombia's export-quality cocaine production more than tripled between 2012 and 2017, and more than 90 percent of the supply of cocaine in the United States is of Colombian origin.²⁰

While smuggling routes are a main prize, there is great value in controlling commodity source areas, as

that leads to territorial political control. Such territorial control is also harder to accomplish, especially where more locally knowledgeable and family-connected gangs contest control. InSight Crime, a non-profit journalism and investigative organization, has done considerable work monitoring lawlessness within Colombia, which has necessarily included an occasional focus on the ELN. A well-presented interactive map (see static version on page 91) on InSight Crime's Colombian Organized Crime Observatory webpage displays an estimate of the geographic extents within Colombia of the ELN, the FARC, "mafias," and coca cultivation concentration areas circa 2017.²¹ The map suggests by geographic proximity that the ELN and FARC are for the most part separated according to who dominates what geographic territory within Colombia; the ELN is mostly in the north along the border with Venezuela, across the northern corridor and in the Pacific region, especially in the Chocó Department. (Colombian departments are similar to states.) It appears to have a growing influence in the southwest, including in the long-conflictive Cauca and Putumayo Departments.²² However, the ELN is in a few places as the only outlaw force, especially in the Catatumbo border area in northeastern Colombia, where the ELN maintains valuable cocaine infrastructure.²³ According to Luis Alberto Acevedo, the secretary of government of Norte de Santander Department, "All the illegal groups converge here, all

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of them are in opposition in the Catatumbo zone."²⁴ In the Pacific region, the ELN is facing mortal competition from the Gulf Clan, an organization that derives considerable strength from legacy parts of the dismantled *autodefensas*, a paramilitary drug trafficking group, birthed in that region decades ago.²⁵

Also from InSight Crime, in an article by Juan Bautista Díaz, a map displays

in general terms the geographic presence of the ELN inside Venezuelan territory.²⁶ The ELN leaders, perhaps coaxed by their Bolivarian overlords, have not limited themselves to route rents and extortions, or "organizing" peasant farmers and artisanal miners.²⁷ Over the past couple of years, their role within the Bolivarian scheme has evidently expanded along with the geographic depth of their units' presence inside Venezuelan territory.²⁸ It appears they have also been used as organizational disciplinarians in some of the illicit extraction activities, a function that the Bolivarians perhaps feel unsuitable for regular units of the FANB.²⁹

The Kind of War

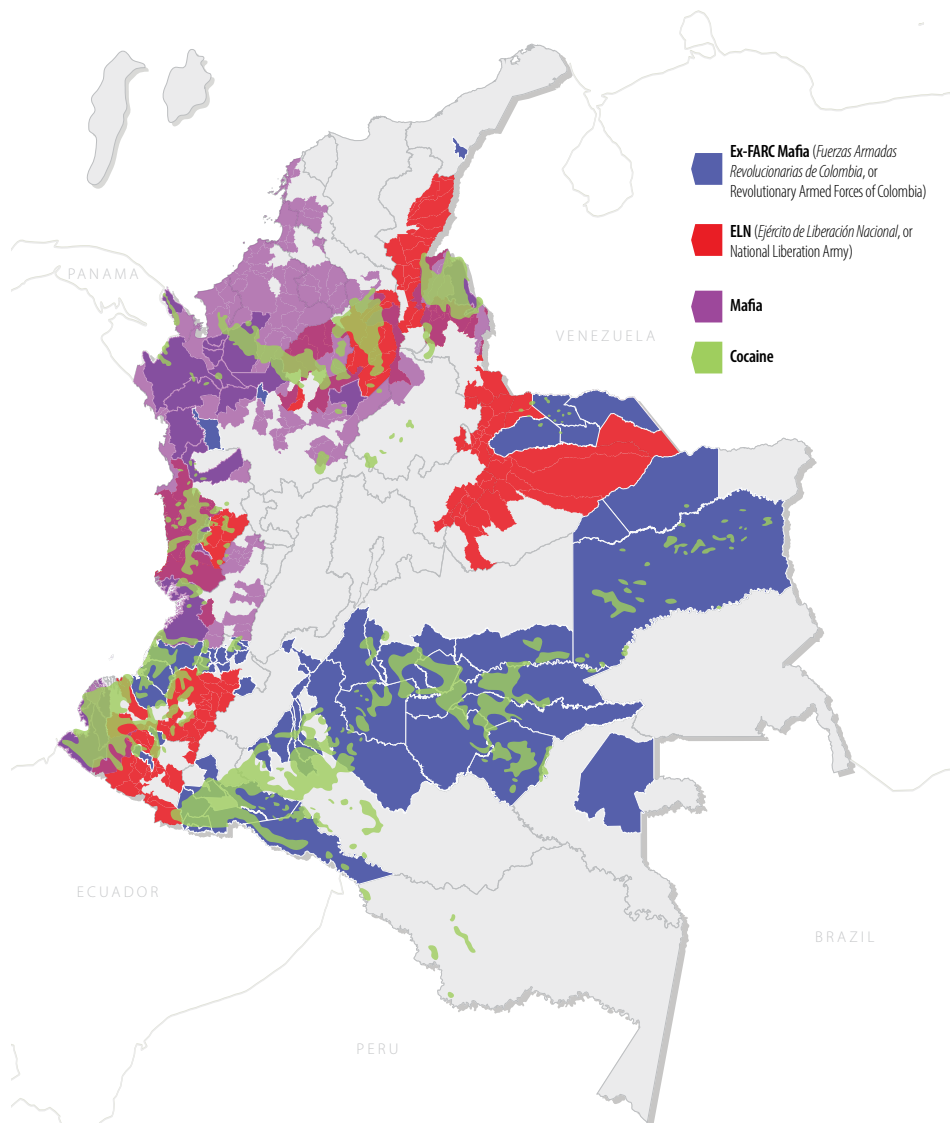
A 2002 anthology produced by American military scholars at Fort Leavenworth, Kansas, titled *Compound Warfare: That Fatal Knot*, proffered the term "compound warfare," or "the simultaneous use of a regular or main force and an irregular or guerrilla force against an enemy."³⁰ The book makes a sweep of several historical cases from the Napoleonic War through Vietnam, then to the Russian experience in Afghanistan. The upshot is expressed clearly by Professor Robert Baumann: "A guerrilla campaign waged without the benefit of conventional support or geographical sanctuary can be defeated by a power possessing superior resources and sufficient resolve to use them."³¹ The statement is surrounded by a tacit corollary that a geographical sanctuary, a rebalancing of resources, or insufficient resolve might upend the assertion. Professor Thomas Huber makes a more detailed description of the form as follows:

Historically, two conditions occurring together seem usually to guarantee main-force invulnerability: safe haven and a major-power ally. If the CW [compound warfare] operator has a safe haven where his regular force can shelter, and a major ally that is at least a peer of his major-power adversary, then in theory the CW operator can keep his regular force in being indefinitely. The main force can thus also protect and nourish the CW operator's guerrilla force in a similar fashion.

Almost always the major power adversary, faced with these simultaneous pressures indefinitely, sees his campaign to be futile

or too costly and eventually abandons it. In other words, the adversary is defeated. Fortified compound warfare in its original formulation thus features four elements that sustain a minor power conducting an FCW [fortified compound warfare] defense: (1) a regular or main force, (2) an irregular or guerrilla force, (3) a safe haven for the regular force, and (4) a major-power ally. (The most advantageous position in an FCW situation is that of the major-power ally of the minor-power FCW operator. The major-power ally enjoys extravagant leverage on his strategic rival at little cost to himself.) Fortification makes the difference between compound warfare, which is difficult to defeat, and fortified compound warfare, which is nearly impossible to defeat.³²

“Compound warfare” is a useful descriptor in addressing the Colombian military challenge, at least at the operational level along the border, in that it highlights the use of conventional units to shield guerrilla units from intervention by an adversary’s conventional units. That is to say, the PCC and the PSUV can deploy conventional units with sophisticated weaponry to provide a level of protection for ELN and FARC units from interdiction by



(Map courtesy of InSight Crime, Colombian Organized Crime Observatory, Universidad del Rosario, <https://insightcrime.org/indepth/observatory-rosario/>)

Presence of Criminal Actors and Economies of Colombia, 2017

Colombian forces, especially aerial forces. The ELN makes raids into Colombian territory and then, as necessary, withdraws back across the border to enjoy the protection of Bolivarian air defense and other formations.³³ Still, the term compound warfare also might limit understanding in that, as in the case of the Bolivarian posture toward Colombia, the prosecutors of the war are not simply applying two dimensions—conventional and guerrilla—but an entire

array of means that support one another.

Eduardo Mackenzie is a scholar and journalist based in Paris. He is probably the world's foremost scholar on the history of the FARC and is perhaps the best informed, clearest thinking, and most prolific writer among those who address conflict in northern South America. A comment he published on 20 September 2019 was inspired by the drone attacks against the oil fields in Saudi Arabia of the month prior, as well as by the return-to-war announcement of FARC leaders at the beginning of the same month. Mackenzie notes that several top leaders of the FARC had announced from Venezuela that they “are ready to continue attacking Colombia by all methods in order to build a ‘Bolivarian’ regime. To do that, they say they are going to employ a ‘new operational method’ of armed struggle.”³⁴ Mackenzie speculates the FARC leaders might only have been referring to the

installation of clandestine cells in all spheres of the Colombian State and of the society. It could be that (the pseudo party lead by aka Timochenko is the embryo of that



(Map courtesy of InSight Crime, 2018, <https://www.insightcrime.org/investigations/colombia-venezuela-criminal-siamese-twins/>)

Presence of Armed Groups on the Colombia-Venezuela Border

operation), and it could be something worse: a new type of war of attrition in which they will have a new type of weaponry at their disposition including armed drones and medium-range missiles.³⁵

There is evidence that the FARC (at least) has been toying with drones.³⁶ Although the recent reportage suggests that the use of drones by the guerrillas is a new phenomenon, that assertion is not entirely correct; it is more of an evolved desire. In 2002, the FARC conducted an indirect fire attack on the inauguration of President Alvaro Uribe.³⁷ These were rockets and not drones, but radio-controlled model airplanes, one loaded with explosives, were later found in at least one guerrilla encampment.³⁸

The war is best described as a multiform war, recognizing the combination of all means of struggle. To use “proxy war” suggests that somehow the ELN is a proxy of Venezuela’s Maduro regime or of the Cuban government, or perhaps Cubans or Venezuelans are proxies of China, Russia, or Iran. All of that may be true, but it is simultaneously misleading. Leaders of the Communist Party of Cuba have long dominated regional strategy in the long, irregular war. Various actors, including the PSUV and other political parties, the ELN, FARC, ex-regional governments, several international organizations, lesser drug cartels, local *colectivo* (paramilitary) gangs, and other organizational identities, each wields some power to influence the others. One could reasonably assert that several of these groups are proxies of other of the groups.

Strategic Narrative

A key element of strategy in irregular war is control of the basic grammar (both vocabulary and organizational theory) for analysis and diplomacy. The Bolivarian apparatus employs what we might call grammatical camouflage, and it does so today on the back of years of preparation of the public narrative. It has never gone unnoticed.

Intimidation is a hallmark tactical *modus operandi* in lawless areas, and the ELN certainly exercises the form.³⁹ On the strategic scale as well, the ELN protection racket has a record of success. As I wrote in a 2002 *Military Review* article,

By 2001, Pastrana [then Colombian President Andrés Pastrana Arango] was pressing for a [zone similar to that granted to the FARC] for the smaller ELN. The area chosen lies along the middle reaches of the Magdalena River. Aside from dominating the most strategically important

line of communication in the country, the proposed zone includes a major coca crop concentration as well as oil industry infrastructure. The *Semana* interviewer questions Pastrana about ongoing negotiations with local residents who were opposed to the proposed accord. The interviewer asks, “And if there is no agreement, are you going to continue with the clearance zone in that area?” The frank answer is troublesome, its logic perhaps the first public expression, beyond reciting abstractions, of the president’s reasoning: “The country needs to understand that the ELN is prepared to make peace, but if it doesn’t happen, it is prepared to make war. And it has a great terrorist capability.” [“My only priority is not peace,” *Semana* interview with President Andres Pastrana, 26 February 2001] In a nutshell, a president is stating that his country must understand that if he does not give an armed outlaw group strategically important land the group will hurt the country. To avoid violent harm, the president advises the country that it must yield its wealth and accept strategic risk.⁴⁰

How did Colombia arrive at a point where its president would make an unvarnished plea in favor of appeasement to a violent band? Part of the reason was the preparation of the logic of and justification for criminality. A few years prior, Professor Mauricio Rubio brilliantly and completely described the semantic deception in a book titled *Crime and Impunity*. Kidnapping was and is a scourge in Colombia. It is the basic protection racket and as fundamental a crime as murder and rape. Loved ones of the taken are told that for a fee, the captors will keep the hostage safe. It would seem there is no way to justify kidnapping, but in Colombia the communist left found a logical fallacy that could be effective when repeated enough. They would distinguish kidnapping from “retention” and give retention a political pass:

The practitioners of this activity [kidnapping] have suggested, in perfect concordance with the theories’ script, how to differentiate between kidnapping and “retention for economic ends” the fact that on

the first a personal interest is satisfied while the second responds to collective interests. There exists a difference between kidnapping and retention that is essential to specify: kidnapping is an act, criminal, conducted by common delinquency that has as its end the personal interest of whoever

struggle, not have a legal political party, and not enjoy impunity turned into immunity (as many FARC leaders currently enjoy as a result of their negotiation round). Leaders of the ELN are not likely to gain added impunity through negotiations with the Colombian government. Their sponsors for impunity are all the more likely to be Cuban and Venezuelan.

“Beating the ELN on the battlefield, tactically, means beating them as often as possible in contacts, but at the operational level, it has to mean cutting off their lines of communication.”

commits the infraction; retention is fundamentally a political act, whose ultimate purpose is determined by objectives of collective welfare, in the framework of an historic project of social transformation led by a revolutionary organization.⁴¹

This is where we find Colombia in its public discourse today as to all manner of crimes including environmental depredation, massacres, and drug trafficking. The far left has convinced enough people that in the name of what is essentially the Cuban revolution, all things are politically forgivable. In that narrative context, horrors in Colombian territory are given a pass but only if committed by a revolutionary organization.

In a June 2019 article titled “Crimes without Punishment,” Javier Ignacio Mayorca launches discussion from the deep corruption of the Venezuelan national oil company to the impunity enjoyed by illegal armed groups generally. His summary of the public’s consternation and complaint about this condition also defines the strategic challenge in a nutshell: “They get away with it.”⁴²

In mid-August 2019, FARC leaders stated they were taking at least part of the FARC back to war.⁴³ For the ELN, this has evidently had the effect of more deeply burying the prospect of some sort of negotiation between the government of Colombia and its own leadership.⁴⁴ We would suppose that the ELN is not going to enjoy the same breadth in its forms of

Prospects

For reasons of historical, geographical, and cultural reach, and due to an intense and complex relationship, Venezuela finds itself deeply involved in the Colombian internal conflict. Both countries are currently going through critical circumstances in their divergent systems, derived in the case of Colombia from the relapse of its armed conflict and of the fight against drug trafficking, and in the case of Venezuela in its collapse of governability, result of the uncompleted political-institutional transition and the rethinking of civil-military relations.⁴⁵

The above comment, though vague, appears to be a reasonable description of conditions today, but it is from the 2003 book *The Colombian Conflict and Its Impact in the Andean Countries*. Accepting for argument that the scholar’s comment was accurate at the time, it seems that things have not changed much in a decade and a half. Still, the idea that there is a “collapse” of governability would not fit well. The Bolivarian regime is solidified, stable, and facing no viable threat. It may not be governing gently, generously, or competently, but as a state, it is not collapsing. Hopes of a civil-military crisis leading to a coup were probably formed in misrecognition of the effective difference between uniformed and nonuniformed leaders within the Bolivarian system. Also dubious is the idea that Colombia has an internal conflict in which Venezuela is interested. A more durable and useful description is that in 2003 (and in increasing

increments since), the conflict is transnational, with its lines of communication stretching across numerous countries in the circum-Caribbean. Bolivarian political organs now in control of national-level assets and structures inside Venezuela (led by the Communist Party of Cuba with the obedient aid of the United Socialist Party of Venezuela) have been prosecuting a war against or in defiance of the Colombian national government. The war in Colombia is as international as it is internal and has been for some time. The lines of communication lead to and from the points of engagement inside Colombia. The reason is not a puzzle: Colombia is the geographic and geopolitical objective.

As the *Wall Street Journal* editorial board opined recently,

It's doubtful there was ever a FARC commitment to peace. A better read is that the guerrillas took a deal that included amnesty and 10 unelected seats in Congress, but that they had no intention of giving up the lucrative cocaine business or their dream of bringing down Colombia's democracy.⁴⁶

Even that blunt comment seems cloudy upon analysis of its assumptions. The FARC may indeed have been committed to peace but only peace as defined by them—a definition in which they are politically dominant. The ELN, meanwhile, has always been the more ideologically intransigent of the two, and it has been more connected to the PCC.

Conclusion

The consequence for the future of regional geopolitics was matter-of-factly stated September 2019

by a leader of the Venezuelan opposition party Vente Venezuela: “The region is at risk that Maduro’s criminal State expands.”⁴⁷ That is the perspective of someone looking from inside Venezuela. From Colombia, the problem must be more daunting still. Beating the ELN on the battlefield, tactically, means beating them as often as possible in contacts, but at the operational level, it has to mean cutting off their lines of communication. At the strategic level, it means going to their headquarters and destroying the leadership there; that is, denying them sanctuary. Most of the ELN’s lines of communication lead into and through Venezuela. The ELN headquarter sanctuaries are in Venezuela and Cuba. Simply put, while Colombia can degrade the ELN, it cannot defeat the ELN (or for that matter the FARC) without confronting the whole enemy and without physically entering Venezuelan territory to do so. ■

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Notes

1. Geoffrey Demarest, “The Cubazuela Problem,” *Military Review* 98, no. 6 (November–December 2018): 50–65, accessed 6 March 2020, <https://www.armyupress.army.mil/Journals/Military-Review/English-Edition-Archives/November-December-2018/Demarest-Cubazuela/>; Geoffrey Demarest, “Venezuela in Light of Anti-American Parties and Affiliations in Latin America,” *Military Review* Online Exclusive (June 2019), accessed 6 March 2020, <https://www.armyupress.army.mil/Journals/Military-Review/Online-Exclusive/2019-OLE/June/Demarest-Venezuela/>.

2. Manuel Reyes Beltrán, “El gobierno exige al ELN detener siembra de minas antipersonal en Bojayá” [The government demands the ELN stop sowing antipersonnel mines in Bojayá], Radio Santa Fé, 7 January 2020, accessed 25 June 2020 <http://>

www.radiosantafe.com/2020/01/07/gobierno-exige-a-grupos-armados-detener-siembra-de-minas-antipersonal-en-bojaya-por-al-to-riesgo-para-comunidades/.

3. “Oleada terrorista en el país por aniversario número 55 del Eln” [Terrorist wave in the country for anniversary number 55 of the ELN], YouTube video, posted by “RED Más Noticias,” 4 July 2019, accessed 9 March 2020, <https://www.youtube.com/watch?reload=9&v=K8MjzTZ9nHM>; “En la selva con el ELN, la última guerrilla de América” [In the jungle with the ELN, the last guerrilla in America], *El Comercio* (website), 19 June 2019, accessed 9 March 2020, <https://www.elcomercio.com/actualidad/eln-colombia-choco-guerrilla-bombardeos.html>; Carlos Medina Gallego, *Elementos para una historia de las ideas políticas del*

Ejército de Liberación Nacional: La historia de los primeros tiempos (1958–1978) [Elements of the political ideas of the ELN:] (Bogotá: Rodríguez Quito Editors, 2001), 87.

4. Medina Gallego, *Elementos para una historia de las ideas políticas del Ejército de Liberación Nacional*, 374; Alvaro Valencia Tovar et al., *Historia de las Fuerzas Armadas de Colombia, Ejército* [History of the Colombian armed forces, army], vol. III (Bogotá: Planeta Colombiana, 1993), 143; Alvaro Valencia Tovar, *Inseguridad y Violencia en Colombia* [Insecurity and Violence in Colombia] (Bogotá: Universidad Sergio Arboleda, 1997), 101–3; Corporación Observatorio para la Paz [Observatory corporation for peace], *Las Verdaderas Intenciones del ELN* [The true intentions of the ELN] (Bogotá: Intermedio Editores, 2001), 136, 258–60; Wikipedia, s.v. “Operación Anorí,” last updated 25 January 2020, 2114, accessed 9 March 2020, https://es.wikipedia.org/wiki/Operaci3n_Anor3#cite_ref-news.google_1_1-0. “[In 1973,] the Army eliminated a column of 80 guerrillas, which at the time amounted to a third of the total of the combat force of the ELN. ... The ELN was left decimated after the defeat and could not reorganize itself until after 1983, under the command of ‘Priest Pérez.’”

5. Sebastiana Barráez, “Tensión en la frontera: paramilitares colombianos amenazaron a la Policía venezolana por amparar a la guerrilla” [Tension on the border: Colombian paramilitaries threaten the Venezuelan police for helping the guerrilla], Infobae, 9 July 2019, accessed 9 March 2020, <http://www.infobae.com/americavenezuela/2019/07/09/arde-la-frontera-paramilitares-colombianos-amenazaron-a-la-policia-venezolana-por-amparar-a-la-guerrilla/>.

6. Medina Gallego, *Elementos para una historia de las ideas políticas del Ejército de Liberación Nacional*, 69–72.

7. Mar Romero, “Colombia exige a Cuba que entregue a los jefes guerrilleros del ELN” [Colombia insists that Cuba turn over the guerrilla chiefs of the ELN], France24, 11 August 2019, accessed 9 March 2020, <https://www.france24.com/es/20190911-colombia-cuba-denuncia-onu-eln>.

8. Vanessa Vallejo, “Las ‘nuevas’ FARC: el legado del acuerdo de La Habana” [The new FARC: The legacy of the Havana accords], PanAm Post, 23 January 2019, accessed 9 March 2020, <https://es.panampost.com/vanessa-araujo/2019/07/23/nuevas-farc-acuerdo-habana/>.

9. Jorge Cantillo, “Iván Duque criticó a Maduro por ofrecer protección a los líderes fugados de las FARC: ‘Venezuela es un santuario de terroristas y narcotraficantes’” [Iván Duque criticized Maduro for offering protection to the fugitive leaders of the FARC: “Venezuela is a sanctuary of terrorists and drug traffickers”], Infobae, 29 July 2019, accessed 9 March 2020, <https://www.infobae.com/americacolombia/2019/07/29/ivan-duque-critico-a-maduro-por-ofrecer-proteccion-a-los-lideres-fugados-de-las-farc-venezuela-es-un-santuario-de-terroristas-y-narcotraficantes/>; Jetzely Marcano, “Vinculan actividad guerrillera colombiana con régimen de Maduro” [Colombian guerrilla activity connected to Maduro regime], *El Nacional* (website), 30 August 2019, accessed 9 March 2020, <https://www.elnacional.com/mundo/vinculan-actividad-guerrillera-colombiana-con-regimen-de-maduro/>; “Rearme de FARC es parte de plan de Maduro contra Colombia, denuncia el ‘Pollo’ Carvajal” [FARC rearmament is part of Maduro’s plan against Colombia, denounces “Pollo” Carvajal], TalCual, 30 August 2019, accessed 9 March 2020, <https://talcualdigital.com/index.php/2019/08/30/rearme-de-farc-es-parte-de-plan-de-maduro-contra-colombia-denuncia-el-pollo-carvajal/>.

10. “El informe de inteligencia que menciona a ‘El Paisa’ tras alianza ELN-FARC para las elecciones de Octubre 2019” [The intelligence report that mentions “El Paisa” in a FARC-ELN alliance for the October 2019 elections], *El Nodo*, 5 May 2019, accessed 9 March 2020, <http://elnodo.co/ELECCIONES19>; Juanita Vélez; Ana León, “El ELN y las disidencias están coordinadas” [The ELN and the dissidents are coordinated], *La Silla Vacía*, 3 December 2019, accessed 9 March 2020, <https://lasillavacia.com/el-eln-y-las-disidencias-estan-coordinadas-69119>.

11. “El informe de inteligencia.”

12. Sabrina Martín, “Documentos confirman que Maduro, ELN y FARC planean ataques contra Colombia” [Documents confirm that Maduro, ELN and FARC plan attacks against Colombia], PanAm Post, 9 September 2019, accessed 9 March 2020, <https://es.panampost.com/sabrina-martin/2019/09/09/maduro-ataques-farc-eln-colombia/>; Adriaan Alsema, “Jesus Santrich’ Announces ‘Continental Movement’ with Colombian Objectives,” *Colombia Reports*, 10 September 2019, accessed 9 March 2020, <https://colombiareports.com/jesus-santrich-announces-continental-movement-with-colombian-objectives/>.

13. Editors, “‘Más de 1.000 hombres del Eln están en Venezuela’: Comandante FF. MM.” [“More than 1,000 men of the ELN are in Venezuela”: Commander of the military force], *El Tiempo* (website), 8 May 2019, accessed 9 March 2020, <https://www.eltiempo.com/justicia/conflicto-y-narcotrafico/los-hombres-del-eln-que-estan-en-venezuela-358668>.

14. Matthew Bristow, “Soldados venezolanos enseñaron cómo lanzar misiles antiaéreos a rebeldes del ELN” [Venezuelan soldiers show rebels of the ELN how to launch anti-air missiles], Infobae, 6 May 2019, accessed 9 March 2020, <https://www.infobae.com/americavenezuela/2019/05/06/soldados-venezolanos-ensenaron-como-lanzar-misiles-antiaereos-a-rebel-des-del-eln/>.

15. “Manguala contra Colombia: los secretos de la alianza entre el gobierno de Maduro, las disidencias y el ELN” [Plot against Colombia: The secrets of the alliance between the government of Maduro, the dissidents [FARC] and the ELN], *Semana* (website), 9 August 2019, accessed 9 March 2020, <https://www.semana.com/nacion/articulo/los-secretos-de-la-alianza-entre-el-gobierno-de-maduro-las-disidencias-y-el-eln/630999>.

16. María Isabel Rueda, “¿Lo dejan dormir los ejercicios misilísticos de Maduro?” [Will the Maduro’s missile exercises be left alone?], *El Tiempo* (website), 10 September 2019, accessed 9 March 2020, <https://www.eltiempo.com/justicia/conflicto-y-narcotrafico/lo-dejan-dormir-los-ejercicios-misilisticos-de-maduro-411050>.

17. “El Eln tiene influencia en siete de los diez municipios con más coca” [The ELN has influence in the ten counties with the most coca], *El Tiempo* (website), 30 January 2020, accessed 9 March 2020, <https://www.eltiempo.com/justicia/conflicto-y-narcotrafico/radiografia-del-eln-y-su-presencia-en-zonas-de-narcotrafico-456930>; Elías Rivas, “ELN tiene influencia en 12 de los 24 estados venezolanos: El Tiempo” [ELN has influence in 12 of 24 Venezuelan states: El Tiempo], *Noticierodigital*, 30 January 2020, accessed 9 March 2020, <https://www.noticierodigital.com/2020/01/eln-tiene-influencia-en-12-de-los-24-estados-venezolanos-el-tiempo/>.

18. Punto Com, “Marihuana creepy: El cultivo que desató una fiebre del oro verde en Colombia” [Creepy marijuana: The crop that unleashed a green gold fever in Colombia], Infobae, 16 August 2019, accessed 9 March 2020, <https://www.hoybolivia.com/Noticia>.

php?IdNoticia=300209&tit=marihuana_creepy_el_cultivo_que_de_sato_una_fiebre_del_oro_verde_en_colombia.

19. "La Fiscalía de Colombia ordenó la captura de diez líderes del ELN, incluidos los cinco miembros de su cúpula" [The Colombian Justice Ministry ordered the capture of ten ELN leaders, including the five members of its central command], Infobae, 2 August 2019, accessed 9 March 2020, <https://www.infobae.com/america/colombia/2019/08/02/la-fiscalia-de-colombia-orde-no-la-captura-de-diez-lideres-del-eln-incluidos-los-cinco-miembros-de-su-cupula/>.

20. Drug Enforcement Agency, *2018 National Drug Threat Assessment* (Washington, DC: U.S. Department of Justice, Drug Enforcement Administration, October 2018), 40–42, accessed 9 March 2020, <https://www.dea.gov/sites/default/files/2018-11/DIR-032-18%202018%20NDA%20%5Bfinal%5D%20low%20resolution11-20.pdf>.

21. "Presence of Criminal Actors and Economies, 2017," Colombian Organized Crime Observatory, InSight Crime and Universidad del Rosario, accessed 9 March 2020, <https://insightcrime.org/indepth/observatory-rosario/>.

22. "Protección, la urgente petición de las comunidades del Cauca" [Protection, the urgent request of communities in Cauca], *El Nuevo Siglo* (website), 27 August 2019, accessed 9 March 2020, <https://www.elnuevosiglo.com.co/index.php/articulos/08-2019-proteccion-el-urgente-llamado-de-las-comunidades-del-cauca>.

23. Ariel Cabrera, "El Ejército destruye complejo coquero del Eln en el Catatumbo" [The Army destroys an ELN cocaine-making complex in the Catatumbo], Radio Santa Fé, 19 September 2019, accessed 9 March 2020, <http://www.radiosantafe.com/2019/09/19/ejercito-destruye-complejo-coquero-del-eln-el-catatumbo/>; Sebastiana Barráez, "El ELN colombiano se apoderó de 15 fincas en territorio de Venezuela" [Colombian ELN takes 15 farms in Venezuelan territory], Infobae, 12 June 2019, accessed 9 March 2020, <https://www.infobae.com/america/venezuela/2019/06/11/el-grupo-terrorista-colombiano-ejercito-de-liberacion-nacional-se-apodero-de-15-fincas-venezolanas-en-el-municipio-catatumbo/>.

24. "¿Quiénes están detrás de las masacres y asesinatos en la frontera?" [Who is behind the massacres and murders along the border?], RCN Radio, 15 July 2019, accessed 12 March 2020, <https://www.rcnradio.com/colombia/santanderes/quienes-estan-detras-de-las-masacres-y-asesinatos-en-la-frontera>.

25. "Gaitanista Self-Defense Forces of Colombia (AGC)/Gulf Clan," Colombia Reports, 22 August 2019, accessed 9 March 2020, <https://colombiareports.com/agc-gulf-clan/>; "Capturaron en Colombia al jefe de finanzas y al hermano del máximo líder del Clan del Golfo" [In Colombia they capture the chief of finances and brother of the maximum leader of the Gulf Clan], Infobae, 23 August 2019, accessed 9 March 2020, <https://www.infobae.com/america/colombia/2019/08/23/capturaron-en-colombia-al-jefe-de-finanzas-y-al-hermano-del-maximo-lider-del-clan-del-golfo/>.

26. Venezuela Investigative Unit, "ELN Now Present in Half of Venezuela," InSight Crime, 13 November 2018, accessed 9 March 2020, <https://www.insightcrime.org/news/analysis/eln-present-half-venezuela/>.

27. Geoffrey Demarest, "Illegal Mining and US Military Strategic Interests," Small Wars Journal, October 2018, accessed 9 March 2020, <https://smallwarsjournal.com/jrnl/art/illegal-foreign-mining-and-us-military-strategic-interests>.

28. Fernando Tineo, "Venezuela: el ELN también está en estados con salida al mar" [Venezuela: The ELN is also in states with access to the sea], Venepress, 8 November 2018, accessed 9 March 2020, <https://venepress.com/politica/ELN-tambien-esta-en-estados-con-salida-al-mar-1541703040682>; Mauricio Botero Caicedo, "¿Es el ELN una guerrilla venezolana?" [Is the ELN a Venezuelan guerrilla?], Radio Santa Fé, 15 November 2018, accessed 9 March 2020, <http://www.radiosantafe.com/2018/11/15/es-el-eln-una-guerrilla-venezolana/>.

29. See, for instance, Sabrina Martín, "Culpan al ELN por masacre de 20 mineros en Venezuela" [ELN blamed for the massacre of 20 miners in Venezuela], PanAm Post, 10 May 2018, accessed 9 March 2020, <https://es.panampost.com/sabrina-martin/2018/05/10/venezuela-eln-mineria-asesinato-estado-bolivar>.

30. Thomas M. Huber, "Compound Warfare: A Conceptual Framework," in *Compound Warfare, That Fatal Knot*, ed. Thomas M. Huber (Fort Leavenworth, KS: U.S. Army Command and General Staff College Press, 2002), 1.

31. Robert Baumann, conclusion to *Compound Warfare: That Fatal Knot*, ed. Thomas M. Huber (Fort Leavenworth, KS: U.S. Army Command and General Staff College Press, 2002), 311.

32. Huber, "Compound Warfare: A Conceptual Framework," 3–4.

33. "El grupo terrorista ELN atacó con granadas la fiscalía colombiana ubicada en la frontera con Venezuela" [With grenades, the ELN terrorist group attacked the Colombian prosecutor's office located on the Venezuelan border], Infobae, 8 July 2019, accessed 9 March 2020, <https://www.infobae.com/america/colombia/2019/07/08/el-grupo-terrorista-eln-ataco-con-granadas-la-fiscalia-colombiana-ubicada-en-la-frontera-con-venezuela/>.

34. Eduardo Mackenzie, "Colombia y la 'proxy war'" [Colombia and the "proxy war"], IFM Noticias, 18 September 2019, accessed 9 March 2020, <https://ifmnoticias.com/colombia-y-la-proxy-war/>.

35. Ibid.

36. Andrés Fernández, "Drones: nueva estrategia terrorista de las FARC" [Drones: New terrorist strategy of the FARC], PanAm Post, 19 September 2019, accessed 9 March 2020, <https://es.panampost.com/felipe-fernandez/2019/09/19/drones-farc-terrorismo-colombia/>.

37. "Las FARC iban a estrellar un avión suicida contra Uribe en su investidura" [The FARC were going to crash a suicide plane on Uribe during his inauguration], ABC.es, 25 July 2002, accessed 9 March 2020, https://www.abc.es/internacional/abci-farc-iban-estrellar-avion-suicida-contra-uribe-investidura-200207250300-116654_noticia.html.

38. Complex Operational Environment and Threat Integration Directorate, "Raid on FARC Camp in Colombia Finds 9 RC Model Airplanes," OEA Team Threat Report, in *Remote Control Model Airplanes as Terrorist Weapons*, Training and Doctrine Command G-2 Intelligence Support Activity (November 2012), 7.

39. Laura Ardila Arrieta, "Los líderes (y todo el mundo) están bajo fuego en Uré" [The leaders (and the whole world) are under fire in Uré], La Silla Vacía, 29 July 2019, accessed 9 March 2020, <https://lasillavacia.com/silla-caribe/los-lideres-y-todo-el-mundo-estan-bajo-fuego-en-ure-67240>.

40. Geoffrey Demarest, "In Colombia—A Terrorist Sanctuary?," *Military Review* 82, no. 2 (March–April 2002): 48–50, accessed 9 March 2020, <http://cgsc.contentdm.oclc.org/cdm/singleitem/collection/p124201coll1/id/232/rec/12>; President Andrés Pastrana, "Mi única prioridad no es la paz" [My only priority is not peace], interview by *Semana*, 26 February 2001, accessed 9



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March 2020, <https://www.semana.com/nacion/articulo/mi-unica-prioridad-no-paz/45428-3>.

41. Carlos Medina, ELN: *Una historia contada en dos voces. Entrevista con el "cura" Manuel Pérez and Nicolás Rodríguez Bautista, "Gabino"* [ELN: A story told in two voices. Interview with the "priest" Manuel Pérez and Nicolás Rodríguez Bautista, "Gabino"] (Bogotá: Rodríguez Quito Editores, 1996), 236. In 1998, after the death of Pérez, "Gabino" became the top commander of the ELN, a position he still holds today;

Mauricio Rubio, *Crimen e Impunidad: Precisiones sobre la Violencia* [Crime and Impunity: Clarifications regarding the Violence] (Bogotá: Tercer Mundo, 1999), 122.

42. Javier Ignacio Mayorca, "Crímenes sin Castigo: La botija del regimen" [Crimes without punishment: The regime's treasure], Runrun.es, 6 June 2019, accessed 9 March 2020, <https://runrun.es/opinion/382552/crimenes-sin-castigo-la-botija-del-regimen-por-javier-ignacio-mayorca/>.

43. Juan Diego Posada, "Major Implications of Former FARC Leadership Returning to War," In-Sight Crime, 29 August 2019, accessed 9 March 2020, <https://www.insightcrime.org/news/analysis/major-implications-of-farc-leadership-returning-to-war/>.

44. Parker Asmann and Mimi Yagoub, "Wavering of ELN Peace Talks Could Cause Further Criminalization," InSight Crime, 14 September 2019, accessed 9 March 2020, <https://www.insightcrime.org/?s=Wavering+of+ELN+Peace+Talks+Could+Cause+Further+Criminalization>.

45. Ana María Sanjuán, "Venezuela and the Colombian Conflict: Tensions, Problems and Uncertainties," in *The Colombian Conflict and Its Impact in the Andean Countries*, ed. Álvaro Camacho Guizado (Bogotá: CESO-Ediciones Uniandes, 2003), 251–69.

46. Editorial Board, "No Peace in Our Time in Colombia: Key FARC Drug Smugglers Renew the Guerrilla War," *Wall Street Journal* (website), 16 September 2019, accessed 9 March 2020, <https://www.wsj.com/articles/no-peace-in-our-time-in-colombia-11568674469?mod=searchresults&page=1&pos=4>.

47. Williams Perdomo, "La región está en riesgo de que el estado criminal de Maduro se expanda" [The region is at risk that Maduro's criminal state expands], *El Nacional* (website), 21 September 2019, accessed 9 March 2020, <https://www.elnacional.com/venezuela/la-region-esta-en-riesgo-de-que-el-estado-criminal-de-maduro-se-expanda/>.

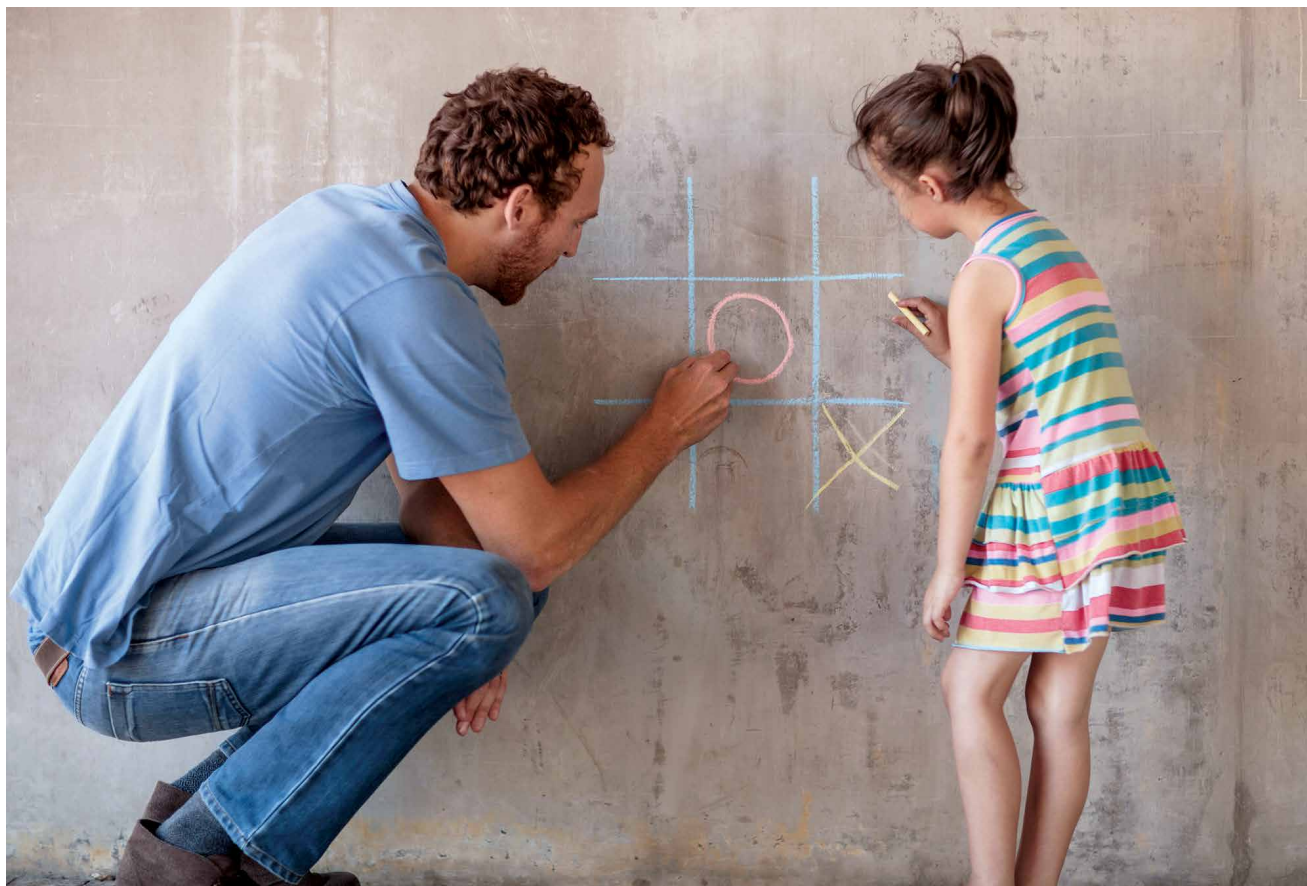


The Strategic Relevance of Tic-Tac-Toe

Maj. Amos C. Fox, U.S. Army

Great-power competition and the struggle among states, nonstate actors, and lesser polities require a sound understanding of strategic theoretical concepts. Commenting on the relevance of

strategic armed conflict to solve international political problems, British historian Sir Michael Howard wrote, “There is, unfortunately, little reason to suppose that this process, of creating and preserving states by the use



or threat of armed force, belongs to a bygone era from which no conclusion can be derived applicable to the contemporary international system.”¹ Despite the continued relevance of armed conflict in the international system, the United States is regularly caught strategically flat-footed in modern conflicts.

Author Tom Ricks’s germane study of U.S. senior military leadership captured across the breadth of three works—*Fiasco*, *The Gamble*, and *The Generals*—highlights the strategic depravity that dominated the U.S. military in the years following the Soviet Union’s demise.² Ricks was one of the first in the post-9/11 era to bring this point to light, but he certainly was not the last. In recent years, a cavalcade of reporting, reflecting the United States’ inability to achieve its political and strategic aims in Afghanistan, Iraq, Syria, and elsewhere, illustrates this point.

Much of the contemporary writing on this situation argues that the problem lies in poor strategic

thought. Arguably, this is largely the result of insufficient and antiquated theoretical models. In turn, this results in misunderstanding the strategic environment, which undercuts the ability to properly see relationships, methods of warfare, and an actor’s objectives. For example, historian Donald Stoker argues, “We see a dangerous example of clarity in U.S. thinking in regard to war and strategic issues ... too many defense and security intellectuals do not understand the differences between tactics, operations, strategy, and the political aim.”³

Meanwhile, strategic theorist Sean McFate contends that the West has been losing wars because it suffers from strategic atrophy.⁴ The atrophy he describes is the byproduct of antiquated notions about strategy and outsourcing of strategic thinking to false prophets and PhDs who have never smelled gun smoke in battle.⁵

Today’s era of great-power competition requires a sound understanding of strategic theoretical concepts. It does so because a solid theoretical base allows an actor to better navigate and manipulate the strategic environment. This work uses a metaphor, a game of tic-tac-toe between a father and his daughter, to draw

Previous page: Graphic elements courtesy of macrovector, www.freepik.com. Composite graphic by Arin Burgess, *Military Review*.
Above: Photo by Westend61 GmbH, Alamy Stock Photo

out several key strategic concepts that are often overlooked in discussions of strategy.

The Tic-Tac-Toe Metaphor

A father comes home from a long day at work and sits down to spend time with his daughter. The father, a dedicated professional with over fifteen years in his chosen field, does not have a lot of discretionary time because of the demands of his job. At the same time, he is dedicated to his family and puts forth his best effort to find a balance between the demands at work and being the husband and father that he wants to be.

Tic-tac-toe is one of his daughter's favorite games. Thus, he is not surprised when the daughter asks to play when he is home from work. Over the years, the father has learned that he can extend the amount of time spent with his daughter if he willingly loses more than he wins. Extending the duration of the game is important to the father because doing so provides him more one-on-one time with his daughter. In fact, maximizing the time spent with his daughter is his real objective; the game is just the vehicle by which he accomplishes that aim.

The deliberate losses, the father's tactical approach, are not agreed to when each party sits down, but instead, they are a critical piece of private information. Private information is any information that a player or actor possesses that is not common knowledge among the other actors within a given context.⁶ When multiple actors meet in an adversarial context, the convergence of each party's private information results in what game theorists call incomplete information. Incomplete information, or information not available to all players or actors in each situation, is fundamentally important in the father and daughter's tic-tac-toe dynamic.⁷

The father keeps his private information close to the vest in order to achieve his real objective. The

father's private information is his tactical approach's substratum because it best advances him toward his strategic objective. He employs a negative tactical approach in order to achieve a positive objective. Or, to put it another way, the father wins through what an onlooker would perceive as a loss.

Over the years, the father has played innumerable rounds of tic-tac-toe with his daughter. In her younger

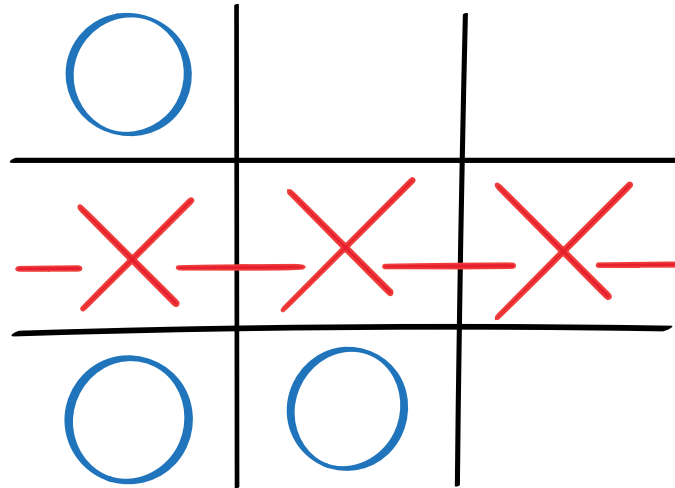
years, he taught his daughter the rules of the game, and she quickly took to them. He was always blue Os and she was always red Xs, and three red Xs or three blue Os in a row meant victory (see figure 1). However, in recent months, he perceives regression in her play. For instance, she will announce, "I win!" at illogical times.

On occasion, the daughter's erratic play irritated her father. His

irritation usually manifested in a lecture on the rules of the game, followed by a game or two in which he thoroughly reviewed those rules with his daughter. The father assumed that his daughter either did not understand the rules of the game or was not following them. Nevertheless, in the father's eyes, the daughter must follow the rules and faithfully play the game.

Yet, what the father did not realize is that his daughter was playing the game with her own private information. The daughter, a creative little girl who loved to spend time with her father, realized years before that quick traditional victories result in her father leaving the game sooner than what she would like. Further, the game allowed her to experiment and create different pattern and color arrangements on the board with her and her father's colored icons.

For the daughter, continued time with her father and experimentation were the true objectives of the game, not getting three red Xs in a row. As a result, she began to play the game by her own rules, which she did not share with her father, in order to allow her to accomplish her



(Figure by author)

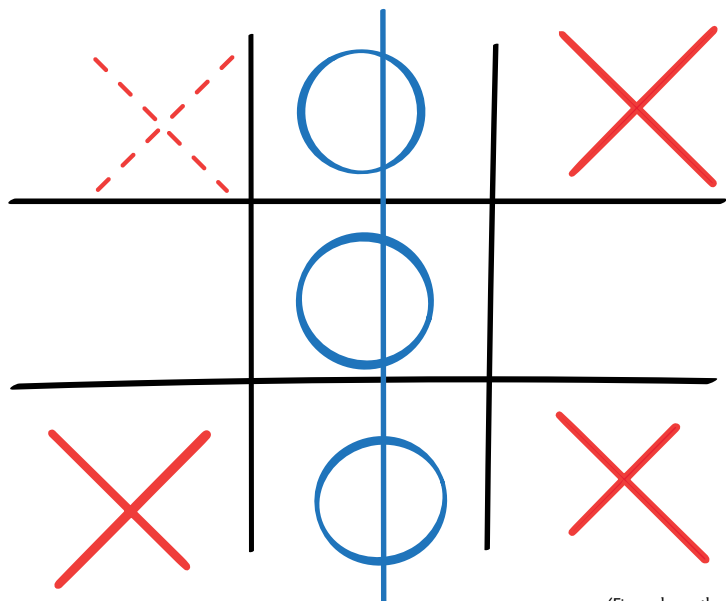
Figure 1. Traditional Rules

objectives. For instance, she began the game in a variety of ways that included aligning her Xs into a variety of shapes on the board, using her shape to create unique color patterns (see figures 2 and 3). Further, getting a rise out of her father also guaranteed at least an additional two games with him, thereby adding to the time they spent together.

Inevitably, another business trip rolled around for the father. He kissed his daughter goodbye yet again, happy that

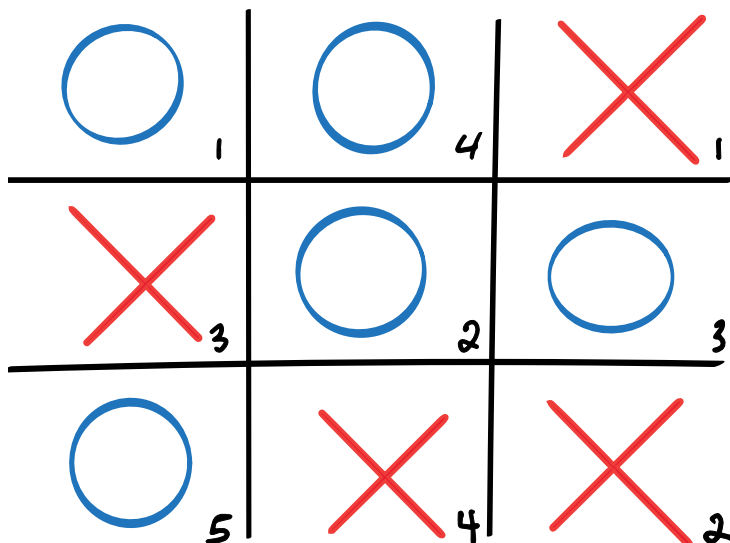
he got to spend time with her. As he departed, he pondered the latest round of tic-tac-toe, curious about why his daughter seemed to no longer understand the game's rules.

The purpose of the tic-tac-toe metaphor is to help illuminate three strategic concepts often lost in today's discussions of strategy, and which are often dominated by Arthur Lykke's formulaic interpretation of strategy and Lawrence Freedman's emotive interpretations of "good" or "bad" strategy.⁸ In this work, three concepts are proffered as important components of effective strategy. First, private and incomplete information dominate strategic interaction because they protect one's strategy from defeat. Second, strategic gain through tactical loss is a viable method for advancing one's strategic agenda. Finally, obedience to a rules-based system leaves one open to nonlinear strategies that are purpose-built around exploiting those rules to further one's aims.



(Figure by author)

Figure 2. Nontraditional Definition of Victory (Pattern Victory)



Numbers represent iteration of each player's turn

(Figure by author)

Figure 3. Nontraditional Rules (Stonewall without Win)

Protecting against the Decisive Blow

Twentieth-century Russian strategist Aleksandr Svechin offers what is arguably the most sagacious advice for any strategist. He asserts that the first rule of war is to protect oneself from the decisive blow.⁹ British theorist J. F. C. Fuller offers a similar argument, stating, "Self-preservation is the keystone in the arch of war."¹⁰ The postulate shared by Svechin and Fuller seems simple enough but is often overlooked in strategic discourse. One can assume that this is overlooked because strategists are too eager to make their strategy work and therefore shoehorn the enemy's course of action into their strategy.

Svechin and Fuller's principle is the first step in understanding the importance of private and incomplete information. Possessing private information—any information that a player or actor possesses that is not common

knowledge among the other actors within a given context—is vital to protecting one’s strategy from an adversary’s deleterious intent. While goals or aims might be openly discussed, the method by which one pursues that goal is often camouflaged.

Tying this to the tic-tac-toe metaphor, the father and the daughter both tacitly agreed to play the game in pursuit of victory, but neither actor openly stated their definition of victory nor did they state how they intended to pursue victory. Both the father and daughter possessed private information, which in turn resulted in incomplete information.

Private and incomplete information dominate strategic intercourse. Private and incomplete information serve as an invisible hand that manipulates the competitive environment from the strategic to the tactical levels of conflict. Failure to appreciate and incorporate private and incomplete information into strategic renderings can result in misleading analysis, much like the father misunderstanding his daughter’s game play, and missteps that ripple up and down the levels of war. As a result, strategic discourse, even among friends or allies, must not be taken on face value. Strategic discourse and strategic analysis must look beyond what is publicly stated and read between the lines of an actor’s pronouncements, operations, and tactics to discern their intent.

Moreover, strategic actors, or at least those interested in continued relevance, must keep international and domestic audiences pacified while pursuing their aims. At times, they will do so by offering narratives that appear misaligned, stating one argument outwardly while domestically arguing something else. For instance, a strategic actor might state that it is committed to a partner in the pursuit of defeating a common enemy, while domestically arguing that that enemy is defeated and that it is time to discontinue the operation. Political theorist Robert Putman defines this situation as a “two-level game,” and it is essential in understanding strategic interaction because it complements the ideas of private and incomplete information in strategic theory.¹¹

Strategic Subtractivism—The Art of Gain through Perceived Loss

In the tic-tac-toe metaphor, both the daughter and the father played the game in several ways. The father would intentionally lose in order to keep

his daughter’s interest, subsequently increasing the duration of time they spent together, thereby accomplishing his true intention. The daughter, on the other hand, sometimes also played for time. In many instances, unbeknownst to her father, she also played with the goal of creating shapes and aligning colors. In both cases, perceived rules-based tactical loss dominated the game play between the two. However, the praxis of their strategic interaction illustrated that perceived loss was often irrelevant to the overall strategic aim. In fact, tactical loss became a tool toward the attainment and maintenance of their aims.

At this point, it is instructive to borrow a concept from sculpting. Subtractive sculpting is a technique in which an artist starts with an aim in mind and a medium in hand. The artist then uses physical force to erode pieces of the medium until it attains the desired shape—the artist gains his or her objective through loss. It is not a stretch to see a parallel between the “winning strategically through tactical loss” scenario described in the tic-tac-toe game and the subtractive sculpting method. In turn, this idea—gaining operational and strategic aims through perceived or real tactical loss—is best classified as strategic subtractivism. One only needs to look at Russia’s recent activities in Eastern Europe to see strategic subtractivism at work.

Many strategic analysts argue that Russia’s approach in Ukraine (to include Crimea) failed because it did not achieve a decisive political victory and has resulted in a stalemate in the Donbas.¹² However, if one keeps in mind strategic subtractivism, or gaining through perceived loss, and Russia’s strategic goals for Ukraine, then it seems far more plausible that Russia is on positive footing.

To the onlooker, Russia accomplishes its goals vis-à-vis Ukraine through tactical destruction, occupying territory, and a deterrent cross-border

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capability. For instance, if Russia's strategic goals focus on keeping Ukraine weak, discrediting Kyiv, and keeping the country out of NATO, then Russia accomplished its goals (and continues to do so). Russia accomplished this by creating a rebel proxy army in the Donbas, leading that army in a regional coup against Kyiv, destroying infrastructure in Donetsk and Luhansk oblasts, physically occupying prodigious swaths of land therein, killing a substantial number of Ukrainian soldiers, and maintaining first-rate forces in Rostov and other border oblasts that can and have been used to interdict Ukrainian attempts to defeat the rebels and retake territory.¹³

This concept, subtractivism, can be scaled down to the operational and tactical level too. For example, the destruction of the Luhansk and Donetsk airports in 2014 and 2015, respectively, ensured that the Ukrainian armed forces will not again attempt to retake those airports, thereby solidifying rebel proxy and Russian territorial gains in Ukraine.¹⁴ Moreover, the Russian and proxy victory further discredits the Ukrainian government by demonstrating Kyiv's inability to put credible force in the field, develop an effective military plan to defeat the Russian and proxy forces, and protect the people and infrastructure against death and destruction.

Russia's strategy turns victory on its head. For Russia to lose, Ukraine has to overturn the status quo—it must defeat the rebel army, evict Russian forces from the Donbas and Crimea, be able to thwart a cross-border Russian counterattack, and mend the political and domestic situation that allowed Russia to develop a rebel movement.

To summarize, tactical wins and losses are often just a tool for the strategist in pursuit of their true objective. Like the father that intentionally lost at tic-tac-toe in order to maintain his daughter's interest and hence increased the time they spent together (i.e., his true objective), perceived loss is often a useful tool in strategic subtractivism. Accordingly, it is important to not mirror one's own strategy or employ emotive terms like "good" or "bad" when assessing another actor's strategy but to assess whether what they are doing is in fact accomplishing the desired goal.

Rules-Based Environments— A Framework for Exploitation

In strategic environments, actors play to win. To be sure, historian Donald Stoker argues, "Victory is achieving the political objective or objectives for which one is fighting, whether these are offensive

or defensive, and hopefully at an acceptable cost ... Victory—winning—is the point of the war."¹⁵

Winning is not determined by one's adversaries, although they certainly play a role in whether victory is achieved. However, victory is determined by an actor that willingly or unwillingly joins a given conflict. Victory is tied to the actors' aims but also to their operational approach, or how they align their tactics to support the attainment and maintenance of their aims.

Harkening back to the tic-tac-toe metaphor, the father overlooks how his daughter defined victory—that is, a mix of time, color patterns, shape arrangement—because he assumes that she is playing the game by its generally accepted rules and by the traditional definition of victory. The daughter, playing to win, intentionally kept that information from her father to prevent him from using that information against her. As a result, the father projects his own definition of victory and "good" strategy on how his daughter is playing the game and hence misses the fact that his daughter is achieving victory according to her own metrics. The point is that the "rules of the game," or a rules-based system, create opportunities for exploitation by adroit belligerents bent on attaining and maintaining their respective aims.

This idea is important to note because as a recent report argues, realpolitik did not die with the Cold War.¹⁶ Nor did Western values and a rules-based system triumph in the Cold War's wake, but instead, great-power politics and great-power competition continue to dominate the international system.¹⁷ Russia's militaristic and quasi-imperial resurgence in recent years coupled with China's Belt and Road initiative and continued militarization, and Iranian meddling across the Middle East, support this supposition. More to the point, Russia, China, and Iran regularly demonstrate a propensity to bend and manipulate the rules of the rules-based international system to their advantage and to use those rules as a handrail for exploitation. In today's era of great-power politics and great-power competition, it is vital to understand that the rules of international order, while idealistic, are often irrelevant.

Few strategic theorists capture the potential pitfalls of believing that all strategic actors will adhere to the rules-based international system better than Everett Dolman. In his seminal work *Pure Strategy: Power and Principle in the Space and Information Age*, Dolman contends that playing by the rules decreases an actor's

options, therefore making it predictable and far more susceptible to strategic defeat.¹⁸

Instead, Dolman posits that *pure* strategy hinges upon a few tenets. Dolman's central argument is that maintaining access and influence is the most important strategic goal for any actor.¹⁹ To put it another way, if strategy were equated to a game of poker, the strategist's primary focus should be on maintaining a seat at the table and maintaining the ability to keep playing the game. He argues that the essence of strategy is the pursuit, and subsequent maintenance, of continued strategic advantage. Because of this, tactical victories are often irrelevant. Instead, a successful strategist finds opportunities to manipulate the rules, boundaries, and context of the strategic game being played to advance his or her position relative to other strategic actors. Strategists do so in order to increase the quantity of options available to them in relation to their adversary.²⁰

International relations theorist Thomas Schelling provides another perspective on this point. He states,

War appears to be, or threatens to be, not so much a contest of strength as one of endurance, nerve, obstinacy, and pain. It appears to be, or threatens to be, not so much a contest of military strength as a bargaining process—dirty, extortionate, and often quite

reluctant bargaining on one side or both—nevertheless a bargaining process.²¹

Political scientist Dan Altman contends that the accepted rules on the use of force and red lines create a framework that can easily be outflanked by belligerents unwilling or disinterested in the rules. Altman posits that advancing without attacking is the primary method for creating options, bending the rules, and expanding the margins to one's advantage. He continues, stating that *fait accompli*—or taking control of an objective with overwhelming force before an adversary has time or will to counteract—and employing proxy forces are the primary methods to advance without attacking.²² Russia's annexation of Crimea and invasion of Ukraine's Donets River Basin in 2014 provides instructive example that illustrates the interplay of these ideas and clearly demonstrates the utility of advancing without attacking, the *fait accompli*, and the usefulness of proxy warfare.

More importantly, Russia's Ukraine expedition illustrates that traditional definitions of victory and

The main terminal of Donetsk Sergey Prokofiev International Airport after being hit by shells 8 October 2014 during fighting between pro-Russian rebels and Ukrainian government forces in the town of Donetsk, eastern Ukraine. (Photo by Dmitry Lovetsky, Associated Press)



adherence to a rules-based mental framework are not necessarily useful tools for understanding the how and the why of an actor's strategy. Therefore, it follows that one should not measure strategy using emotive terms like good and bad but instead in terms of effective or ineffective. Further, one should not look to rules as a guide but as a means for manipulation.

Conclusion

The United States' inability to successfully conclude its recent wars reflects an immature appreciation and application of strategy. In order to remedy the undertow of strategic depravity, American military leaders must transcend simplistic views of strategy that boil the process down to an unsophisticated linear equation. Further, they must think beyond emotive quantifying terms such as good and bad. Instead, they must define feasible goals and then establish an arrangement of operations to accomplish or attain that goal. To this point, early twentieth-century Russian strategist Aleksandr Svechin argues, "Strategic thinking begins when one in the course of military operations begins to see a certain path that must be traveled in order to achieve the goals of the war."²³

The arrangement of operations must account for each actor's unique station, allies, and partners—active and latent—and incomplete information. In doing so, inconvenient assumptions must not be brushed aside but be accounted for. More to the point, strategy development must include freethinkers, doctrinal and theoretical charlatans, and statisticians to help offset the groupthink that often dominates strategic planning.

It is also instructive to understand that potential adversaries are actively working to advance their own strategies. For instance, Russian Chief of the General Staff General Valery Gerasimov recently stated, "We must outstrip the enemy in the development of military strategy and move one step ahead."²⁴ Because of this, students and practitioners of strategy must study the subject in a similar fashion as historian Michael Howard, who contends that one must study history—in width, depth, and context.²⁵

Lastly, it is important to understand that strategy drives tactics. This assertion is nothing new, but it is important to understand that strategy can cast a long shadow, heavily influencing the associated operations and tactics. If the strategy is meant to mislead and misinform, like strategic subtractivism, one can expect the operations and tactics to echo this approach.

Just as useful doctrine requires a mixture of tactical and operational theories and concepts, so too does strategy. To be sure, American strategic theorist J. C. Wylie argues that a diverse understanding—not a dogmatic, mirroring mindset on strategy—is required for effective strategy because a "limitation to intuitive appreciation of one's own theory of strategy almost automatically inhibits adequate appreciation of any others."²⁶ ■

A special thank you is due to Maj. Bill Murray, who lit the spark for this article during a preclass discussion at the U.S. Army's School of Advanced Military Studies in the winter of 2016. That discussion, tied to the metaphor listed herein, was the impetus for this work. Without that discussion, this article would have not been written.

Notes

1. Michael Howard, *The Causes of War* (Cambridge, MA: Harvard University Press, 1983), 37.

2. Thomas E. Ricks, *Fiasco: The American Military Adventure in Iraq, 2003 to 2005* (New York: Penguin Books, 2007); Thomas E. Ricks, *The Gamble: General David Petraeus and the American Military Adventure in Iraq, 2006-2008* (New York: Penguin Books, 2009); Thomas E. Ricks, *The Generals: American Military Command from World War II to Today* (New York: Penguin Books, 2013).

3. Donald Stoker, *Why America Loses Wars: Limited War and US Strategy from the Korean War to the Present* (Cambridge, UK: Cambridge University Press, 2019), 18–19.

4. Sean McFate, *The New Rules of War: Victory in the Age of Durable Disorder* (New York: HarperCollins, 2019), 5.

5. *Ibid.*, 11–22.

6. Roger Myerson, *Game Theory: Analysis of Conflict* (Cambridge, MA: Harvard University Press, 1997), 64–66.

7. *Ibid.*

8. Harry Yarger, "Toward a Theory of Strategy: Art Lykke and the Army War College Strategy Model," in *Guide to National Security Policy and Strategy*, ed. J. Boone Bartholomees Jr., 2nd ed. (Carlisle, PA: U.S. Army War College Press, 2006), 107–13; Lawrence Freedman, *Strategy: A History* (Oxford, UK: Oxford University Press, 2015), x–xii.

9. Aleksandr Svechin, *Strategy* (Minneapolis: Eastview Press, 1992), 248.

10. J. F. C. Fuller, *Generalship: Its Diseases and Their Cure* (Harrisburg, PA: Military Service Publishing, 1936), 52.

11. Robert Putman, "Diplomacy and Domestic Politics: The Logic of Two-Level Games," *International Organization* 42, no. 3 (Summer 1988): 427–46.

12. Lawrence Freedman, *Ukraine and the Art of Strategy* (Oxford, UK: Oxford University Press, 2019), 1–5.

13. Amos Fox and Andrew Rossow, "Making Sense of Russian Hybrid Warfare: A Brief Assessment of the Russo-Ukrainian War," *Land Warfare Paper 112* (Arlington, VA: Association of the United States Army, March 2017), 3–12.

14. Amos Fox, "Cyborgs at Little Stalingrad: A Brief History of the Battles of the Donetsk Airport, 26 May 2014 to 21 January 2015," *Land Warfare Paper 125* (Arlington, VA: Association of the United States Army, May 2019), 4–11.

15. Stoker, *Why America Loses Wars*, 176.

16. Malcolm Chalmers, "Which Rules? Why There Is No Single 'Rules-Based International System'" (occasional paper, London: Royal United Services Institute [RUSI], April 2019), 30–31.

17. Ibid.

18. Everett Dolman, *Pure Strategy: Power and Principle in the Space and Information Age* (New York: Frank Cass, 2005), 43.

19. Ibid., 127.

20. Ibid., 75.

21. Thomas Schnelling, *Arms and Influence* (New Haven, CT: Yale University Press, 1966), 7.

22. Dan Altman, "Advancing without Attacking: The Strategic Game around the Use of Force," *Security Studies* 27, no. 1 (August 2017): 55–58, <https://doi.org/10.1080/09636412.2017.1360074>.

23. Svechin, *Strategy*, 239.

24. Valery Gerasimov, "The Development of Military Strategy under Contemporary Conditions: Tasks for Military Science," *Military Review*, trans. Harold Orenstein and Timothy Thomas, (online exclusive, November 2019), accessed 19 March 2020, <https://www.armyupress.army.mil/Journals/Military-Review/Online-Exclusive/2019-OLE/November/Orenstein-Gerasimov/>.

25. Howard, *The Causes of War*, 195–97.

26. J. C. Wylie, *Military Strategy: A General Theory of Power Control* (Annapolis, MD: Naval Institute Press, 2014), 29.

STRATEGIC TIC-TAC-TOE

REMEMBERING ALEPPO? COUNTING ON THE STRATEGIC AMNESIA OF ADVERSARIES

Operating under the assumption that Western powers would do little to challenge its military intervention in Syria beyond making threats, Russia risked a well-planned and sophisticated military campaign aimed at rapidly achieving destruction of opponents to the Syrian regime that would enable the Syrian government to reassert sovereign control over most of its territory. In doing so, Russia ignored widespread global media and diplomatic condemnation of its actions—particularly those resulting in widespread loss of civilian life—anticipating that global interest in Aleppo would be quickly forgotten if relative stability to Syria were achieved by decisive and swift military action. Though regionally focused, Russia's successful strategic gamble in Syria greatly enhanced its standing as a great power not only in the Middle East but also throughout the world.

Residents walk through the rubble of the once rebel-held Salaheddine neighborhood 20 January 2017 in eastern Aleppo, Syria. (Photo by Hassan Ammar, Associated Press)



Punching Above Our Weight

The New Infantry Tactics of the 2nd Cavalry Regiment

Lt. Col. Timothy Wright, U.S. Army

Capt. Victoria Hulm, U.S. Army

Command Sgt. Maj. Daniel Rose, U.S. Army

The doctrine of unified land operations states that in both offensive and defensive operations, Army ground forces “seize, retain, and exploit the initiative to gain and maintain a position of relative advantage.”¹ The ways in which different kinds of land forces

do this, however, vary greatly. Light infantry battalions achieve relative advantage over their adversaries in very different ways than combined arms battalions. These formations are optimized for different doctrinal templates, and those templates are best applied in certain types of



terrain. When these formations combine the right tactics in the right terrain, they maximize their effectiveness.

The infantry squadrons of the 2nd Cavalry Regiment (2CR) occupy the middle ground between light and mechanized forces. With the firepower upgrades of 2018, the range of threats and environments in which these squadrons can effectively conduct land operations has expanded dramatically.² 2CR's unique task organization has generated new tactics that, when applied in the right terrain, allow it to fight as no other infantry formation in the U.S. Army.

As a result of these upgrades and innovations, a 2CR infantry squadron is most effective against superior forces when it initiates contact with the enemy in terrain that prevents the enemy from massing combat power. Whether in the offense or defense, sequencing indirect, missile, and direct fires enables a squadron to disrupt, fix, and then destroy enemy armored formations. Following engagement, it then moves its combat power to another position of relative advantage and repeats the process in depth either forward on the offense or rearward in the defense.

To be clear, this article is far from authoritative. It is simply a summary of the innovation and training currently underway in 2CR and their potential implications. These concepts were developed and tested during platoon, troop, and squadron live-fire and situational training exercises from September 2018 to June 2019, including Dragoon Ready 19 and Saber Guardian 19. Initial results are promising. In the offense and the defense, 2CR infantry squadrons applying these tactics experienced great success against opposition forces fighting with a variety of tactics and with systems ranging from BTR-70 armored personnel carriers to M1A2 Abrams tanks. While much more testing is required, it appears that 2CR's combination of tactics, firepower, and mobility increases the range of threats against which it can effectively fight. Therefore, 2CR is uniquely suited to respond to crisis against the broad spectrum of near-peer adversaries in the European theater—more so than light, armored, or even other Stryker brigades.

Overview

With the firepower upgrades of 2018, 2CR's infantry squadrons possess unique capabilities that enable them to seize initiative and gain positions of relative advantage, yet much remains unchanged. The centerpiece of an infantry squadron remains the Stryker vehicle and the infantry squad it contains. The Stryker vehicle provides superior tactical and operational mobility while each squad carries one M148 Javelin antitank guided missile (ATGM) and two AT4 anti-tank rockets; each platoon also has one M3 Carl Gustav recoilless rifle. 2CR infantry squadrons possess more dismounted firepower than any other organization in the U.S. Army. They are supported at the troop and squadron level by ten 120 mm mortars, four 81 mm mortars, six 60 mm mortars, and small unmanned-aircraft-system capability.

The truly unique capability of a 2CR infantry squadron is its mounted anti-tank systems. In 2018, 2CR fielded the Infantry Carrier Vehicle–Dragoon (ICV-D) and the Infantry Carrier Vehicle–Javelin (ICV-J), the newest combat systems in the U.S. Army.

Infantrymen in a Stryker Infantry Carrier Vehicle–Dragoon from 1st Squadron, 2nd Cavalry Regiment, fire its 30 mm cannon 28 August 2018 during a joint combined arms live-fire exercise at Bemowo Piskie Training Area, Poland. (Photo by Sgt. John Onuoha, U.S. Army)

The ICV-D replaces the standard armament of the ICV with a 30 mm autocannon, bringing responsive, mounted anti-tank fire to the platoon level. Similarly, the ICV-J brings a remote weapons station that not only fires the MK19 automatic grenade launcher or the M2 .50 caliber machine gun but also launches Javelin missiles from the same platform. Together, these systems provide mounted firepower that can defeat armored threats in multiple ways.

Despite these upgrades, the regiment's Strykers retain some of their critical vulnerabilities. To preserve mobility and dismounted firepower, the Stryker remains a lightly armored vehicle. It offers protection against direct fire up to heavy machine guns and against fragmentation from indirect fire, but it remains vulnerable to larger caliber guns, rockets, and ATGMs. Additionally, unlike mechanized forces that possess both autocannon and ATGM fires on a single platform, a 2CR infantry platoon's mounted firepower is split between two ICV-Ds and two ICV-Js. Third, firepower in each platoon is further distributed across mounted and dismounted systems. Massing firepower requires a combination of both dismounted ATGMs and rockets with mounted ATGMs and 30 mm cannons.

Given its capabilities and limitations, 2CR's infantry squadrons cannot rely on the tactics used by heavier mechanized and armored forces. Such forces have the armor and firepower to survive chance contact, seize the initiative, and defeat peer forces. They can assault established defenses, conduct combined arms breaches,

and clear heavily fortified positions. In the defense, mechanized/armored teams can

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utilize fixed positions and strongpoint defenses to defeat enemy assaults. The Stryker does none of this well.

Alternatively, using the Stryker only as a mobility platform and fighting exclusively dismounted forces fails to leverage the ICV-D/J's significant firepower upgrades. Fighting as light infantry leaves the majority of the squadron's antiarmor firepower out of the fight, effectively limiting the spectrum of threats against which it can realistically compete. To maximize a 2CR infantry squadron's effectiveness, new tactics are required that leverage its increased firepower while limiting exposure of the Stryker vehicle and its light armor. An infantry squadron in 2CR can, and must, fight differently.

How We Fight

2CR is most effective when its infantry squadrons select the time and place of engagement with the enemy. Ideally, the squadrons fight in terrain that favors their strengths and minimizes their weaknesses. By doing so, they can seize the initiative and gain a relative advantage over mechanized and armored forces but only for a limited period of time. In either the offense or the defense, relative advantage is gained by sequencing indirect, missile, and direct fires to disrupt, fix, and then destroy enemy combat power in places where the enemy is unable to mass its forces. Once an enemy formation is destroyed, the squadron moves its combat power to another position of relative advantage and repeats the process in depth, either forward on the

offense or rearward in the defense. A 2CR infantry squadron can combine tactics, firepower, and mobility to fight a wider range of mechanized and armored forces than what has been previously considered for Stryker-based organizations.

There are three principles that govern 2CR's tactics. First, a 2CR infantry squadron is most successful when it *initiates contact*, rather than reacts

Command Sgt. Maj.

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to it. Lacking the armor and firepower of mechanized formations, these squadrons struggle to regain the initiative after it is lost. As such, a 2CR squadron maneuvers to and establishes positions of relative advantage prior to contact with the enemy; these positions allow the squadron to array both mounted and dismounted forces in terrain that eliminates the range advantages of threat weapons systems while massing the effects of the squadron's firepower at critical points. The squadron can decide where, when, and for how long it fights, achieving both surprise and simultaneity when it engages the enemy.

Second, 2CR infantry squadrons must *mass firepower against the enemy*. This is a challenge, however, as the infantry squadron's firepower is distributed among its dismounted ATGMs and rockets, mounted ATGMs and 30 mm cannons, and indirect fire systems (mortars). Both mounted and dismounted firepower lack protection, and massed effects are only gained by a deliberate sequencing of indirect, missile, and direct fires. This sequencing enables infantry squadrons to engage far more capable platforms and formations while minimizing risk to force.

Soldiers assigned to Bull Troop, 1st Squadron, 2d Cavalry Regiment, call for indirect fire 5 June 2019 during a live-fire exercise in support of Saber Guardian 2019 near Varpalota, Hungary. (Photo by Pvt. 1st Class Denice Lopez, U.S. Army)

Third, infantry squadrons must leverage their mobility to prevent the enemy from exploiting the Stryker's lack of survivability. Specifically, a 2CR squadron must *fight in depth*. If squadrons become fixed, the enemy can maneuver into position to mass the effects of its firepower. To avoid such a circumstance, squadrons must rapidly reposition forces prior to losing their advantage.

In the defense, repositioning forces often means defending in depth, commonly referred to as trading space for time. To do so, it is preferable to engage the enemy in accordance with limited engagement criteria such as destroying one or two vehicles or causing enemies to dismount. Once achieved, the unit breaks contact and moves to a subsequent engagement area to repeat the process. It is more difficult for a squadron to succeed if it attempts to kill all of the enemy in

one or two large engagement areas. Such an approach encourages the enemy to mass the effects of its weapons systems and fails to take advantage of the asymmetric mobility advantages of the Stryker in the defense.

In the offense, squadrons can attack at a place of their choosing and then continue to move to the next position of advantage rather than waiting on resupply or mobility support to arrive. Unlike light formations that rely on external support for rapid mobility, 2CR can fight from ridgeline to ridgeline, terrain feature to terrain feature, at the speed of the fight.

The amount of depth in which 2CR can fight varies significantly by terrain. In some circumstances, such as open terrain with rolling hills, a unit might displace hundreds of meters from intervisibility line to intervisibility line, extending the defense over multiple kilometers. In other cases, it could mean displacing from one position in a village to another position or village many kilometers away. It could mean clearing forces out of restrictive terrain with engagements at fifty to one hundred meters before seizing a ridgeline to establish a support-by-fire position on an objective 1,500 meters away. Once the far objective is cleared, the unit could bound forward and do it again. Light forces lack the mobility to operate in this kind of depth, while mechanized forces have higher sustainment requirements that limit their speed and tempo over time. Fighting in varying depths against armored threats is a capability unique to 2CR.

How We Fight in the Offense: The Anti-tank Battle Drill

These concepts, when applied in the offense, take the form of the anti-tank battle drill, a series of steps that sequence combat power against an enemy position at the squad, platoon, and troop levels. This battle drill can be applied at any time during an offensive operation, and it does not require a deliberate decision-making process. As depicted in table 1 (on page 113), the drill is conducted in seven steps.

Step 1. Identify enemy composition, disposition, and strength on the objective. The first step of the battle drill is fundamental to any offensive operation (i.e., conduct reconnaissance), but it is especially critical in this battle drill. First, reconnaissance of the objective determines whether the battle drill is required in the first place. If there are no antiarmor

threats, this deliberate echeloning of anti-tank systems is not necessary. However, if there are threats that can defeat a Stryker vehicle, failing to identify them prior to making contact provides a significant advantage to the enemy.

Second, threat identification allows the leader to determine how many and what type of dismounted anti-tank systems are necessary to address the enemy threat. He or she can then allocate the right assets and give refined engagement criteria to the leaders of the support-by-fire element. Third, the leader can use the information gathered in the reconnaissance to determine what conditions must be set by the dismounted systems before transitioning to mounted anti-tank systems.

Knowledge of the enemy composition, disposition, and strength on the objective gained by reconnaissance has a direct impact on these decisions, and one can use a variety of resources to collect this intelligence. If available, scouts can be used to reconnoiter the objective, sketch the layout, then guide the support-by-fire elements into position. Unmanned aerial vehicles, whether Ravens, Pumas, or other similar aircraft, can accomplish the same effect, though their noise signatures can potentially compromise the attack. Joint fixed-wing assets can be employed, as can satellite imagery. Although all approaches have risks and limitations, some form of reconnaissance is necessary. At a minimum, the commander should gather enough intelligence to determine the greatest possible threats on the objective, as that will dictate where he or she must deploy his or her formation (i.e., the line of contact).

Step 2. Identify probable line of contact. Retaining the initiative and engaging the enemy on friendly terms are core tenets of this battle drill. In order to achieve them, the attacking force must identify where it will most likely make contact with the enemy and then stop short of that point and set conditions for its attack. If the unit fails to do so, pushing past this point and into contact, it cedes the initiative to the enemy, as the unit has likely entered an engagement area where the enemy has set the conditions for enemy success.

It is important to note that there are, by doctrine, eight forms of contact: visual; direct fire; indirect fire; aircraft; obstacles; chemical, biological, radiological, and nuclear; electronic; and nonhostile.³ For the purposes of this drill, audio contact ought to be considered as well. If the enemy can hear vehicles approach, ramps

Table 1. 2CR Anti-tank Battle Drill

1. Identify enemy composition, disposition, and strength on the objective, specifically known, likely, and suspected positions of:
 - a. Armor—tanks, armored personnel carriers, armored reconnaissance vehicles
 - b. Anti-tank systems—mounted and dismounted ATGMs and rockets
 - c. Hardened positions, e.g., bunkers
2. Identify probable line of contact (LC)*
3. Determine a probable line of deployment prior to reaching the line of contact
 - a. Initiate indirect fires to fix the enemy in defensive positions and degrade his observation/optics/sensors
 - b. Dismount infantry squads/platoons and initiate movement to support-by-fire and assault positions
4. Occupy support-by-fire positions
 - a. Infiltrate dismounted anti-tank systems (M148 Javelin, M3 Carl Gustaf, AT4)
 - b. Move ICV-Ds into last covered and/or concealed position short of the support-by-fire position
5. Engage enemy anti-tank capabilities (those that can defeat Stryker vehicles) with dismounted systems according to the following priority of engagement:

<ol style="list-style-type: none"> a. Armored vehicles b. Dismounted anti-tank systems c. Heavy machine guns 	}	Likely in survivability positions such as trenches or bunkers, if present
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6. Immediately following the dismounted AT engagement, move ICV-Ds into support-by-fire to destroy, neutralize, or suppress high-threat systems
 - a. Once high-threat systems are destroyed, initiate movement from the assault position toward the objective
 - b. Re-engage with dismounted or mounted ATGMs as the situation demands
7. Echelon indirect fire systems (155 mm, 120 mm, 81 mm, 60 mm) and direct fire systems (30 mm ICV-D, MK19 ICV-J, .50 caliber ICV-J, M240 coax ICV-D, dismounted M240B) to facilitate isolation, breach, assault, and clearance of the objective

* Forms of contact include visual, direct, indirect, aircraft, obstacles, CBRN, EW, and non-hostile

(Table by authors)

mass casualties among dismounts. Indirect fire is unlikely to destroy tanks and armored personnel carriers, but it will likely degrade optics and sensors and may cause mobility kills.

Regardless of the physical damage, all of these effects make it much more difficult for the enemy to detect the advance of friendly forces and to identify support-by-fire and assault positions. This is the essential effect: initiation of effective and sustained indirect fire facilitates friendly forces' dismounted infiltration to positions of relative advantage over the enemy (e.g., the support-by-fire and assault positions).

Step 4. Occupy support-by-fire positions. The leader must now array the friendly forces so that they can effectively mass fires on the enemy's highest threat systems—its armor and anti-tank capabilities (see figure 1, page 114). To do so, the leader leads with

drop, and squads dismount, the unit will cede the initiative just as if it had made another form of contact.

Step 3. Determine a probable line of deployment prior to reaching the line of contact. Once the line of contact is determined, the leader can begin to set the conditions for the attack. The first step is to determine where to deploy friendly forces. They must halt short of the line of contact to deploy so that they can move into positions of advantage against the enemy. This takes time and requires a deliberate and rehearsed plan, and it must be done out of contact with the enemy.

When ready to move past the line of deployment, the leader initiates indirect fires on the objective. This creates several beneficial effects. Most importantly, it fixes the enemy on the objective. Under artillery or mortar fire, dismounted forces either remount or huddle down inside trenches or bunkers. Mounted forces button up and pick up scanning. These actions degrade the enemy. These fires may cause casualties, though trenches, bunkers, and battle positions reduce the likelihood of

dismounted anti-tank systems first. They infiltrate to covered and concealed positions that give them both maximum cover and stand-off from the objective. From this forward position, the leader or commander confirms the disposition of enemy threats and allocates combat systems accordingly. For example, if facing tanks on the objective, he or she may want them completely destroyed by Javelin missiles before bringing Strykers into the support-by-fire position. Likewise, if facing a lightly armored combat vehicle and dismounted AT systems in restrictive terrain, the leader may decide to use a volley of AT-4s on all bunkers and then immediately bring ICV-Ds into the fight.

While the dismounted antiarmor systems are infiltrating to their support-by-fire position under the cover of indirect fire, the platoon's ICV-Ds move to their last covered or concealed position short of their own support-by-fire positions. This may be within audio contact with the enemy but outside of the other forms of contact. If so, indirect fires may mitigate the risk of compromise. Ideally, this is a position of defilade where,

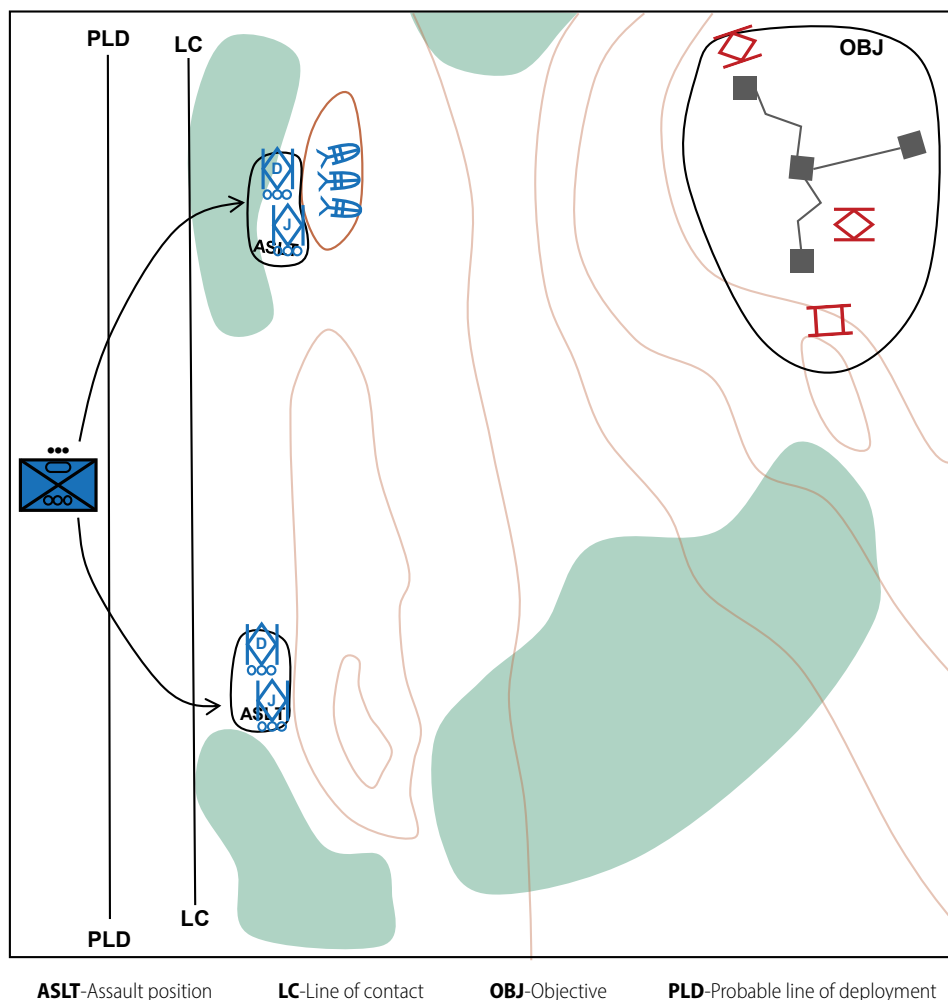
on their leader's order, they can rapidly gain direct fire contact with the enemy. Once in position, the leader relays the location of enemy threats to the ICV-Ds, giving each platform an initial target allocation. This reduces their engagement time once they move into position and can be done using polar coordinates, a quadrant system, or some similar method.

Step 5. Engage enemy anti-tank capabilities with dismounted systems. Steps 5 and 6 are the essential steps of the battle drill. The goal of this progression is to employ the most effective anti-tank systems in the Stryker formation in ways that give them the greatest effect with the least risk: dismounted anti-tank systems first, immediately followed by ICV-Ds, to destroy, neutralize, or suppress enemy anti-tank systems. At this point in the drill, indirect fire is landing on the objective. The leader has identified the highest threats on the objective and communicated them to the dismounted gunners and ICV-Ds. Dismounted anti-tank teams have identified, locked on, and prepared to engage their designated targets. ICV-Ds are in their last covered and concealed position short of their support-by-fire positions with target locations designated.

On the leader's command, Javelins, Carl Gustavs, and/or AT-4s simultaneously fire on the objective. As they impact, these missiles and rockets have multiple effects. The first effect initiates fire with the platoon's most effective systems that also have the smallest signature. In a second effect, missiles ideally kill at least some if not all of the enemy's antiarmor systems. At a minimum, multiple missiles and rockets on the objective

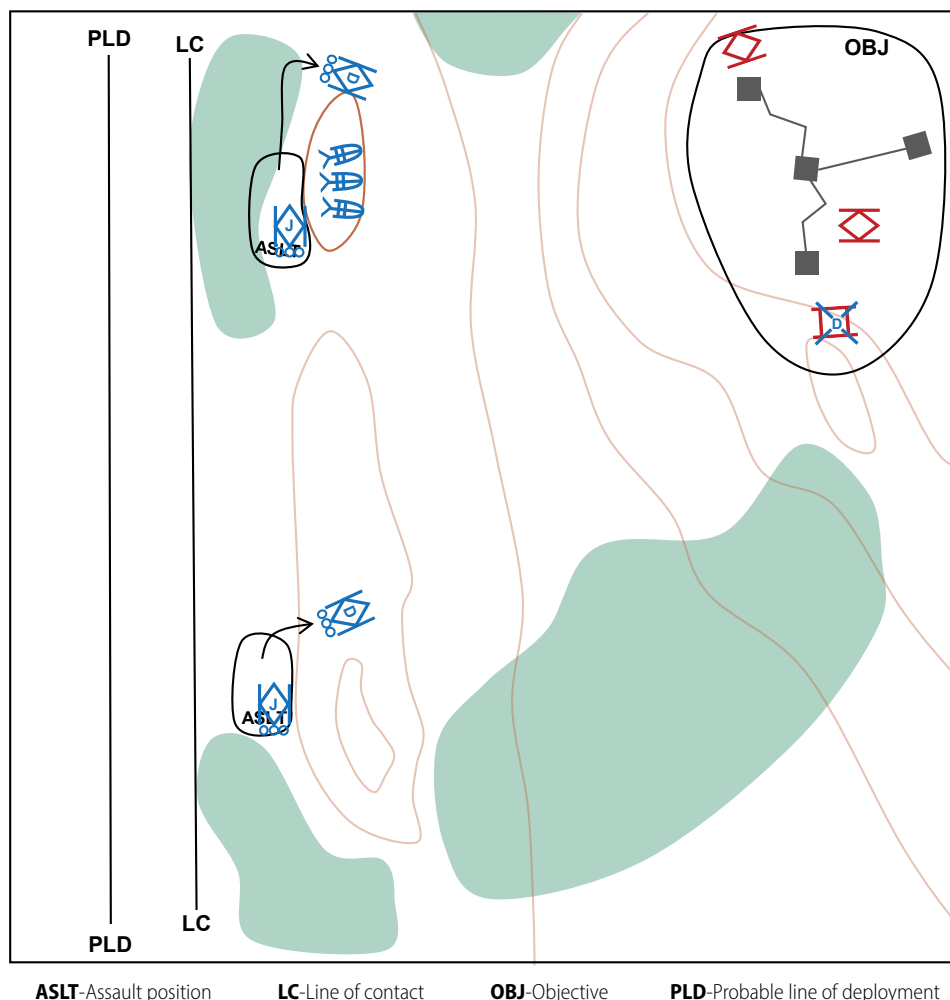
simultaneously will stun the enemy and force that enemy to focus on assessing damage, regaining communication, and searching for the location of the missile teams. A third effect attracts attention to the dismounted fires. Even if the platoon fails to destroy all of the antiarmor threats on the objective, this engagement effectively neutralizes or suppresses the objective for a short period of time while the enemy attempts to recover.

Step 6. Move ICV-Ds into support-by-fire positions to destroy, neutralize, or suppress high-threat systems. To take advantage of the window immediately following the dismounted anti-tank engagement, the leader moves the platoon's ICV-Ds into their support-by-fire position immediately after the missiles leave their tubes (see figure 2, page 115). As they move into their position,



(Figure by authors. See Army Doctrine Publication 1-02, *Terms and Military Symbols*, tables 5-2 and 8-19, for symbol descriptions, https://armypubs.army.mil/epubs/DR_pubs/DR_a/pdf/web/ARN20083_ADP%201-02%20C1%20FINAL%20WEB.pdf)

Figure 1. Occupy Support-by-Fire Positions



(Figure by authors. See Army Doctrine Publication 1-02, *Terms and Military Symbols*, tables 5-2 and 8-19, for symbol descriptions, https://armypubs.army.mil/epubs/DR_pubs/DR_a/pdf/web/ARN20083_ADP%201-02%20C1%20FINAL%20WEB.pdf)

Figure 2. Move Infantry Carrier Vehicle-Dragoons into Support-by-Fire Positions

the ICV-Ds immediately acquire and engage the tanks, armored personnel carriers, and antiarmor positions. ICV-Ds can acquire and engage targets much more rapidly than a Javelin missile, and their goal is to destroy the enemy's systems that can defeat a Stryker's armor.

The ICV-Ds' 30 mm cannon has proved effective against all but the most recent generations of threat tanks. If only light to medium armored personnel carriers, earlier generation tanks, or smaller armored vehicles remain on the objective, the ICV-Ds can destroy these systems on their own. If tanks survive the initial missile engagement, the ICV-Ds can suppress those targets until either dismounted Javelins reload or ICV-Js can enter

the fight and fire from a position of defilade. Third, if the initial engagements did not destroy bunkers with ATGMs in them on the objective, the ICV-Ds can effectively suppress those positions until maneuver forces can clear them later in the fight.

With antiarmor threats neutralized, the leader can mass the full effects of the unit's weapons systems from the support-by-fire position as the risk to Stryker vehicles is now low. This is the key condition that must be set to initiate the assault on the objective. The commander can now initiate movement of his or her dismounted assault.

Step 7. Echelon indirect and direct fire systems to facilitate isolation, breach, assault, and clearance of the objective. To support the movement of the assault force, the leader must echelon indirect fires and direct fires (see figure 3, page 116). Without an-

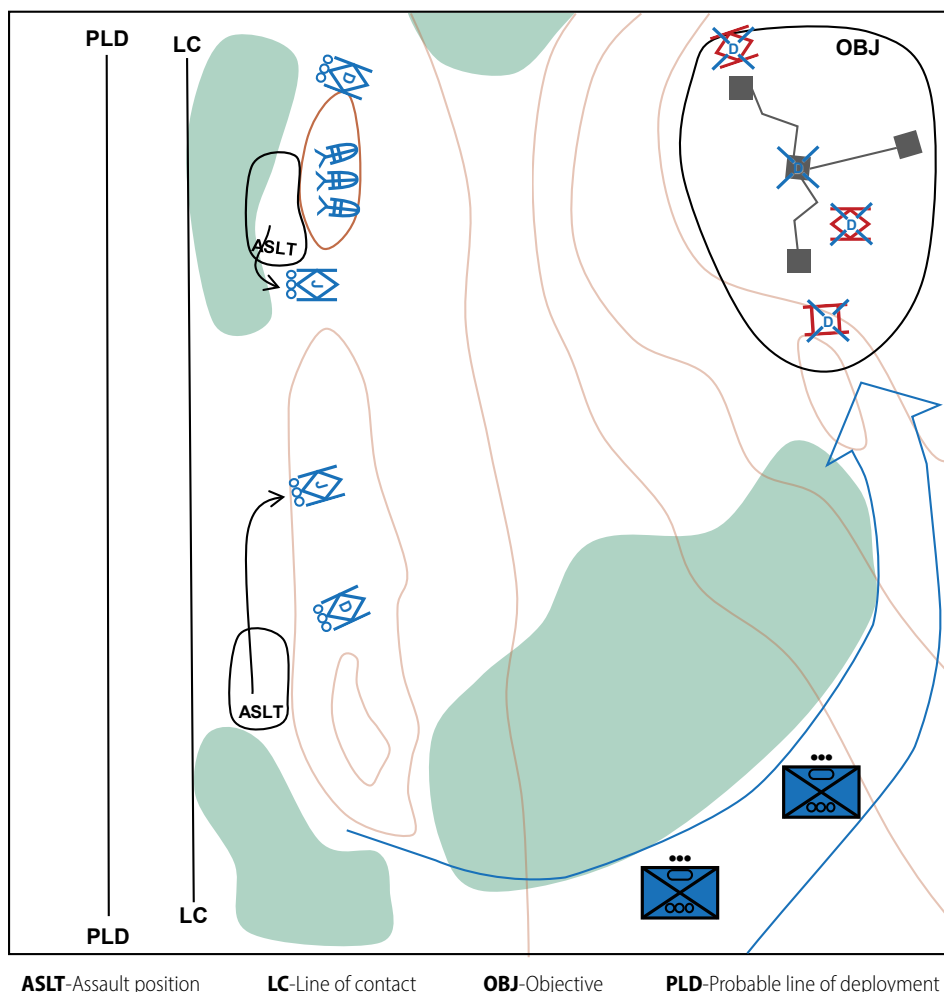
tiarmor systems, the enemy poses little threat to the Stryker platform. The leader is now free to occupy the support-by-fire position with both mounted and dismounted direct-fire weapons systems. As the assault moves closer to the objective, the leader can shift or lift fires as necessary, echeloning direct fires from the ICV-Ds' 30 mm cannons and the ICV-Js' 40 mm MK-19 grenade launchers to the ICV-Js' M2 .50 caliber machine guns and the ICV-Ds' 7.62 coax machine guns, all the way down to M240B squad automatic weapons on tripods. Simultaneously, the leader must also echelon fires from his or her 120 mm mortars to 81 mm and 60 mm mortars. If

available, fires from M777 howitzers, AH64 Apaches, or joint fixed-wing aircraft are integrated as well.

How We Fight in the Defense: Defense in Depth

To seize the initiative and gain a relative advantage in the defense, 2CR's infantry squadrons are most effective when they conduct an area defense in depth.⁴ As previously stated, infantry squadrons can establish a position of relative advantage over forces that enjoy greater firepower and survivability than the Stryker but only for a limited period of time. The longer a Stryker formation fights from a fixed position, the greater the probability of the enemy massing the effects of its combat power on that formation. It is therefore essential that squads and platoons avoid decisive engagement, instead trading space for time once specific enemy and/or friendly criteria are met. In doing so, these formations can attrit superior forces and successfully defend over time. As shown in table 2 (on page 117), the defense in depth is accomplished in seven steps.

Step 1. Analyze avenues of approach and enemy scheme of maneuver. As with any defense, the seven steps of engagement area development are essential for success. The process has special considerations for the infantry squadrons in 2CR. Identification of locations where it is difficult for the enemy to mass combat power is essential for a successful defense. An infantry squadron can most effectively kill the enemy in these locations, especially when a squadron is augmented with a manmade obstacle effort, indirect fires, and direct fires. There are



(Figure by authors. See Army Doctrine Publication 1-02, *Terms and Military Symbols*, tables 5-2 and 8-19, for symbol descriptions, https://armypubs.army.mil/epubs/DR_pubs/DR_a/pdf/web/ARN20083_ADP%201-02%20C1%20FINAL%20WEB.pdf)

Figure 3. Echelon Indirect and Direct Fire Systems to Facilitate Isolation, Breach, Assault, and Clearance of the Objective

a number of characteristics that make massing combat power difficult. Canalizing terrain—such as wet-gap crossings, mountain passes, or the borders of forested areas—that prevent the enemy from bringing more than one vehicle abreast or establishing an overwatch position is ideal for a 2CR engagement area. These areas mask the enemy's firepower and prevent them from effectively maneuvering on defensive positions.

Infantry squadrons seek terrain that shortens the engagement range of direct-fire weapons systems. Nearly every threat platform possesses some antiarmor capability that outranges the Javelin or the 30 mm cannon. Restrictive terrain, vegetation, rolling terrain,

Table 2. 2CR Defense in Depth

1. Analyze avenues of approach and enemy scheme of maneuver to determine the optimal terrain in which to kill the enemy *
 - a. Canalized terrain and/or areas with natural obstacles that prevent him from transitioning from movement to maneuver
 - b. Terrain and/or vegetation that shortens direct fire engagements, taking away his range advantage and enabling engagement from our systems
 - c. Terrain that facilitates friendly battle positions in depth
 - 1) Multiple positions that have effects in the same engagement area
 - 2) Subsequent engagement areas and battle positions
 - 3) Mounted/dismounted routes between positions that enable rapid displacement and re-engagement
2. Integrate obstacles, indirect fires (mortars), missile/rocket fires (M148 Javelin, M3 Carl Gustaf, AT4), and direct fires (30mm, MK19/M2, dismounted machine guns) that enhance canalization, slow enemy movement, and facilitate limited engagements
 - a. Fires integrated at the point where obstacles and terrain have effect, rather than the obstacle itself
 - b. Account for enemy mounted and dismounted scheme of maneuver (i.e., protect anti-tank assets with dismounted security to prevent ambush/envelopment of battle positions)
3. As the enemy approaches, utilize sensors linked to shooters to engage and disrupt the enemy outside of direct fire range
 - a. Sensors: Puma, Raven, signal detection and direction finding, scout/troop observation posts, higher IC assets
 - b. Shooters: 120 mm mortars, 81 mm mortars, regiment or higher artillery/rockets, attack aviation
4. Engage enemy with missile, rocket, and 30 mm fire in accordance with specific criteria
 - a. Sequence missile/rocket fire with 30 mm against the highest threat systems
 - b. Utilize the system that best matches the threat, preserving most effective systems for highest threats
 - c. Where possible, destroy vehicles in locations that increase obstacle effects
5. Disengage in accordance with specific criteria, trading space for time and moving to subsequent positions that repeat this process
 - a. Enemy conditions—destruction of certain vehicles, enemy reaches a certain location, enemy achieves a specific movement formation or brings multiple vehicles to bear on a position
 - b. Friendly conditions—specific amount of combat power remaining, specific ammunition levels, or time triggers based on events in other areas
 - c. Short engagements in small engagement areas arrayed in depth preserve combat power, enable repeated seizure of initiative, and preserve relative advantages
 - d. Time needed to reload and re-acquire targets with Javelin systems likely limit repeated engagements from the same position
 - e. Preservation of depth facilitates continued engagement/disengagement while preventing enemy penetration
6. Utilize superior mobility to counterattack and disrupt the enemy's attack
 - a. Retake previously abandoned battle positions
 - b. Strike enemy's flank or rear to present multiple dilemmas at the same time, disrupt his tempo, and destroy his command and control
7. Pass remaining enemy forces on to subsequent forces.

* Key condition: locations where the enemy cannot mass his combat power

(Table by authors)

masked by the forward slope, serve a similar purpose. The closer the engagement ranges, the greater effect Stryker weapons will have relative to their adversaries. As a general rule, the more capable the adversary platform, the shorter the desired engagement range and the more restrictive terrain should be sought.

Friendly considerations factor into the decision on where to kill the enemy. As stated previously, an infantry squadron prefers multiple, smaller engagement areas arrayed in depth over fewer large engagement areas. Ideal terrain supports either multiple battle positions in depth that allow for massed fires in the same engagement area or subsequent engagement areas and supporting battle positions. Regardless of the array of engagement areas, routes that adequately support mounted and dismounted retrograde are essential. 2CR units strive to have at least two positions set and ready to engage the enemy while one is repositioning. Linear arrays of battle positions are avoided as they encourage massing of enemy combat power and penetration of friendly lines.

Lastly, strong consideration should be given to the size of the opposing enemy force and how many engagements it will take to cause the enemy to break off the attack or to destroy the enemy forces entirely. Starting from the last position, units should assess what they can realistically kill in each battle position.

Unlike an armored unit that can fire tank-killing munitions from multiple

platforms in rapid succession, 2CR units lack responsive tank-killing capability. The 30 mm cannon provides highly responsive and effective fires against armored personnel

or any combination of the three creates intervisibility lines that mitigate this range advantage. Reverse slopes, where ranges are shortened and friendly positions are

carriers, but it lacks the armor to survive an extended exchange of fire. Therefore, by the time the enemy reaches the final battle positions, they must be attrited to a manageable level. It is safe to assume that the final position will struggle to succeed if it is asked to destroy the majority of the enemy's combat power. Therefore, units must determine how much of the enemy must be destroyed prior to the final position and build engagement areas that support those requirements. Failing to allocate enough engagement areas, the required firepower in each, the effect that each position must have on the enemy, or any combination of the three will make success difficult.

Step 2. Integrate obstacles, indirect fires, missile/rocket fires, and direct fires that enhance canalization, slow enemy movement, and facilitate limited engagements. As with any defense, integration of obstacles, indirect, and direct fires is essential for success (see figure 4, page 119). 2CR infantry squadrons must set specific conditions prior to initiating contact with the enemy. First, given that 2CR units are fighting a defense in depth, it is difficult to effectively block in forward positions. It is more realistic to emplace obstacles that simply disrupt, or at maximum, fix enemy forces. Units overwatching forward obstacles will rarely stay in position long enough to prevent the enemy from eventually breaching. It is more important that the obstacle cause the enemy to take predictable action, rather than truly prevent it from moving forward. Therefore, obstacle efforts forward that slow the enemy or make it deploy its forces earlier than it wanted are preferred over complex obstacles forward. Such efforts are best conserved for final positions or no-penetration lines.

Second, indirect, missile and rocket, and direct fires should be integrated on the location where the enemy will change its movement in response to the obstacle, rather than on the obstacle itself. For example, if the enemy identifies an eleven-row concertina obstacle on a single lane dirt road, it is unlikely it will drive directly up to the obstacle and look at it. Most likely, they will identify the obstacle as the enemy crests an intervisibility line or comes around a corner in the road. Once identified, it will likely back out of visual contact, dismount infantry, and attempt to clear around the obstacle to the next intervisibility line. Friendly fires should be targeted on the suspected dismount location. Ambushing the enemy during their dismount drill is a way to seize initiative.

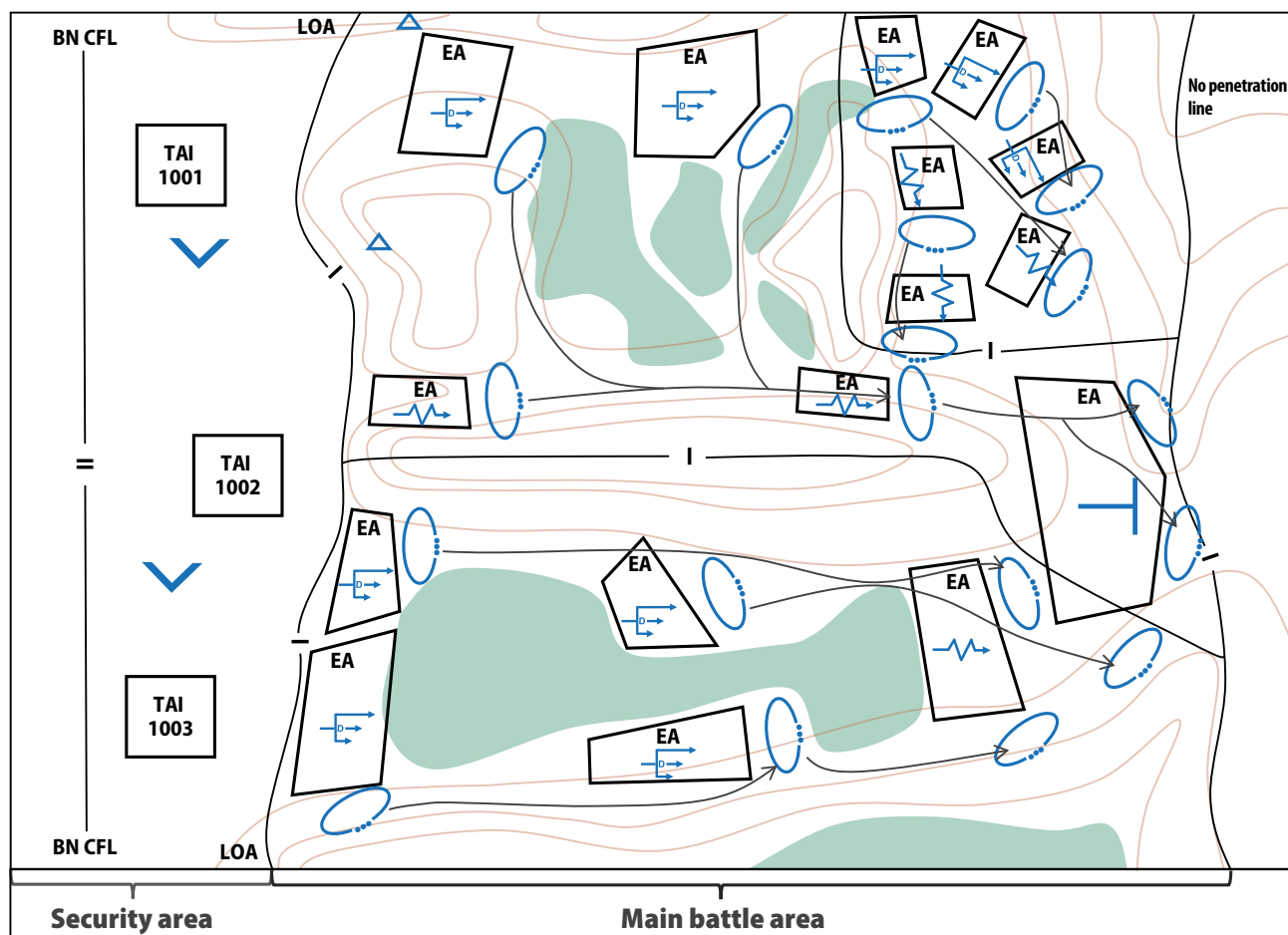
Finally, 2CR units must be prepared for the enemy's mounted and dismounted schemes of maneuver. Though the greatest threat to 2CR units are the enemy's mounted systems, it is important to remain vigilant against the enemy's dismounted infantry. The enemy will attempt to protect its mounted systems by clearing restrictive terrain with infantry—2CR units must secure their antiarmor systems (mounted and dismounted) against such maneuver, ambush, or envelopment. In fact, if properly accounted for, 2CR units prefer to fight armored forces dismounted. Given 2CR's dismounted firepower, larger basic load of ammunition, and defensive posture, if the enemy leaves its vehicles' firepower and protection, 2CR units gain a significant tactical advantage.

Step 3. Utilize sensors linked to shooters to engage and disrupt the enemy in a forward security area.

According to Army Techniques Publication 3-21.21, *Stryker Infantry Battalion*, establishing a forward security area is optional.⁵ However, for an infantry squadron in 2CR, the forward security area is an important element of the defense in depth. First, it enables squadrons to make contact with the enemy as far forward as possible, disrupt its formations, and begin to destroy enemy combat power outside of direct fire contact. This is accomplished, at a minimum, by linking organic reconnaissance assets (Puma, Raven) and forces (scouts, snipers) with the robust mortar capability resident in a Stryker battalion out to five kilometers. When supported with higher echelon reconnaissance (Shadow, Gray Eagle, Prophet/Trojan, or even the regiment's cavalry squadron) and fires (M777 howitzers, rocket artillery, attack aviation), this forward security area can triple in size.

Second, the use of a forward security area enables 2CR units to achieve greater success against the enemy's reconnaissance forces. Counterreconnaissance is essential in this fight because early identification of friendly defensive positions enables the enemy to target them with indirect fires prior to direct fire engagement. Such engagements could force forward units to retrograde earlier than desired, reducing the depth of the defense. An effective and robust counterreconnaissance fight retains the element of surprise for the defenders and enables 2CR units to seize the initiative in the fight.

Step 4. Engage enemy with missile, rocket, and 30 mm fire in accordance with specific criteria. Once the enemy has entered the main battle area,



BN CFL—Battalion coordinated fire line

EA—Engagement area

LOA—Limit of advance

TAI—Target area of interest

(Figure by authors. See Army Doctrine Publication 1-02, *Terms and Military Symbols*, tables 5-2 and 8-19, for symbol descriptions, https://armypubs.army.mil/epubs/DR_pubs/DR_a/pdf/web/ARN20083_ADP%201-02%20C1%20FINAL%20WEB.pdf)

Figure 4. Integrate Obstacles, Indirect Fires, Missile/Rocket Fires, and Direct Fires

battle positions sequence missile, rocket, and 30 mm fires to achieve massed effects on the enemy (see figure 5, page 120). 2CR has antiarmor capacity that can have significant effects on a wide range of threat systems, but there are a number of employment considerations for these systems. As this firepower is distributed amongst dismounted infantry and vehicle platforms, units must make deliberate choices about how they engage. Ideally, units use obstacles and indirect fires to slow or disrupt enemy movement in designated areas. They then use dismounted or mounted ATGMs or, at close range, shoulder-fired

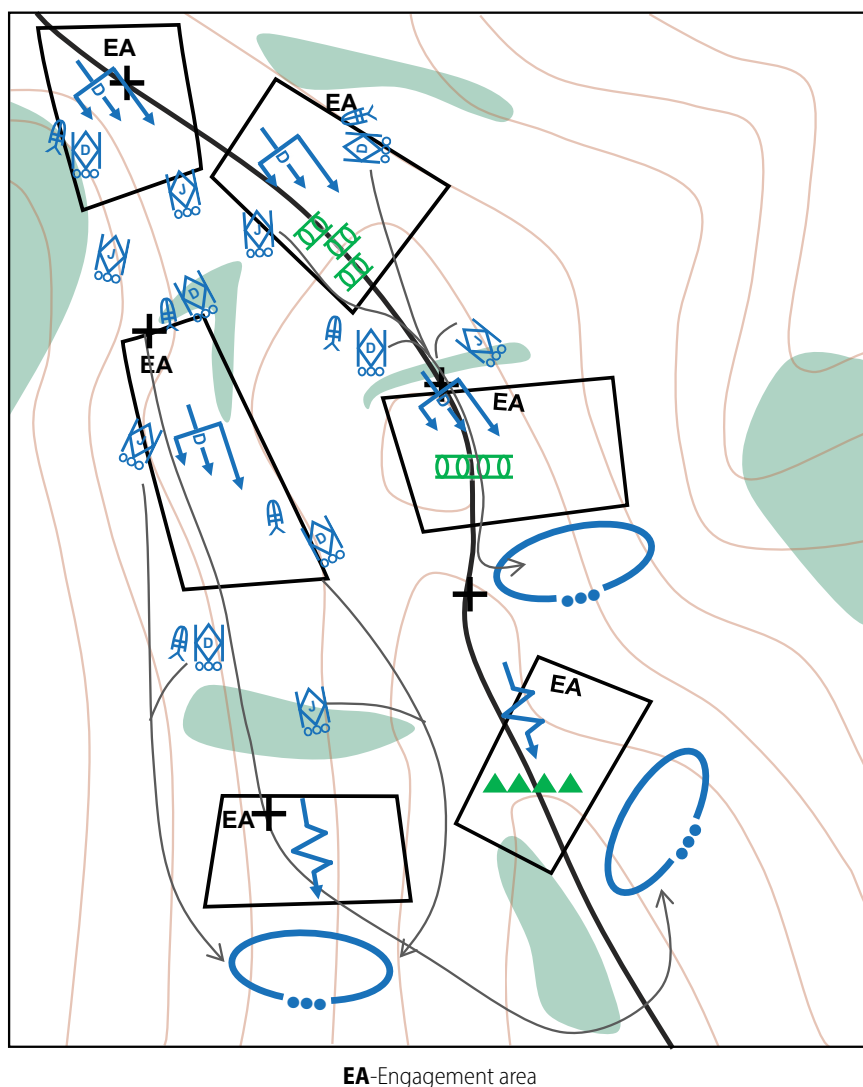
rockets to degrade or destroy mounted systems from small, concealed locations. After the initial volley is fired, mounted direct-fire systems (30 mm, MK19, or M2) follow to complete the destruction of the enemy.

If such deliberate sequencing is not possible due to terrain, defenders should look to engage threats with the smallest weapon possible that still yields the desired effect. When engaging tanks, the Javelin missile is the most appropriate system. When dealing with the variety of threat armored fighting vehicles and infantry carriers, M3 Gustavs, AT4s, and 30 mm cannons can all destroy those systems. Strykers cannot carry

unlimited ammunition for all weapons systems, so it is important to match the right weapon to the right threat.

Regardless of the system or the methods used, infantry squadrons in 2CR must strive to achieve maximum effects on the initial engagement. As time goes on from the first engagement and positions are compromised, it becomes harder and harder to retain the relative advantage. Therefore, it is important for units to set and describe specific engagement criteria that trigger the use of direct fires. These criteria vary with the situation, but in many cases, targeting the first vehicle in restrictive terrain has benefit, as a destroyed vehicle can block a route and facilitate disengagement. However, if a position is conducive to multiple simultaneous engagements, it may be desirable to allow some number of vehicles to enter the engagement area to maximize the effectiveness of the position prior to withdrawal. Regardless of the conditions, engagement criteria must be disseminated and understood so that the relative advantage gained by surprise is used to its greatest effect.

Step 5. Disengage in accordance with specific criteria and move to subsequent positions to repeat this process. For a defense in depth to be effective, units must trade space for time. This means that they must deliberately disengage from contact, move to a subsequent position of advantage, then reengage the enemy. Clear disengagement criteria for each position most efficiently triggers displacement. Criteria can be based on enemy conditions: destruction of certain vehicles, the enemy reaches a certain location, it achieves a specific movement formation, or it brings multiple vehicles to bear on the defensive position. Friendly conditions, such as combat power reduced to a certain level, key munitions



(Figure by authors. See Army Doctrine Publication 1-02, *Terms and Military Symbols*, tables 5-2 and 8-19, for symbol descriptions, https://armypubs.army.mil/epubs/DR_pubs/DR_a/pdf/web/ARN20083_ADP%201-02%20C1%20FINAL%20WEB.pdf)

Figure 5. Engage Enemy with Missile, Rocket, and 30 mm Fire

remaining, time triggers, or conditions in other areas of the fight that make current positions untenable, can also trigger withdrawal. In particular, the reload and reacquire time for the Javelin missile system, which can extend over a minute whether mounted or dismounted, makes it difficult for that system to have multiple successful engagements from the same position, especially at short range or in restrictive terrain. A Javelin engagement may be the condition for a withdrawal. No matter what condition triggers disengagement, it must be rehearsed at echelon (repeatedly, if possible) prior to engagement with the enemy.



Regardless of the trigger, once it is reached, the unit must disengage. Ideally, units should strive to have at least two elements in set positions engaged or ready to engage the enemy while a third is moving. Having only one position set or allowing set positions to become linear is less optimal as such circumstances increase the probability of enemy penetration. As previously stated, each element must prepare multiple engagements in depth and fully understand the effects they must have on the enemy at each position. By doing so, 2CR units gradually attrit the enemy so that by the time it reaches 2CR's final battle positions, it lacks the ability to mass fires or effectively maneuver and are destroyed.

Step 6. Utilize superior mobility to counterattack and disrupt the enemy's attack. The mobility of the Stryker platform provides the flexibility for maneuver units to not only withdraw but to also counterattack, either locally or in depth. Responding to changes in the enemy scheme of maneuver, disruption of its tempo, or unexpected openings, 2CR maneuver units should stay alert for opportunities to retake lost battle positions. In doing so, they appear in unexpected locations and can present the enemy with dilemmas from locations the enemy assumed to be abandoned.

Soldiers assigned to Comanche Troop, 1st Squadron, 2nd Cavalry Regiment, prepare to conceal a Stryker Infantry Carrier Vehicle 2 November 2019 during Dragoon Ready 20 at the Joint Multinational Readiness Center in Hohenfels, Germany. (Photo by Spc. Ethan Valetski, U.S. Army)

Similarly, units should look for opportunities to launch elements of combat power at the flanks or in the rear of the enemy's attack. Making the battlefield nonlinear; disrupting enemy lines of communication; or destroying their command, control, support, or indirect fire positions can achieve outsized effects and reduce the effectiveness of their attack. Counterattacks should be considered in every defense in depth.

Step 7. Pass remaining enemy forces on to subsequent forces. In a large-scale operation, it is likely the enemy will have large numbers of forces in multiple echelons. Though a single maneuver squadron may successfully halt an enemy's attack or even trigger a withdrawal temporarily, defeating the enemy in one engagement is unlikely. Once the squadron's position is compromised, the relative advantage decreases. The squadron must disengage before the enemy can target the position directly with additional

forces in echelon or indirectly with mortars, artillery, or missiles. Disengagement can take multiple forms. The same squadron can disengage and move to subsequent positions. The regiment can defend with squadrons in depth and hand the enemy from one maneuver squadron to the next. The fight could be handed over to more heavily armored combined arms battalions or brigades that have established defensive positions in other areas.

Implications

When combined with the tactical approach above, the firepower upgrades of 2018 have significantly expanded the threats against which the 2nd Cavalry Regiment can effectively fight and win. Stryker units have always excelled against dismounted threats. The mobility, firepower, and sustainment resident in any Stryker battalion already overmatch any such adversary. In 2CR, however, the Stryker infantry squadron now has the firepower to effectively fight armored, mobile threats. It enjoys overmatch against light-armored reconnaissance forces. With the right tactics, 2CR is also well matched against medium-armored assault forces or mechanized infantry forces equipped with earlier-generation armored vehicles. That said, 2CR infantry squadrons are still challenged to defeat vehicles equipped with longer-range, faster-firing main weapons systems and protected by modern reactive armor. While 2CR can effectively delay these modernized armored and mechanized units, it is difficult for 2CR to defeat these forces.

Therefore, 2CR can effectively deploy to a crisis and then establish a defense in depth to either defeat or delay a wide variety of armored threats. This capability is essential in the European theater, as 2CR is the most responsive and operationally mobile ground force on the continent. In the event of a crisis, especially one where threat integrated air defense systems deny access to aerial platforms, 2CR can alert, marshal, and deploy faster than any other NATO force. Once in the crisis area, 2CR can gain and maintain

contact with the enemy while establishing an area defense in depth. Against mechanized airborne or assault forces, this kind of a defense can defeat their attack. Against more heavily armored forces, 2CR can delay the enemy's advance, buying space and time for U.S. and NATO armored forces to arrive in the region and enter the fight.

Going forward, these tactics and procedures should inform 2CR training in theater. The current training glide path of the regiment fully supports the further development of these tactics and preparation for their employment in theater. U.S. and German training areas facilitate building these skills at the squad, platoon, and troop levels, while the major theater exercises (e.g., Saber Guardian, Saber Strike, Defender 2020, Noble Partner) provide opportunities for squadrons to apply these tactics in a crisis scenario. Furthermore, partnerships and exercises should be leveraged toward interoperability with allied nations that possess similar experience and weapons platforms such as the Boxer armored fighting vehicles of Germany and the United Kingdom, the BTR armored personnel carriers in Eastern Europe, or the Polish army's Rosomak wheeled armored vehicles. Combat training center rotations to the Joint Multinational Readiness Center validate the regiment's ability to employ maneuver squadrons using these tactics in a regimental-level operation.

Despite its suitability for Europe, the efficacy of 2CR's firepower upgrades, its new tactics, and the expanded effectiveness of the Stryker formation are not limited to this theater. These innovations enable Stryker units to fully realize the potential of the platform and to expand their utility for the Army. Increasing the firepower of the other Stryker brigade combat teams in the Army and further developing these tactics could create a more flexible force, blending both mounted and dismounted maneuver to achieve outsized effects against a wider range of threats. It would allow the Stryker to better fulfill its role as the U.S. Army's medium force. ■

Notes

1. Army Doctrine Publication (ADP) 3-0, *Operations* (Washington, DC: U.S. Government Publishing Office, July 2019), 4-1. The significance and role of positions of relative advantage and initiatives are introduced in ADP 3-0 on pages 1-9 and 1-11, respectively.

2. The 2nd Cavalry Regiment fielded the Infantry Carrier Vehicle–Dragoon and the Infantry Carrier Vehicle–Javelin, significantly upgrading its firepower.

3. ADP 3-90, *Offense and Defense* (Washington, DC: U.S. GPO, July 2019), 2-13.

4. This is in accordance with Army Techniques Publication 3-21.21, *SBCT Infantry Battalion* (Washington, DC: U.S. GPO, March 2016), chap. 5, sec. II.

5. *Ibid.*, para. 5-78.



2nd Lt. Jesse Underwood, Alpha Company, 1st Battalion, 17th Infantry Regiment, engages enemy forces 19 February 2010 during Operation Moshtarak in Badula Qulp, Afghanistan. The International Security Assistance Force operation was an offensive mission conducted in areas of Afghanistan prevalent in drug trafficking and Taliban insurgency. (Photo by Tech. Sgt. Efren Lopez, U.S. Air Force)

Tactical Data Science

Col. Harry D. Tunnell IV, PhD, U.S. Army, Retired

Shortly after I returned from a combat deployment to Afghanistan in 2010, I commented to an interviewer that “the institution [U.S. Army Training and Doctrine Command] is putting out a good rifleman. What they are not doing is putting out a good rifleman for the digital age.”¹ Despite a decade’s passage, there appears to have been little progress. It seems that the military education and training system continues to emphasize industrial age information management practices in tactical units. This approach

ultimately hampers military operations at the tactical level of war in today’s information age.

The lack of progress is unfortunate because special skills and competencies are required for digital transformations.² This article proposes a set of skills and competencies for digital transformation at the tactical level of war that can easily be taught by the institutional Army and be sustained with small-unit training. The result will be a data science discipline customized for personnel in tactical units.

The U.S. Army needs a specialized data science discipline to help leaders transform raw data captured by myriad systems in small units and other sources into useful tactical information. A lack of knowledge in small units about digital data (hereinafter data) and the tools to capture, manage, and analyze data locally inhibits a battle staff's ability to gain tactical insights from data. Soldiers need more than mere competency with tactical information systems such as FBCB2 (Force XXI Battle Command, Brigade and Below, a command and control system in command posts [CPs] and combat vehicles). They need to understand the capture, management, and analysis of data, which I call tactical data science.

Using Data in Decision-Making

Data-driven decision-making is the practice of making decisions based more upon the analysis of data than intuition.³ Today, writing about using data to inform decision-making is almost cliché. Yet the reality is that in the twenty-first century, small-unit leaders still use physical artifacts and static electronic data rather than dynamic or streaming data for tactical planning and decision-making.⁴ As a practical matter, this means that leaders rely on artifacts informed by someone else's intuition rather than using data to inform their own

coup d'oeil.

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In today's era of big data (data that requires high-performance processing and large computational infrastructure, and is characterized by its volume, velocity, and variety at scale), there are tools designed for insight generation from data.⁵ What is missing for tactical leaders are soldiers trained to use the tools to exploit today's modern data-rich tactical environment. Unfortunately, even when a battle staff has the right tools (and they

do), soldiers do not have the training to use them well, and leaders do not have the background to ensure that the battle staff is focused on the right data to solve the tactical problem at hand.

Leaders need to ask questions with data in mind. They must frame their questions to the battle staff in ways that can be tested with data. Let us use a hypothetical intelligence briefing (based upon a 5th Stryker Brigade Combat Team, 2nd Infantry Division, CP practice in Afghanistan) as an example. The briefing is conducted using dynamic data stored in databases that can be queried during the briefing:

1. The commander identifies a topic that he or she wants more detail about and begins to ask questions.
2. The commander and staff brainstorm and shape the commander's questions into four hypothesis statements.
3. The intelligence section queries databases and creates visualizations. Enough data is available to test the first two hypothesis statements and decisions are made based upon these data.
4. After seeing the visualizations, the commander decides that the third hypothesis statement is not relevant. It is discarded, and the staff clearly understands that they do not need to follow up on the hypothesis.
5. The commander and staff revise the fourth hypothesis statement. Databases are queried, but acceptable data is not available.
6. The commander and staff craft priority intelligence requirements (PIR) and information requirements (IR) that are designed to gather the right data to test the final hypothesis.

The example highlights that commanders are an integral part of crafting hypothesis statements and making visualization decisions. To participate effectively, commanders must understand data and the tools and processes used to interact with data. The PIR and IR in the example are forms of research questions used to frame future data collection.

Vignettes

In this section, I provide a few real-world examples of generating insights from data to inform tactical decisions. The vignettes are all from combat and are filtered through the lens of my postmilitary work as an information technology professional and informatics educator.

Thinking out loud. During briefings, the practice of “thinking out loud” caused unnecessary work for the brigade staff. During a briefing, I might ask a series of questions about something I thought was interesting. In a nondigital environment, a staff officer would do a quick search of internal references (e.g., staff duty journal entries, situation reports, intelli-

data and modern information systems slowed down processes within the CP. My questions were constructed for an “old school” analysis. I soon realized that I was the delay and had caused the staff to spend days and weeks on data preparation whenever I asked a question because they were using data science techniques to interact with data. I had created many inef-



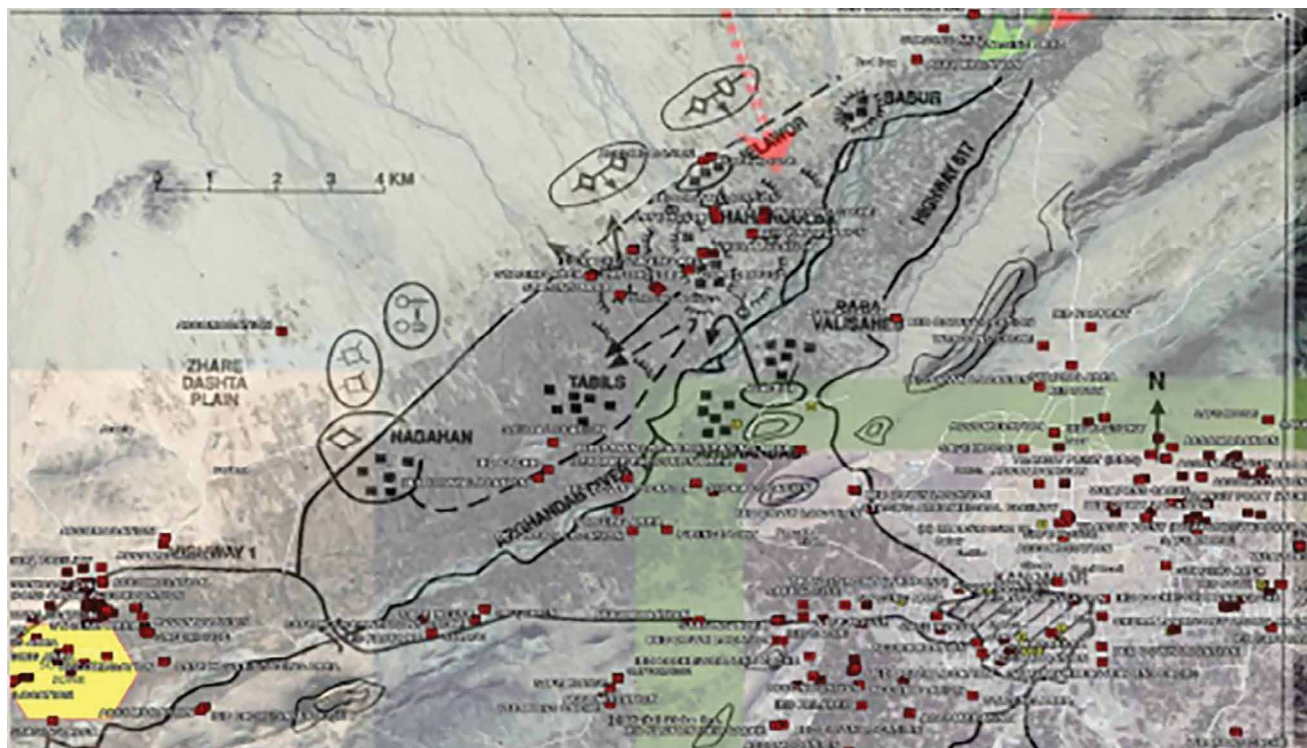
Capt. Matthew Quiggle, commander of Alpha Troop, 8th Squadron, 1st Cavalry Regiment, 5th Stryker Brigade Combat Team, examines structures in a village from the top of a Stryker 24 December 2009 before dismounting to cordon and search the area in Afghanistan. (Photo by Sgt. Chris Florence, U.S. Army)

gence presentations, doctrinal manuals) and provide feedback. I would then decide if additional investigation was merited. I had seen many commanders use a similar approach throughout my career.

I did not comprehend that digital systems and data required analytical processes that were much different from those for an analysis using traditional physical documents and electronic data. Data scientists spend an extraordinary amount of time preparing data; by some estimates, about 80 percent of their time is spent on such tasks.⁶ My lack of understanding about

iciencies for a staff working hard to respond to their commander, and I needed to correct the situation.

After realizing that I was the bottleneck, I asked the staff to tutor me. I learned about the different information systems, databases, data formats, and data retrieval practices common in the CP. This helped me to anticipate what would be required from a technical perspective to answer my questions. The result was that I asked questions differently, and I began to give the staff parameters for data collection and analysis. This led to our practice of data derived PIRs and IRs.



(Figure from 5th Stryker Brigade Combat Team, 2nd Infantry Division, *Guerrilla Hunter Killer Smartbook* [Kandahar, Afghanistan: Task Force Stryker, 2009], 18-2)

Figure 1. Screen Capture of a Brigade Digital Overlay

Digital overlays. Figure 1 depicts the enemy situation in the brigade's area of operation combined with a historical drawing of a mujahideen defense in the same area during the Soviet-Afghan War (1979–1989). Intelligence analysts came up with the idea to use historical artifacts to explore previously established patterns. The pattern that the drawing in figure 1 describes is that the mujahideen did not conduct military operations in the northeastern quadrant (bounded by Highway 617) because they used it as a living area for their families.⁷

The analyst's approach was brilliant. By incorporating historical drawings, we could watch for indicators of a previously established pattern (or the absence of indicators). These indicators allowed us to apply maneuver resources more efficiently. What figure 1 showed us was that enemy activity was unlikely to manifest in the northeastern quadrant.⁸ When our own tactical data supported the pattern (red icons are enemy contact), we began to make decisions based upon the pattern.

We were interested in correlations and not causality. Consequently, we never investigated why the Taliban

did not fight in this area. Once the historical pattern manifested, we surmised the area was secure enough for development resources (e.g., U.S. Agency for International Development). This allowed us to shift the main effort in this area to civil-military operations. We then refocused maneuver forces in other areas so that we could continue our hunt for enemy tactical formations and complete their destruction.

A battle captain's initiative. Unmanned aircraft system (UAS) streaming video would typically be displayed on a large plasma screen near other tactical displays at the front of the CP. While this provided excellent observation of a very localized area, it lacked tactical context because the surrounding environment could not be viewed.

Capt. Shaun Young, a battle captain, integrated observation and position location data from the UAS airborne assets in Regional Command–South (RC-S) into one view that was then combined with other tactical information. He integrated Land Warrior (a personal fighting system for infantry soldiers that includes a tactical computer that shows position location

information for those wearing the system) and FBCB2 information. His visualization also included position location information from fighter aircraft that was integrated into our FBCB2 network.⁹

Leaders could now see all UAS locations in RC-S and click an aircraft icon to see the camera feed. Consequently, a leader could see a UAS feed in context with other tactical information. (If a leader decided to observe a specific feed in detail, he or she could still

were able to review patterns set by *any* brigade unit traversing the area.¹⁰ If a commander noticed a pattern or choke point, he or she could simply draw a box around the area on a digital overlay, send it to his or her subordinates, and direct them to stay out of the area for an extended period (e.g., ninety days) to disrupt an emerging pattern for the enemy.

Before implementing honesty traces, Stryker vehicle drivers were approximately 66 percent of the brigade's

“Before implementing honesty traces, Stryker vehicle drivers were approximately 66 percent of the brigade's killed in action. After honesty traces, no Stryker drivers were killed.”

view the large single-feed screen.) The solution was not perfect as there was approximately nineteen seconds of latency; however, this was acceptable because of the benefit of the additional context.

Honesty trace. During our deployment, I read an article in *Stars and Stripes* about a technique that U.S. Marine Corps units in Helmand Province were using to avoid getting blown up by improvised explosive devices. Dismounted patrols tracked their actual patrol routes using commercial handheld GPS devices. When a patrol returned to base, the data from their route was retrieved and posted on a physical map. This was known as an honesty trace. Once the Marines knew the patterns they were setting, they could design patrol routes to frustrate enemy improvised explosive device teams. The method was manual and local to individual small units. I asked the brigade staff to learn more about the approach.

When I followed up with the staff, I was told that they thought they could create digital honesty traces. The operations research and systems analysis (ORSA) personnel in the intelligence section had taken the lead and developed a solution. The procedure that emerged was that the intelligence section took all FBCB2 data in the brigade and created features to show honesty traces for every brigade company-size unit.

The effort resulted in a digital overlay that was updated frequently and was sent out on a routine basis to every unit in the brigade. This would ensure that when one unit was operating in another unit's area, they

killed in action. After honesty traces, no Stryker drivers were killed. While other tactical innovations likely contributed to the decline in casualties, there was a strong correlation with digital honesty traces and the lack of successful attacks on Stryker vehicles.

Predictive intelligence. Once the brigade learned to use FBCB2 data in visualizations, there were other innovations. FBCB2 time series vehicle data was combined with other time stamped data to create interactive visualizations. For example, information about enemy communication and FBCB2 movement data were integrated into a single animation displaying the intersection of friendly movement patterns and suspicious communication patterns.¹¹

As the animation of friendly movement occurred, communication activities were displayed. The animation was critically reviewed to assess whether the communicator was in a position (based upon terrain analysis using other tools) to see the column. This assessment resulted in a predictive intelligence product to identify possible Taliban observation posts and plan countermeasures accordingly.

Killer data. Maj. Derek McClain, the brigade intelligence officer, asked to do a brigade data collection concept of operations (CONOP, a type of tactical plan in RC-S that had to be approved before large-scale operations could be conducted). The idea was to conduct tactical operations and focus intelligence assets on the area of an ongoing operation to collect data about the enemy.¹² A detailed digital overlay of the enemy

situation could then be created. The initial data capture was so successful that a second brigade CONOP for data collection was conducted.¹³

The payoff for the brigade came toward the end of the deployment. The Taliban was massing a large force in the Task Force (TF) Buffalo area to attack a Stryker platoon vehicle patrol base. As intelligence

methodology and their method can be used to inform a tactical data science practice.

Data science methods. Data scientists begin with a research question or hypothesis, which leads to finding relevant data. Once they have the data, it is preprocessed (e.g., data cleaning) using a variety of techniques to make the raw data suitable for analysis.

“Industrial-age thinking assumes that there is a lack of data while information-age thinking is the opposite. The challenge today is not the absence of data, it is the lack of knowledge about how to acquire, manage, and analyze data.”

on the situation began to develop, I ordered a cavalry troop to reinforce TF Buffalo.

As part of the reinforcement, the brigade intelligence section began to forward intelligence products derived from the two CONOPs to TF Buffalo. As TF Buffalo consumed the data, I received a call from the commander, Lt. Col. Jonathan Neumann. He believed that the intelligence was precise enough for an offensive operation and requested permission to attack. I approved the plan, and the task force conducted a preemptive attack on the Taliban. Simultaneously, Maj. Michael Gephart, the brigade fusion chief, provided intelligence products to Australian and Dutch special operations forces operating in the area and coordinated for attacks on the Taliban flanks and rear.

The destruction of the enemy force was complete. Intelligence reporting indicated that the Taliban issued orders to not assemble in groups larger than three to five personnel for fear of renewed attacks.¹⁴ All of this occurred while the brigade was in redeployment operations. Killer data combined with tactically savvy leaders and courageous soldiers ensured that redeployment continued unabated.

Tactical Data Science Framework

The vignettes are examples of using data to gain a maneuver advantage. But before similar successes with data can be efficiently adapted by other organizations to their tactical problems, a repeatable framework is necessary. Data scientists follow a

After preprocessing, the data is explored to understand its usefulness, and data scientists refine their research questions and hypothesis statements, develop ideas about variables, and decide how to transform or combine data to create features.

Machine learning models are built for classification and prediction. This is a resource intensive activity because data must be labeled for model training.¹⁵ Once the model is trained and the analysis is completed, the results are disseminated. If the output is not going to be consumed by data scientists, it is usually shared as reports, summaries, and visualizations.

Tactical data science methods. Traditional data science methods are at the core of tactical data science. These methods are surrounded by a military context so they can be applied to solve tactical problems in combat. For example, data-derived PIRs and IRs feed into the formal tactical planning process. And CP personnel can assist with data labeling using modern tools such as Amazon SageMaker Ground Truth.

During planning, each staff element does its own estimate. This includes retrieving data from known sources and identifying previously unknown but existing sources with potentially relevant data. If the staff estimates find adequate data to answer the PIRs and IRs, a data capture plan is unnecessary. If they do not, then a plan for data capture is created (plans can include activities in the physical or digital space, e.g., capturing prisoners or identifying resources to convert interrogation notes into a specific digital format).

Even with such a framework, common digital skills are required. If one believes that data can lead to important insights, then every soldier and leader in the Army should have the basic skills to support tactical data science. (Not everyone will *be* a data scientist. The skills must be matched to the expected level of training and education for soldiers in a particular role.)

Tactical data science supports network-centric operations. Consequently, a fully implemented tactical data science practice occurs at the brigade level and above because battalion and below units do not have the resources for network-centric operations.¹⁶ Even with this observation, a core set of digital skills is necessary throughout the Army because data is managed at all echelons (e.g., digital photos taken on patrol, squad patrol reports, CP staff journals).

Tactical Data Science Skills in Training and Education

It is unlikely that tactical leaders will have a deep understanding of big data from their military education and training. Developing such knowledge requires specialized skills and years of education. Fortunately, there are transferable skills learned by using small data (small data has characteristics like big data, but datasets are small enough to be held in memory on a local machine). Learning how to use small data can be trained in the current military education and training system.

Education is used to develop critical thinking skills, which can be advanced using the military university system. Training focuses on repetitive tasks. Tasks, conditions, and standards should be written for tactical data science activities and be evaluated during field training. Education and training will ensure that soldiers understand data management and can perform duties such as data preprocessing.

Having a battle staff that can perform exploratory analysis with small datasets is important. It lowers the burden on what will be a small tactical data science team, and it lessens the need to request intelligence products from another headquarters. With the right skills, battle staff personnel will be

Table 1. Summary of Tactical Data Science Skills That Should Be Taught to Enlisted Personnel

Initial entry	Basic battlefield data management (images, storyboards, etc.). Static data such as patrol reports and presentations should be managed with metadata. Labeling data for machine learning.
Battle staff noncommissioned officer and similar courses	Manage data in command posts (CP). Basic knowledge of managing small information systems (e.g., platoon or company CP). Labeling data for machine learning.
Advanced noncommissioned officer courses	Advanced data management skills in CPs. Supervising data preparation teams. Competence with managing intermediate information systems (e.g., battalion CP or brigade or higher staff section).
Sergeants Major Academy	Manage brigade and higher CPs as complete information systems.

(Table by author)

able to explore the data themselves; they will be able to answer many PIR and IR locally.

Training for Tactical Data Science

Industrial-age thinking assumes that there is a lack of data while information-age thinking is the opposite.¹⁷ The challenge today is not the absence of data, it is the lack of knowledge about how to acquire, manage, and analyze data. This is a reason that core skills at all echelons are important. Table 1 and table 2 (on page 130) depict tactical data science skills that should be taught to enlisted soldiers and officers, respectively, at each level of professional military education.¹⁸

In addition to programs devoted to new skills, there are opportunities to modify currently existing

skills. For example, ORSA personnel have skills that can transfer to a data scientist role. In fact, ORSA personnel often serve as proxy data scientists. Specialists in simulations may also have crossover skills. Giving ORSA personnel and other specialists opportunities to transition to a data scientist role can quickly advance a tactical data science capability.

Tactical Data Science Example

The following example demonstrates the difference between how commanders consume information today and how they could possibly use it within a tactical data science practice. The scenario is that a brigade commander is reviewing reports of what has happened in his or her area of responsibility. Currently, such reports are typically captured on Department of the Army (DA) Form 1594, “Daily Staff Journal or Duty Officer’s Log,” by the brigade battle captain and members of his or her shift.¹⁹ The same general version of the form has been in use since the early 1960s.

The current way to manage shift data. During a shift, several DA Forms 1594 are completed. The forms are used to record the date and time of an incident, a description of an incident and the action taken in response, and the initials of the person making the journal entry. Completed forms are often placed in a three-ring binder so that they can be reviewed by the commander at his or her workstation. Additionally, each staff section of a brigade battle staff keeps records using DA Form

Table 2. Summary of Tactical Data Science Skills That Should Be Taught to Officers

Precommissioning sources	A basic understanding of statistical analysis and data science tools. Competence with basic programming skills.
Basic course	Basic battlefield data management (images, storyboards, etc.). Static data such as patrol reports and presentations should be managed with metadata. Supervising data preparation teams.
Career course	Competence in advanced search and retrieval techniques. Ability to mine metadata using statistical analysis and data science tools. Competence with geographic information systems (GIS).
Combined Arms Services Staff School	This school should be revived. It should teach officers to manage staff sections and command posts as information systems. Graduates of this course should be able to perform data preprocessing, conduct tactical analysis with business analytics tools, and use GIS. Basic programming skills refresher. Students should be introduced to research questions and hypotheses.
Command and General Staff College	Ability to build bespoke information systems. Programming skills refresher. Competence with project management tools (consider tactical planning a project). Skilled use of GIS and the integration of GIS with other systems.
War College	Advanced education about research questions and hypothesis statements. Application of the Data-Information-Knowledge-Wisdom hierarchy and network-centric warfare theory.

(Table by author)

1594. These records are maintained by an individual staff section and are not combined with the records from the battle captain’s shift. Finally, subordinate units down to company level manage information using DA Form 1594. This methodology is common.

In the current practice, information for the commander is often in a single physical location and in a format that precludes widespread dissemination or integration with other data. Even when electronic versions of the form are used, the entries are typed and stored in a shared folder on a drive, or the form is

LINE_2_REPORTING_UNIT	LINE_4_ACTIVITY	LINE_4a_ACTIVITY_TYPE	LINE_5a_LOCATION_DETAIL	LINE_6_DETECTED_UNIT	LINE_7_DATE	LINE_7a_TIME	LINE_9_KIA	LINE_10_WIA	INITIAL
4-23 IN	Private Citizens & Property	Bombing/Explosion	Nahri Saraj district	Taliban	12/30/2010	23:28	10 Unknown	AF	
BSTB/5/2 SBCT	Transportation	Bombing/Explosion	Gereshk	Taliban	12/30/2010	02:45	144	BE	
1-17 IN	Government (General)	Armed Assault	Taloan	Taliban	12/19/2010	09:00	01	FD	
A/1-9 IN	Business	Unknown	Mazari Sharif district	Taliban	12/18/2010	13:41	10	EE	
3-17 FA	Police	Bombing/Explosion	Kandahar	Taliban	12/15/2010	14:26	39	FC	
C/1-9 IN	Police	Hostage Taking (Kidnapping)		Taliban	12/13/2010	22:41	00	DC	
HHC/1-508 IN	Government (General)	Hostage Taking (Kidnapping)	Qochin	Taliban	12/8/2010	04:40	40	DD	
BSTB/5/2 SBCT	Government (General)	Hostage Taking (Kidnapping)	Shibirghan district	Taliban	12/7/2010	15:15	00	DD	
B/1-9 IN	Government (General)	Hostage Taking (Kidnapping)	Darkha	Taliban	11/29/2010	18:43	10	BE	
2-1 IN	Business	Armed Assault	Tezin	Taliban	11/29/2010	00:27	01	AC	
3-17 FA	Educational Institution	Bombing/Explosion	Lashkar Gah	Taliban	11/29/2010	05:24	05	AC	
3-17 FA	Government (General)	Assassination	Puli Alam	Taliban	11/28/2010	22:18	31	EE	
2-1 IN	Business	Bombing/Explosion	Jalalabad	Taliban	11/26/2010	16:33	10	FC	
1-17 IN	Transportation	Armed Assault	Bala Baluk district	Taliban	11/23/2010	05:55	04	DF	
BSTB/5/2 SBCT	Private Citizens & Property	Bombing/Explosion	Zurmat district	Taliban	11/22/2010	01:17	42	BF	
HHC/1-508 IN	Police	Assassination	Musa Khel	Taliban	11/21/2010	00:10	12	BD	
HHC/1-508 IN	Government (General)	Hostage Taking (Kidnapping)	Borka	Taliban	11/20/2010	14:01	33	FD	
3-17 FA	Religious Figures/Institutions	Facility/Infrastructure Attack	Gizab district	Taliban	11/19/2010	08:25	00	ED	
C/1-9 IN	Airports and Aircraft	Unknown	Jalalabad	Taliban	11/13/2010	09:53	00	ED	
HHC/1-508 IN	Business	Hostage Taking (Kidnapping)	Khaki Safed district	Taliban	11/13/2010	12:55	00	FC	
HHC/1-508 IN	Government (General)	Bombing/Explosion	Shwak district	Taliban	11/9/2010	03:36	10	AC	
4-23 IN	Government (General)	Bombing/Explosion	Sayid Karam district	Taliban	11/3/2010	10:45	11	AF	
3-17 FA	Police	Hostage Taking (Kidnapping)	Pashad	Taliban	11/3/2010	07:17	20	ED	
3-17 FA	Military	Armed Assault	Barmal district	Taliban	10/30/2010	21:56	805	CE	
A/1-9 IN	Government (General)	Assassination	Farah	Taliban	10/26/2010	09:32	32	CD	
1-17 IN	Government (Diplomatic)	Bombing/Explosion	Herat	Taliban	10/23/2010	10:36	42	DF	
B/1-9 IN	Government (General)	Assassination	Dur Baba district	Taliban	10/22/2010	06:30	32	BE	
2-1 IN	Educational Institution	Bombing/Explosion	Puli Alam	Taliban	10/21/2010	20:02	01	AD	
3-17 FA	Business	Armed Assault	Gereshk	Taliban	10/17/2010	17:55	83	EC	
1-17 IN	Business	Hostage Taking (Kidnapping)	Anar Dara	Taliban	10/17/2010	08:06	00	BE	
C/1-9 IN	Business	Bombing/Explosion	Sari Pul district	Taliban	10/14/2010	00:55	00	BE	
1-17 IN	Airports and Aircraft	Bombing/Explosion	Shindand	Taliban	10/12/2010	12:01	00	BF	
HHC/1-508 IN	Government (General)	Bombing/Explosion	Taloan	Taliban	10/8/2010	00:11	1313	CC	
3-17 FA	Government (General)	Armed Assault	Kandahar	Taliban	10/4/2010	03:54	10	FE	
BSTB/5/2 SBCT	Government (General)	Armed Assault	Kandahar	Taliban	10/4/2010	05:17	10	DD	
3-17 FA	Private Citizens & Property	Bombing/Explosion	Andar	Taliban	10/4/2010	13:32	215	BC	

(Figure by author)

Figure 2. The Department of the Army Form 1594 Prototype

printed and placed in a three-ring binder. Regardless of what happens to the form, this is static data that lacks context. The commander receives information that is fragmented because of these data silos. He or she only sees what the battle captain's shift has recorded and placed at his or her workstation.

A modern way to manage shift data. In a digital environment, the organization, storage, and use of data should be much different. Rather than using physical or electronic forms, the battle staff could enter data into a relational database management system (RDBMS). To support this, standardized reporting formats should be updated to enhance management and search of data in an RDBMS. A platform that takes advantage of machine learning could then be used to interact with the data.

Using an RDBMS provides structured data that is more useful for analysis with modern tools. Furthermore, data is available from all staff sections and subordinate units since they can use the same RDBMS. (And vice versa, the brigade battle captain shift data is available to others.) Finally, if the commander, after an initial personal exploration, decides

that he or she wants a deeper analysis, then he or she can task the tactical data science team.

To highlight how such a process should work, a prototype RDBMS DA Form 1594 (DA 1594 Prototype) was created. The prototype is a combination of selected attributes from the DA Form 1594 and U.S. Army Spot Report format as well as attributes for additional tactical context.²⁰ The prototype is a Microsoft Access RDBMS, which is commonly available in CPs due to the dominance of the Microsoft Office suite of products for office productivity tasks throughout the Army.

The data for the prototype represents reports in a fictional brigade CP. The data was created for illustrative purposes and *does not represent the real activities of any Army unit*. The dataset combined fictional headings, fictional reporting by units, and fictional attack times with 551 records of real terrorist attacks from the Global Terrorism Database.²¹ The DA 1594 Prototype (see figure 2, page 131) demonstrates how a modern staff tool should look.

An advantage of using an RDBMS rather than a three-ring binder is that leaders can interact with the



data differently. For example, one can apply filters. This allows users to explore data in ways that are impossible to do with printed forms in three-ring binders or forms stored as static electronic data.

Another advantage of an RDBMS is that the data is easily accessed with business intelligence (BI) tools. The advantage of BI tools is that they are designed for laypeople and often include an embedded machine learning capability, which is a powerful technology for gaining insights from data. This approach is novel for small-unit CP data, which is typically not analyzed at all. Microsoft Power BI Desktop is the BI tool used for this example.

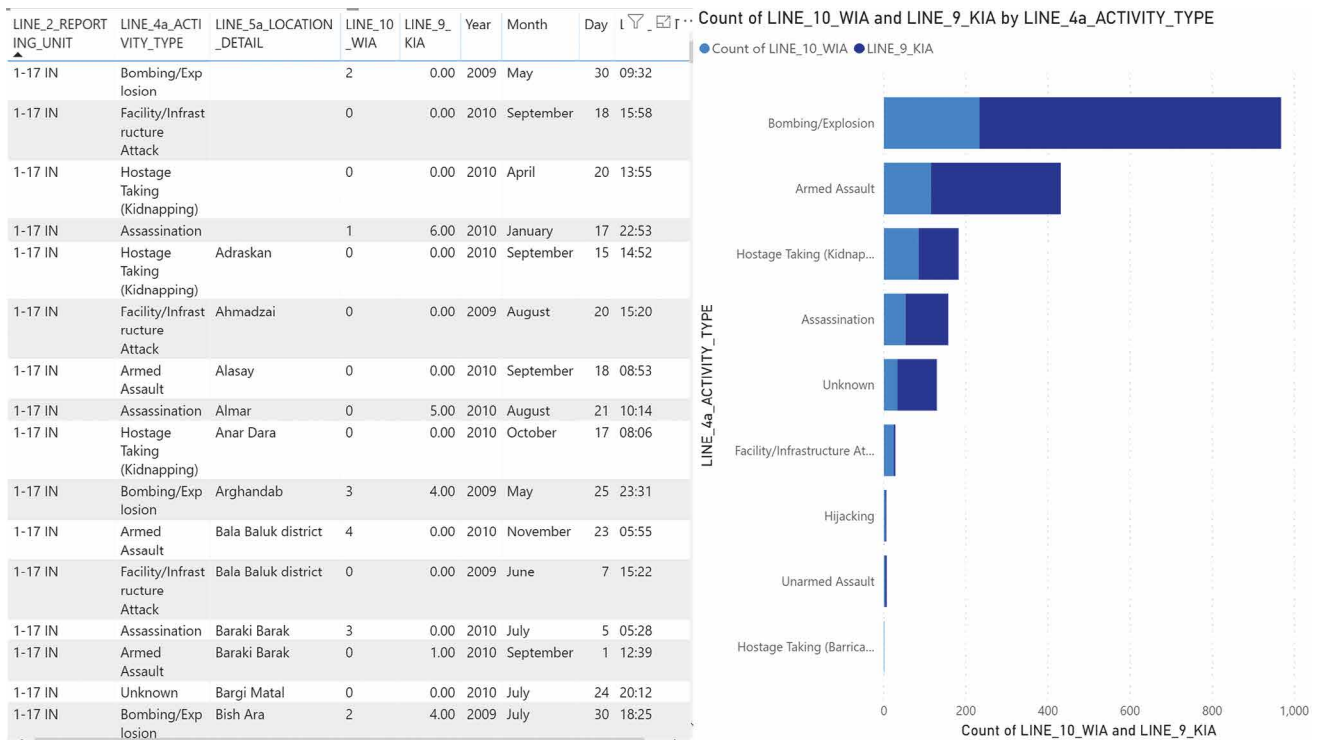
There are many options when using BI tools. For example, one can visualize data as geospatial data. By using the map functionality, patterns about the proximity of attacks to one another are discernible. Making such connections from individual staff duty journal pages in a three-ring binder or forms stored as static electronic data is impossible for most people.

Using a BI tool to visualize position location data can be done in seconds, while transcribing the same data

A soldier attached to 2nd Battalion, 1st Infantry Regiment, 5th Stryker Brigade Combat Team, 2nd Infantry Division, uses a Handheld Inter-agency Identification Detection Equipment (HIIDE) device 16 January 2010 during a cooperative medical engagement in the Maiwand District, Hotal, Afghanistan. The HIIDE system is a multimodal biometric system that collects and compares fingerprints, iris images, and facial photos against an internally downloaded biometric watch list. (Photo by Staff Sgt. Dayton Mitchell, U.S. Air Force)

from a written form to a physical or digital map takes much longer and is rife with opportunities for transcription errors. Another option with a BI tool is the reports functionality. This is useful for summarizing data in charts, graphs, and other formats. Figure 3 (on page 133) is an example of the different reports that can be created from data stored in the DA 1594 Prototype.

Making sense of tactical data. What is noteworthy about the example to this point is that any commander or member of a battle staff would have the skills to interact with the data. Even more noteworthy is that this level of analysis could be done in a few minutes. (Trying to create such ad hoc reports using



(Figure by author)

Figure 3. Patterns about Reporting Units Shown in a Table (left) and Killed and Wounded by Type of Attack Shown in a Bar Chart (right) Using Microsoft Power BI Desktop

traditional resources and methods takes hours or days.) Furthermore, another advantage of modern tools is that the analysis can be set up as standard reports and the data will be refreshed as the data changes.

Handoff to the tactical data science team. The bar chart in figure 3 shows that the bombing/explosion attack is the most successful enemy operation. Consequently, it is a good topic for deeper analysis. Once the commander has identified this, he engages the tactical data science team. The team uses different tools with more capability (that also require more education and training). Even though they may start with the same dataset, the tactical data science team uses it differently and for a different purpose. The research question for the tactical data science team is, “What characteristics of the bombing/explosion attack can be analyzed for potential countermeasures?”

This type of research question is salient because the data available from a battle captain shift is

inherently limited due to the nature of recordkeeping in a CP. Consequently, even with the enhancement of an RDBMS, there are limitations to such data. Rather, the dataset is used by tactical data scientists to identify ideas for new data sources to mine for different insights.

IBM SPSS Statistics is a statistical analysis tool that many ORSA personnel use, and it is the application used for this part of the example. To focus the analysis, the success of the bombing/explosion attack was redefined as the total number of casualties rather than the attributes of count by type (killed in action and wounded in action) used in the DA 1594 Prototype. The SPSS transform function was used to combine the *LINE9_KIA* and *LINE10_WIA* variables and create the *Casualties* feature for the analysis.

The descriptive statistics of *Casualties* in table 3 (on page 134) provide interesting insights. First, there are three cases of missing data, which means that 98.72

percent of the reports include casualty data. One can infer from this statistic that units are trained on the reporting format, and they are following the reporting procedure correctly. Second, the mean ($M = 8.21$) and standard deviation ($SD = 16.47$) indicate quite a bit of dispersion around the mean. This can be an indicator of a lack of consistency or outliers in the data. This could imply a need to validate any conclusions from the analysis with multiple techniques. Third, the median ($Mdn = 3$) indicates that 50 percent of attacks result in three casualties or less. This suggests that there might be opportunities to isolate attack results with a low number of casualties and learn from them.

Visualizing the data as a histogram (as shown in figure 4, page 135) can help one understand the mean and median results. For example, not only does the median indicate that 50 percent of the attacks result in three casualties or less, but most of them also do not result in any casualties. If the tactical data science team can identify patterns for no-casualty attacks, they can share them throughout the force, and units can update their tactics.

The histogram can also be used to home in on high-casualty attacks. In this scenario, the commander decided that thirty casualties in a single incident is a high-casualty attack because the loss of a platoon can make a company ineffective. (A platoon is approximately thirty to forty people, and a company is approximately 80 to 170 people.) If the data science team identifies patterns for attacks with thirty or more casualties, it could be possible to design countermeasures to reduce enemy opportunities to attack.

Finally, by conducting a crosstabs analysis (see table 4, page 136), it is possible to explore the frequency of unit reporting. Three units (Company A, 1st Battalion, 9th Infantry Regiment; Headquarters

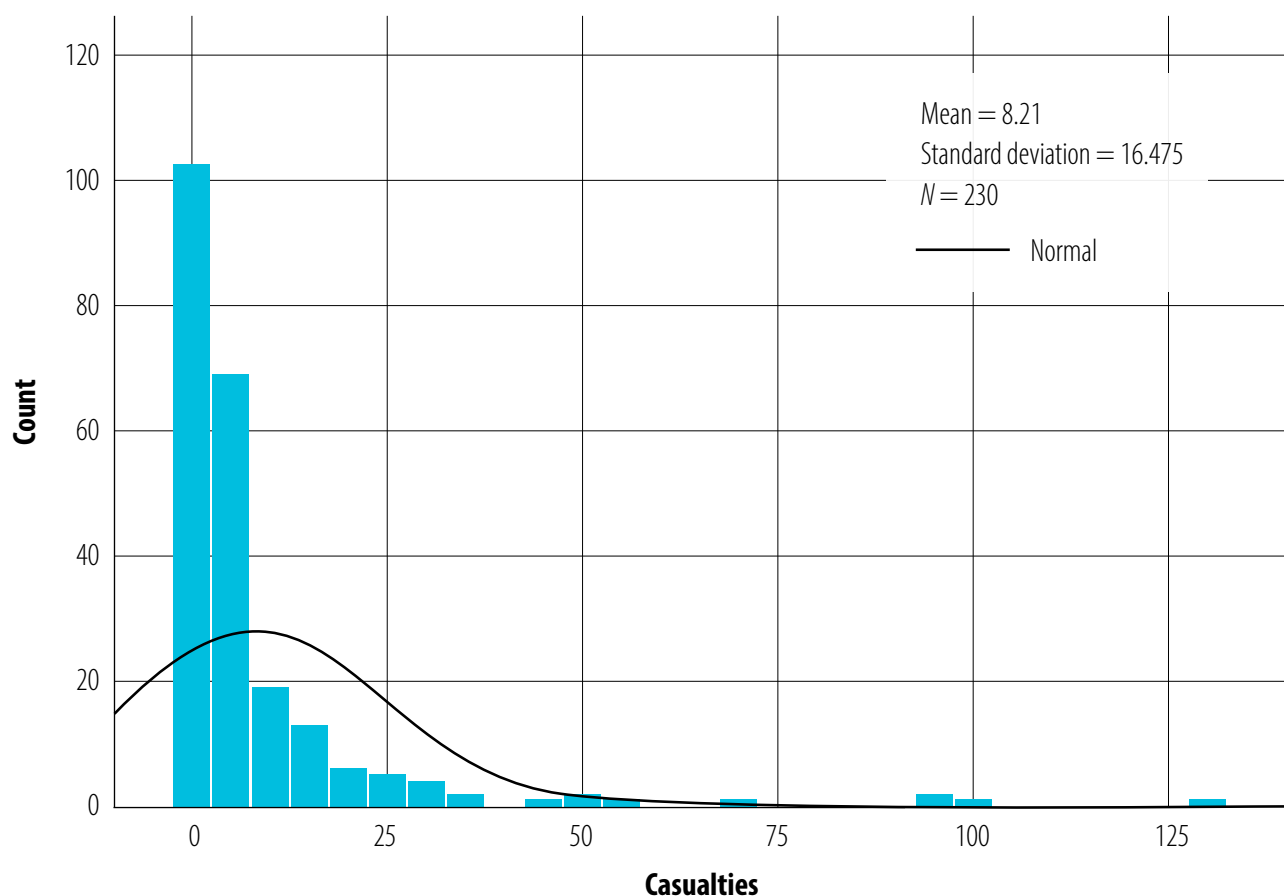
Table 3. Descriptive Statistics of Bombing/Explosion Attack Casualties

		Bombing/ explosion	Casualties
N	Valid	233	230
	Missing	0	3
Mean		NA	8.21
Median		NA	3
Standard deviation		NA	16.47
Variance		NA	271.43
Range		NA	128
Minimum		NA	0
Maximum		NA	128

(Table by author)

and Headquarters Company, 1st Battalion, 508th Parachute Infantry Regiment; and 2nd Battalion, 1st Infantry Regiment) report 41.2 percent of the attacks. Analyzing operations and casualties in these unit areas is an opportunity to understand enemy and friendly tactics related to bombing/explosion attacks.

This part of the example has demonstrated how to explore the data. This is an early step in any analysis. Among the next steps are to use advanced techniques such as machine learning to conduct an analysis or if the data is insufficient, to identify additional data sources. A search for more data could result in extremely large



(Figure by author)

Figure 4. Histogram for Bombing/Explosion Attack Casualties

datasets for a small tactical data science team to prepare. Fortunately, since all soldiers in the CP have a core set of skills, the battle captain shift can be used to help with basic data preprocessing tasks and data labeling.

Discussion

A tactical data science practice within CPs allows units to take advantage of locally generated raw data and other sources of raw data. The example demonstrates that meaningful insights are possible with the data managed in small units. This affords leaders better opportunities than the ones they currently have when they must rely on external resources that they do not control. This is not to imply that only locally sourced or managed data is useful. Rather, it shows how commanders can directly interact with data and use it to inform their own decisions and

guidance to the battle staff. Furthermore, it prevents the battle staff from being left at the mercy of the external agencies that generate operations and intelligence products that may or may not be timely or solve the local tactical problem.

The Army has one of the most extensive university-level education systems in the United States (based upon the combination of colleges, universities, and scholarships). There is no excuse for such educational potential to be wasted teaching old processes. To gain the most benefit from data, people doing an analysis should be as knowledgeable about the people, process, and technology required for a true digital transformation as they are about fighting.

Ideas about modern technology, data, and fighting should be integrated and complementary. This is in contrast to the construct proposed by some military

Table 4. Crosstabs Analysis Summarizing Unit Reporting of the Bombing/Explosion Type of Attack

	Frequency	Percent	Cumulative percent
1-17 IN	27	11.6	11.6
2-1 IN	31	13.3	24.9
3-17 FA	26	11.2	36.1
4-23 IN	20	8.6	44.6
A/1-9 IN	33	14.2	58.8
B/1-9 IN	15	6.4	65.2
BSTB/5/2 SBCT	27	11.6	76.8
C/1-9 IN	22	9.4	86.3
HHC/1-508 IN	32	13.7	100.0
Total	233	100.0	

(Table by author)

1594. This means that nearly two decades of organizable, searchable, and maintainable small-unit data have been kept from deploying units.

Conclusion

Managing data in a CP is the first echelon of a tactical data science practice. The second is having trained data scientists as part of the modified table of organization and equipment. CP personnel should manage and explore routine data while data scientists transform and combine it for a deeper and more robust analysis. Data scientists also have skills to create data pipelines that automate processing and moving data.

Creating a tactical data science discipline provides commanders with an ability to use advanced techniques with data for tactical decision-making in combat. A great deal about the environment and enemy can be derived from data that are readily available from the tactical information systems common in small units.

However, leaders are missing opportunities to use these data.

Tactical data science corrects

this and provides the Army with an opportunity to gain a maneuver advantage through the smart use of locally captured and managed data and raw data from other sources.

Finally, in looking toward the future, having tactical leaders who understand data science can alleviate challenges in emerging artificial intelligence programs, such as bias in machine learning models. For example, factors that contribute to model bias are selecting the wrong data to train the model and building models that do not reflect environmental realities as they are based upon incorrect assumptions. To mitigate this, some researchers are creating

intellectuals that they are distinct, competitive, and undesirable at the tactical level of war. Military students can, and should, be required to take classes that will teach them how to capture, manage, and analyze killer data as small-unit leaders.

Today, data from the vast collection of DA Forms 1594 are not useful for analysis because the content of these forms is simply not available. The forms are maintained as handwritten or printed papers or electronic static documents on storage devices. The United States has been at war in Afghanistan since 2001. Every deployed Army unit kept records using the DA Form

audit systems to scrutinize predictive models before they are deployed.²² Building a tactical data science capability ensures that combat leaders at the tactical level of war understand the basic principles of machine learning and are available to knowledgeably

help with the development or governance of artificial intelligence programs. ■

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Notes

1. William Reeder, "COL Harry Tunnell Brigade Commander 5/2 SBCT," in *S.L.A. Marshall Combat Leader Interview Series* (Joint Base Lewis-McChord, WA: Battle Command Training Center [BCTC], 2010).
2. Stephen J. Andriole, "Skills and Competencies for Digital Transformation," *IT Professional* 20, no. 6 (2018): 78–81.
3. Foster Provost and Tom Fawcett, "Data Science and Its Relationship to Big Data and Data-Driven Decision Making," *Big Data* 1, no. 1 (2013): 51–59.
4. Dynamic data is data that is updated, streaming data is a constant flow of data, and static data is unchanging. Data can be digital and electronic. We are interested in digital data, which has elements that can be extracted and shared across diverse systems. Some digital artifacts are also electronic data, such as a PDF locked for editing, which is ultimately static data. Metadata is available for all forms of data (dynamic, streaming, and electronic). It can be managed and analyzed using the techniques described in this article.
5. Daniel E. O'Leary, "Artificial Intelligence and Big Data," *IEEE [Institute of Electrical and Electronics Engineers] Intelligent Systems* 28, no. 2 (2013): 96–99; Salvador Garcia et al., "Big Data Pre-Processing: Methods and Prospects," *Big Data Analytics* 1, no. 9 (2016), <https://doi.org/10.1186/s41044-016-0014-0>.
6. Gil Press, "Cleaning Big Data: Most Time-Consuming, Least Enjoyable Data Science Task, Survey Says," *Forbes* (website), 23 March 2016, accessed 2 April 2020, <https://www.forbes.com/sites/gilpress/2016/03/23/data-preparation-most-time-consuming-least-enjoyable-data-science-task-survey-says/#41614c676f63>. See Gracia et al., "Big Data Pre-Processing," for more detail about common big data preprocessing tasks such as removing noisy data, data transformation, data cleaning, and normalization.
7. Ali Ahmad Jalali and Lester W. Grau, "Vignette 9: Battle for Chaharqulba Village," in *The Other Side of the Mountain: Mujahideen Tactics in the Soviet-Afghan War* (Quantico, VA: U.S. Marine Corps Studies and Analysis Division, 1995), 311–16.
8. 5th Stryker Brigade Combat Team, 2nd Infantry Division, "Governance Then and Now" (Joint Base Lewis-McChord, WA: Governance, Reconstruction, and Development Fusion Cell, 2010), slide 1.
9. Joseph Turnham, et al., "Digital Air/Ground Integration in Afghanistan: The Future of Combat Is Here!," *Fires Bulletin* (March-April 2012): 57–62.
10. 5th Stryker Brigade Combat Team, 2nd Infantry Division, Operations Research/Systems Analysis, *Honesty Traces: Draw Something ... Not Attention*, U.S. Army Brochure (Kandahar, Afghanistan: Task Force Stryker, 2009).
11. Harry D. Tunnell IV, "CMH-OEF-16-009 Col Harry D Tunnell," in *Chief of Staff of the Army: Operation Enduring Freedom Study Group*, ed. J. Stark (Washington, DC: U.S. Army Center of Military History, 2015).
12. Harry D. Tunnell IV, "Crisis Management and Combat Operations in Afghanistan," in *Crisis Management: A Leadership Perspective*, ed. Jerry D. VanVactor (New York: Nova Science, 2015), 195–209.
13. Ibid.
14. Ibid.; BCTC, *Operation Blowfish: Decision Making Exercise*, DVD (Joint Base Lewis-McChord, WA: BCTC, 2011).
15. Supervised, unsupervised, and reinforcement learning are popular machine learning techniques. Supervised learning requires data to be labeled. Unsupervised learning does not require labeled data. Reinforcement learning has an agent interact with the environment and learn based upon rewards. Supervised learning is arguably the most common machine learning approach.
16. Harry D. Tunnell IV, "Task Force Stryker Network-Centric Operations in Afghanistan," Defense and Technology Papers 84 (Washington, DC: National Defense University Press, 2011).
17. Harry D. Tunnell IV, "The U.S. Army and Network-Centric Warfare: A Thematic Analysis of the Literature," in *2015 IEEE Military Communications Conference: Proceedings of a Meeting Held 26-28 October 2015* (Tampa, FL: IEEE 2015), 904–9.
18. Harry D. Tunnell IV, "Network-Centric Warfare and the Data-Information-Knowledge-Wisdom Hierarchy," *Military Review* 92, no. 3 (May-June 2014): 43–50.
19. Training Circular 3-22.6, *Guard Duty* (Washington, DC: U.S. Government Publishing Office, 13 December 2019, Change 1), E-1–E-3.
20. Field Manual 6-99.2, *U.S. Army Report and Message Formats* (Washington, DC: U.S. Government Printing Office, 2007 [obsolete]), 219–219.1.
21. Harry D. Tunnell IV, "Simulated Combat Reports Dataset," IEEE Dataport, last updated 11 March 2020, accessed 2 April 2020, <https://ieee-dataport.org/documents/simulated-combat-reports-dataset>.
22. Eliza Strickland, "Racial Bias Found in Algorithms that Determine Health Care for Millions of Patients: Researchers Argue for Audit Systems to Catch Cases of Algorithmic Bias," *The Human OS Blog* (blog), IEEE Spectrum, 24 October 2019, accessed 2 April 2020, <https://spectrum.ieee.org/the-human-os/biomedical/ethics/racial-bias-found-in-algorithms-that-determine-health-care-for-millions-of-patients>.

The Battlefield Development Plan

A Holistic Campaign Assessment to Inform the Army Modernization Enterprise

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A study of the twenty-first century provides numerous examples of how extraordinary changes in society and technology shape humanity's rapidly changing world. These advances deliver the ability for any individual to communicate effectively with large numbers of people at a scale greater than previously imagined—with unprecedented effect. Reports of incidents occurring within a limited area can reach regional, national, or even global significance within minutes of occurrence by electronic means, and those reports often reflect the bias of the distributor. Advances in technology also make it easier to deceive individuals and groups of people, and to interfere in various aspects of their lives. Narratives of events circulate biased, selective, and even false information to reinforce or attack views and opinions worldwide, something previously reserved for select individuals or groups.

Meanwhile, many nations are reexamining the utility of legacy alliances and global or regional institutions within the context of new challenges and threats

for support, protection, and safety; they are questioning these bonds and looking internally or to new partnerships for solutions to secure their futures. Economies have become interdependent and competitive, yet at the same time, nations are engaging in economic disputes that are reshaping the production and trading of goods and services. The amount of information available has grown exponentially, along with the speed at which many events occur. A convergence of multiple technologies that are disruptive (some good, some bad) to economies, institutions, and traditional capabilities—autonomy, blockchains, robotics, biotech, nanotechnology, advanced networking (G-5), and sensors, to name a few—have given rise to the need for greater information technology capability and capacity to handle the exponential growth in available data. This is the environment as it exists now, and it will only become more complex in the future.

All this change affects the way humanity identifies and reacts to threats to its way of life. Writing at the end of the twenty-first century's second decade to predict the

operational environment of the European and Indian Ocean–Pacific theaters from 2028 to 2035 is challenging. Existing trends and projections provide a good estimation of demographics and other known factors that will potentially influence the makeup of these theaters during that time span. However, there are significant unknowns about other crucial factors—economic, environmental, political, and military—that complicate the ability to develop a reasonable portrayal of how and where Russia, China, or other competitors can and will challenge the United States and its allies as they attempt to contest global norms and alter the balance of power.

The U.S. Army has developed a new operational concept primarily to meet the challenges that Russia and China present but that also applies to competition and potential conflict with North Korea, Iran, and violent extremist organizations. Known as *The United States Army in Multi-Domain Operations 2028*, this concept discusses how the Army, as part of the joint force and in conjunction with allies and partners, will confront the threat posed by Russia, China, or any other potential adversary in both competition and conflict.¹ Overlaying the current doctrinal framework of decisive action, multi-domain operations (MDO) is conducted at all levels of war—strategic, operational, and tactical—and can extend from within the United States to deep within an adversary's homeland. In a change from previous operational concepts that only apply during periods of conflict, Army forces will provide critical capabilities to enable the joint force

to execute MDO against potential adversaries during periods of both competition and conflict.

Military Problem

An examination of Russian new-generation warfare capabilities and of China's economic growth and informatized warfare and systems-confrontation concepts demonstrates a deliberate and aggressive willingness to

confront the United States, its allies, and its partners not seen since the days of the Cold War. By attaining strategic objectives below the threshold of war, Russia and China have sought, and have been increasingly able, to improve their stature among nonaligned nations and offer them alternatives to a Western-dominated world. Having observed U.S. military dominance over the past thirty years and taking advantage of U.S. adjustments to global and regional force postures, Russia and China learned to employ a combination of asymmetric and standoff conventional means to challenge, intimidate, and coerce the United States, its allies, and its

partners. To this end, Russian and Chinese modernization efforts seek to reduce the United States' comparative military advantages in order to present the United States with a dilemma it has not faced in decades—how to deter and defeat a near-peer threat.²

Institutional Problem

As part of the joint force, the Army needs a way to adapt future force development to maximize the



To view TRADOC Pamphlet 525-3-1, *The U.S. Army in Multi-Domain Operations 2028*, please visit https://www.tradoc.army.mil/Portals/14/Documents/MDO/TP525-3-1_30Nov2018.pdf.

effectiveness of MDO to deter adversaries from aggressive behaviors toward other nations, defend against their divisive activities in periods of competition, and defeat near-peer threats in armed conflict. In the past, the Army utilized the Battlefield Development Plan (BDP) as the means of presenting doctrine, organization, training, materiel, leadership and education, personnel, facilities, and policy (DOTMLPF-P) recommendations to prepare the force for future conflicts.³ Russia's assertiveness on the world stage along with the emergence of China as a near-peer threat has resurrected interest in the BDP as a means of identifying and prioritizing DOTMLPF-P recommendations for action by the Army's leadership due to its top-down approach as opposed to the Joint Capabilities Integration and Development System/capabilities-based assessment bottom-up approach. The BDP provides a means to best identify gaps against multiple specific near-peer threats and prioritize integrated DOTMLPF-P solutions across Army functions and joint domains. Development of the BDP signifies the Army's return to a threat-focused, capability-driven process for modernization.

In order to implement the MDO concept, the Army needs to define the problems it faces from near-peer threats or other competitors, analyze the

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variables affecting the problem, and provide recommendations about solutions for implementation. To this end, the Army has revived the BDP to conduct analysis of near-peer adversaries. The BDP provides an operationally focused, campaign-level approach with linkages from strategy and force structure to capability and program development, providing a comprehensive look not readily provided by recent approaches to scenario planning and strategic analyses.⁴

History of the Battlefield Development Plan

Following the Vietnam War, the U.S. Army Training and Doctrine Command (TRADOC) led the effort to shift the force's focus from counterinsurgency to major combat operations in order to counter the growing conventional Soviet threat in central Europe. From 1973 to 1977, the immediate concern was rebuilding the current force to fight the Soviets in the near term.⁵ By late 1977, Gen. Donn Starry, then commander of TRADOC, believed the time had come to begin a longer-range projection of Soviet and U.S. capabilities.⁶ In August 1977, Starry set his combat development planners to work on the first BDP (see figure 1, page 141), published in November 1978.⁷ According to Starry, the BDP was "to be used as a road map for the future."⁸

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The BDP outlined priorities and issues requiring the Army's attention. Based on an assessment of selected near-term force readiness and programs for midrange force modernization, the BDP listed requirements necessary for program improvement. The BDP also included an assessment of the U.S. and Soviet militaries detailing effects of technology as well as problems with training, personnel acquisition, and spiraling costs.⁹

The BDP analyzed ten critical tasks viewed as encompassing all aspects of conflict for the next decade using data on existing and planned materiel solutions as a basis for setting priorities and for influencing planning, programming, and budgeting by the Department of the Army. The Army grouped the ten tasks into two primary battlefield functions: central battle and force generation. The essential tasks for central battle were target servicing; counterfire; air defense; logistical support; and command, control, communications/electronic warfare. The critical tasks for force generation included intelligence, interdiction, mobility, reconstitution, and force movement.¹⁰

The BDP began by forecasting a future operational environment, including both specific Soviet capabilities and the impact of the rapid technological change. Next, the BDP presented a detailed net assessment that compared U.S. and Soviet capabilities across the full range of functions listed above. The meat of the BDP was contained in its battlefield analysis. It used the ten critical tasks to assess a division's ability to execute the Army's emerging doctrine—AirLand Battle—against the Soviet Union in Europe with current and planned systems to determine current and remaining deficiencies (capability gaps). Finally,

the BDP concluded with specific recommendations and prioritized DOTMLPF-P solution areas for future Army programming to close those gaps with the Soviet Union and ultimately allow the successful execution of AirLand Battle.¹¹

The Army developed the BDP annually from 1978 to 1987; however, development changed to every two years when the Army went to a biennial budget cycle

in 1987.¹² Every BDP built upon the previous version, driving learning demands and furthering analysis and refinement. The 1991 collapse of the Soviet Union and perceived peace dividend removed the threat of a peer competitor to pace the United States' future requirements and led to the discontinuation of BDP preparation.

One of the great lessons of the BDP was the process itself, the consistency in which the cyclic learning process drove analysis and prioritized future capability demands against a specific pacing threat. The legacy of the BDP is still visible throughout the Army today. The BDP's process mission areas evolved into the Army's battlefield operating systems and

eventually into the warfighting functions currently in use.¹³ Similarities also exist between the BDP's ten critical all-encompassing tasks of battle and the five problems posed by China and Russia in competition and conflict as an analytical framework for future force development.¹⁴ The impact that the Cold War-era BDP process had and continues to have on the U.S. Army is significant. It is worth noting that the BDP was key to developing concepts essential for what became AirLand Battle. This enabled the BDP to continually inform concepts and doctrine, affecting all of DOTMLPF-P until the BDP was abandoned with



(Figure courtesy of the U.S. Army)

Figure 1. Battlefield Development Plan, 1978

AirLand Battle in 1991 with the end of the Cold War against the peer threat.¹⁵

The Battlefield Development Plan Today

The BDP provides a holistic campaign assessment for Army modernization utilizing a regularly updated set of documents that operationalize the MDO concept through a series of operational and tactical level actions or “plays” that can be modeled and tested.¹⁶ Utilizing a common framework, threat, and assumptions, the BDP provides a level of consistency

2028 and beyond. This is to address the challenges of peer and near-peer competition in the twenty-first century (or address the capability requirements needed to make the MDO concept a reality).

Purpose

The purpose of the BDP is to examine how the U.S. Army, as part of the joint force, conducts MDO to deter, or failing to deter, to defeat a near-peer threat or other adversary. This examination will entail an analysis of the projected 2028 capabilities, systems, and force structure of the Army when employed against a near-peer threat’s

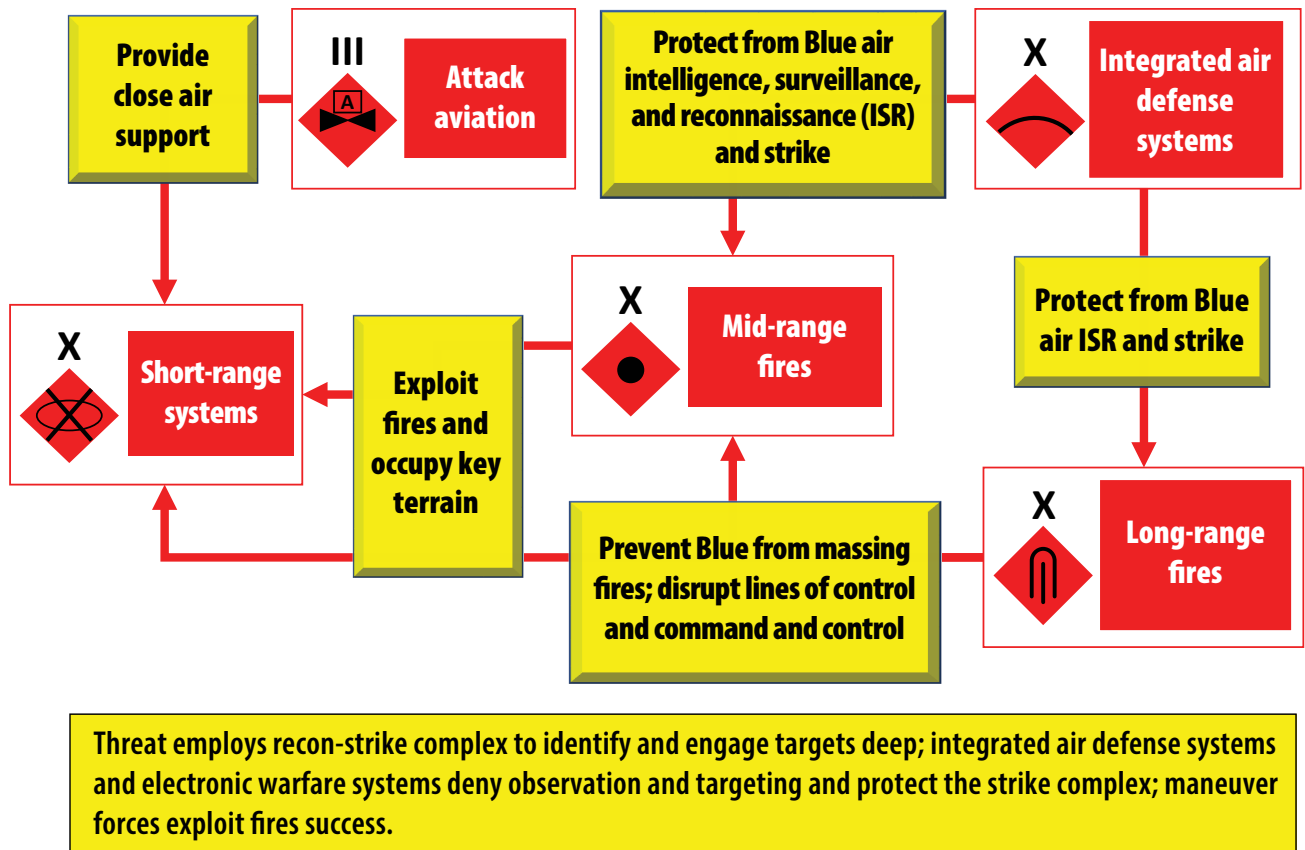
“The Battlefield Development Plan is a systematic program of experimentation focused on 2028 and 2035 capabilities, systems, and formations, and it provides a visualization of how the U.S. Army will perform in multi-domain operations against an adversary using specific scenarios.”

to Army Futures Command’s (AFC) experimentation efforts, enabling it to convey how future threat and friendly forces (organizations, systems, and capabilities) operate within an approved scenario to inform concepts, force structure, modernization, and trade-offs. The resulting analysis provides a holistic campaign assessment for use by AFC in guiding modernization and future force structure efforts.¹⁷

In this manner, the BDP informs Army decision-making at the secretary of the Army or chief of staff level. The BDP informs immediate (one to three years) decisions on future force structures, modernization, and concept and capability development through inputs to the Total Army Analysis and the Program Objective Memorandum. For the short-term (four to six years), it serves as a holistic campaign assessment for the Army Modernization Enterprise, informing annual modernization guidance and trades, and identifying modernization priorities for senior leader assessment. Lastly, the BDP informs long-term (more than seven years) Army decision-making concerning concept and capability modernization for the year

military using the principles outlined in *The United States Army in Multi-Domain Operations 2028*. The BDP is a systematic program of experimentation focused on 2028 and 2035 capabilities, systems, and formations, and it provides a visualization of how the U.S. Army will perform in MDO against an adversary using specific scenarios. The AFC Futures and Concepts Center’s (FCC) Directorate of Concepts (DoC) provides the results and analysis of experimentation as input to AFC for use in its decision-making process.

The analysis of the outcomes of simulations, tabletop experiments, and wargames is used by the Army’s senior leadership to make acquisition and funding decisions on the DOTMLPF-P requirements needed to create the future force required to prevail in competition, and if necessary, in conflict with near-peer threats. The Army utilizes its funding and acquisition decisions as the institution’s position in discussions with the other services regarding future concepts development, force design, and joint doctrine. The BDP focuses on capability development and concept development, as well as organizational structures needed to modernize the force to meet the



(Figure by TRADOC G-2/Dave Farrell)

Figure 2. Threat Systems—Conflict

challenges presented by near-peer adversaries—ranging from deterrence and preventing conflict in competition to fighting and winning in conflict. Laid out in four parts, the BDP consists of the following:

1. A main body describes the execution of an MDO campaign that employs the MDO force and future capabilities against a near-peer adversary within a specific theater (see sidebar, page 147).
2. A Threat Systems Annex, or Book 1, discusses an adversary's projected combat systems and means of employment.
3. An Army Capabilities Annex, or Book 2, discusses the Army's projected formations, combat systems, and capabilities.
4. A Playbook Annex, or Book 3, describes how the Army's future forces and capabilities could be employed using MDO in a campaign against a near-peer threat using theater and threat-specific vignettes.¹⁸

Book 1, "Red Forces"

Produced by the FCC Future Operational Environment Directorate in conjunction with the TRADOC Office of the Deputy Chief of Staff for Intelligence (G-2), Book 1 contains analysis of collective and individual threat systems.¹⁹ This analysis examines the strategies and capabilities possessed by these systems, as well as their vulnerabilities, providing recommendations on how to defeat them. The book consists of two sections: the overall threat system analysis and the subsystem analysis. Book 1 is a classified product. The overall threat system analysis section contains information on integrated air defense, long-range fires, conventional forces, and unconventional forces, and it discusses emergent threat doctrine and tactics, techniques, and procedures (see figure 2).²⁰ Diagrams are templated examples of how formations conduct various operations. The subsystem analysis section

contains information on command, control, and communications; sensors; operational and tactical guns/tubes; and kill-chain analysis for specific systems.²¹

Book 2, “Friendly Capabilities”

AFC’s capability development integration directorates (CDID), which are located at the Army’s centers of excellence, work closely with the centers’ force modernization proponents to develop functional (e.g., fires) organization and operational (O&O) concepts. O&O concepts vary in length from twenty to eighty pages. The CDIDs provide completed O&Os to FCC for use in experimentation and wargaming. Because the level of detail contained in the O&Os is not necessary for experimentation, the community creates executive summaries—capability sets for use. Each capability set contains enabling capabilities that enable the formation to operate. Book 2 utilizes two sections to convey this information—blue forces and capability enablers—and provides a look at the force that the Army will field in 2028.

The first section of Book 2 contains the O&O capability sets. These standard four-slide presentations enable the community to understand MDO organizations’ mission essential task lists (METL), capabilities, limitations, and basic sustainment requirements. Of the more than seventy individual brigade-level-and-above formations in the MDO force, in fiscal year (FY) 2019, capability sets for forty-five formations were on hand. The capability set includes the formations’ major systems, number of personnel, wiring diagram, METL, interdependencies, limitations, future capabilities (capability enablers), and basic requirements for Class I (rations), Class III (petroleum, oil, and lubricants), and Class V (ammunition).²² The last capability set slide includes a graphic that shows the ranges or distances at which the formation operates. It includes additional information such as an OV-1—a graphical concept diagram that describes how a capability or capability enabler is utilized, additional details on the formation’s METL or capabilities, and more detail on sustainment requirements. The MDO concept is inherently joint just like any future campaign would be, so Book 2 also contains the formations and capabilities that our joint partners anticipate having fielded in 2028 and 2035.

The second section of Book 2 contains the capability enablers. These come from the cross functional teams

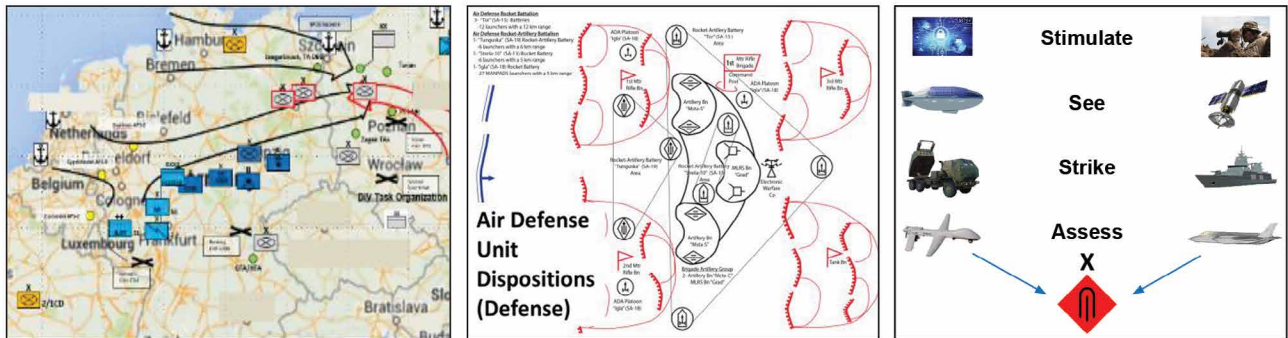
(CFTs), CDIDs, and science and technology (S&T) communities. Collectively, they bring more than 400 enablers to the table. We focused these to 126 for FY 2019 experimentation, which included all thirty-two CFT modernization efforts. To be included in MDO experimentation, capability enablers must be measurable or assessable at brigade level and above and must be at Technology Readiness Level 6 by 2030. Technology Readiness Level 6 tests a model or prototype system in a relevant environment. Capability enablers are two-page descriptions that contain a discussion of the benefit provided to the force by the enabler; a description of the enabler’s capabilities; a discussion of the planning factors concerning testing, location, and level of fielding, purchasing authority, and cost restrictions; and a discussion on the maturity of development and use of the enabler.

Book 3, “Blue versus Red” (2028)

Prepared by FCC’s DoC, this book provides a campaign view of how to employ future U.S. Army formations and capabilities to defeat specific near-peer threats. It uses deep-dive operational- and tactical-level vignettes, or “plays,” to examine the technical requirements for convergence against a near-peer’s layered standoff in order to generate the details necessary to drive capability development, to make informed decisions on future force structure, and—as we increase our understanding of how to execute multi-domain operations—concept refinement (see figure 3, page 145).²³ It is not the intent of the campaign outlined in Book 3 to serve as “the” solution to defeat near-peer threats. Nor is the intent for Book 3 to serve as a war plan or operation plan, as there are many ways to execute a campaign against any adversary. It is an evaluation of an approach used in experimentation to employ the 2028 and 2035 forces in a campaign executed according to the tenets of MDO against a specific near-peer future adversary.

In outlining how to employ the future force, Book 3 accounts for everything found in an operations order. Book 3 outlines Blue’s campaign, particularly in conflict, and in doing so, attempts to answer three questions:

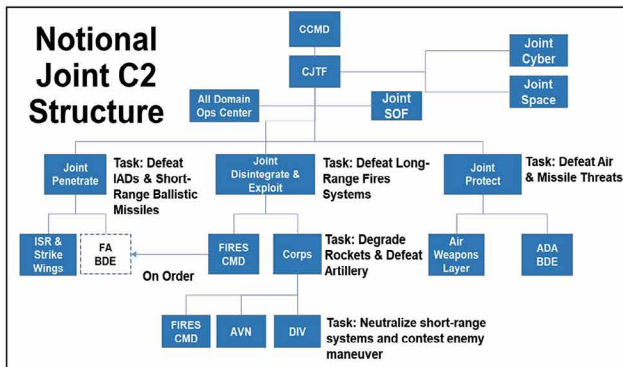
- How do Army forces posture to contest adversary efforts to challenge the status quo in a coercive manner and deter adversaries by demonstrating the capability to rapidly transition to conflict?
- In the event of conflict, how do Army forces, fighting by echelon and operating inside adversary



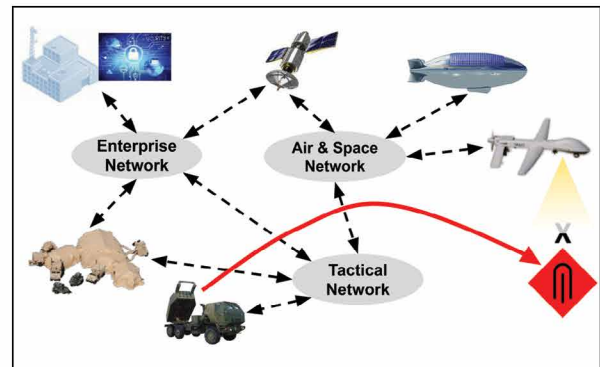
**Concept of operations
(CONOPS)**

Threat analysis

**Layered multi-domain
options analysis**



C2 analysis: Command relationships, technical architectures, control measures



(Figure by Pete Lugar and Dave Farrell)

Figure 3. Components of a Battlefield Development Plan Play

anti-access/area denial coverage, conduct simultaneous operations to penetrate and disintegrate adversary layered standoff in order to seize the initiative and allow exploitation by the joint force? The goal of this is the defeat of the adversary's military forces so that the U.S. political leadership is in an advantageous position to negotiate a return to competition.

- How do we converge capabilities and employ them as described in the MDO concept (see figure 4, page 146)?

Book 3 contains the DoC's hypotheses on how to accomplish this. Each play depicts the concept of the operations in both graphical and narrative form. The plays identify the echelon/headquarter leading the convergence during the play and the specific organizations that own the multi-domain capabilities involved in the layered options. Each play also

identifies domain or component command and control nodes likely involved in planning or execution.²⁴

Plays are linked together to form a "drive chart" as a representation of a campaign to defeat a near-peer adversary; it is not prescriptive in nature. While the drive chart describes Blue's actions using mission threads, the specific plays will run concurrently to present an adversary with as many dilemmas as possible. The drive chart associated with Book 3 depicts requirements to execute the plays, in gray and in green text bars, that are the focus of this year's experimentation.²⁵

Comparison to Past Battlefield Development Plan Efforts

The Cold War-era BDP used the concept-based requirements system as its future force development process.²⁶ Within the concept-based requirements system, the driving concept (AirLand Battle), the threat (Soviet

1 Cyber stimulates

2 Space intelligence, surveillance and reconnaissance (ISR) sees

3 Long-range precision fires strike

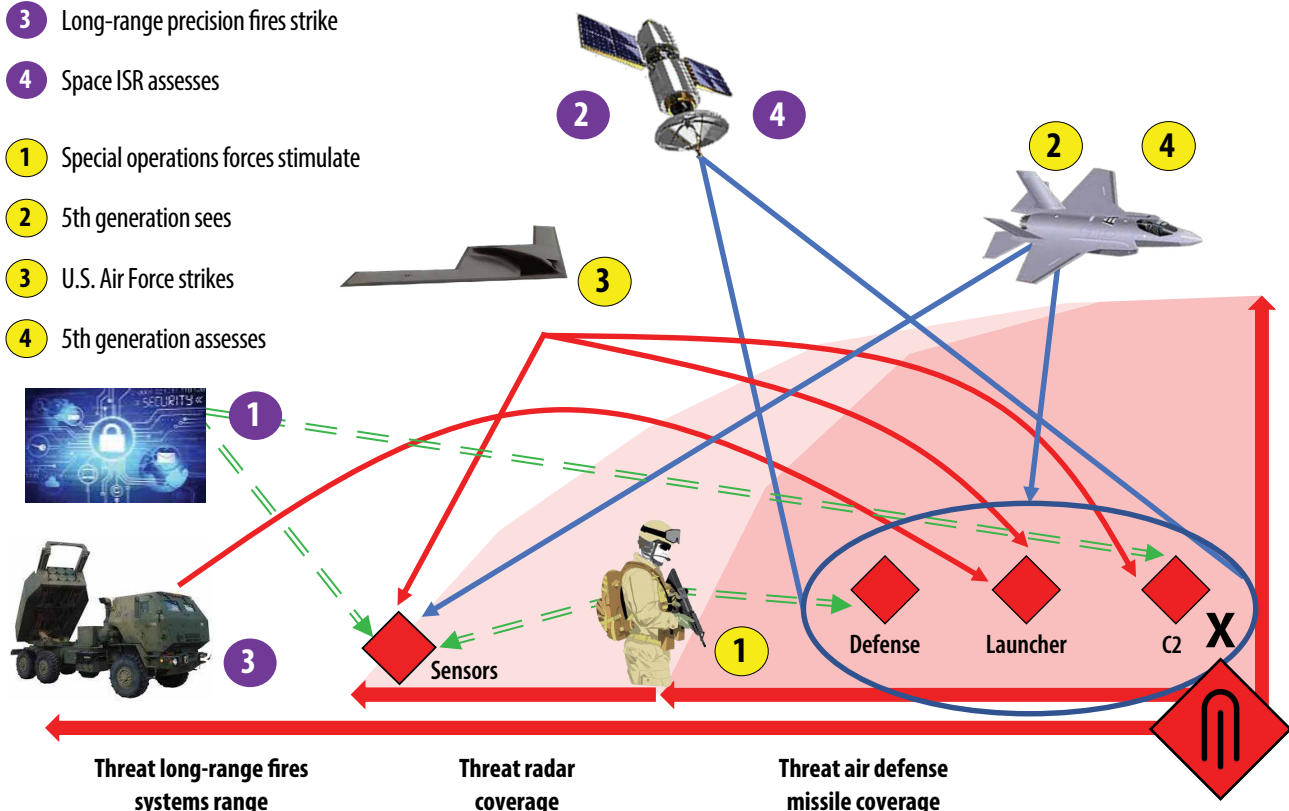
4 Space ISR assesses

1 Special operations forces stimulate

2 5th generation sees

3 U.S. Air Force strikes

4 5th generation assesses



(Figure by Pete Lugar and Dave Farrell)

Figure 4. Layered Convergence Options

Union), and the programmed U.S. forces fed the BDP. Additional feeds came from the mission area analyses (MAA) prepared by the lead center or school for each mission area. The MAA, similar to the recent capabilities-based assessment/capabilities-needs assessment, identified required capabilities (tasks), determined gaps and risk (deficiencies), and assessed potential solutions.²⁷ The BDP consolidated all MAA, concluding that year's analysis, and drove prioritized capability requirements across DOTMLPF-P to develop combat-ready future forces focused on the Soviet threat. The process then repeated, utilizing the learning demands and outcomes of the previous year's process.

At the end of the Cold War, the perceived peace dividend as well as the multitude of various mission types and lack of near-peer adversaries left the Army

to adapt to a more ambiguous security environment. Over time, the development process for the Army's future force evolved into a capability-based process to accommodate this complex, unknown, and constantly changing environment. Under this capability-based process, large-scale combat operation-focused analysis atrophied in favor of a wider range of contingency analysis and heavy emphasis on development of capabilities to support counterinsurgency.

While similar in methodology to the recent concept-to-capabilities process, there are a couple of significant distinctions.²⁸ The concept-based requirements system first was a threat-based process designed to develop a future force to fight against a singular known enemy (the Soviets). It used known equipment (T-72 tanks, BMP infantry fighting vehicles) and known

tactics (conventional Red Army doctrine) in a known environment (temperate plains) and in a known location (central Europe), with known coalitions (NATO versus Warsaw Pact). This singular focus provided Army-wide unity of effort for analysis and future force development across DOTMLPF-P that has not existed since the fall of the Soviet Union in 1991. Only recently, as reflected in national security, defense, and military planning guidance, have near-peer threats begun to reemerge, providing the United States once again with entire pacing threat systems against which to develop specific warfighting requirements.

Linkage of Battlefield Development Plans to AFC's New Principles and Processes

The BDP provides AFC senior leaders with data-driven products that can serve as a holistic operational assessment for how the Army integrates modernization priorities to enable the Army's operating concept to counter near-peer threat capabilities in future scenarios.²⁹

Guidance from FCC has stated that the purpose of the BDP is to drive experimentation and analysis to refine and integrate requirements for the MDO force of 2028 and 2035, and generate capabilities identified in Army, Department of Defense, and national-level guidance.

Strategy driven.

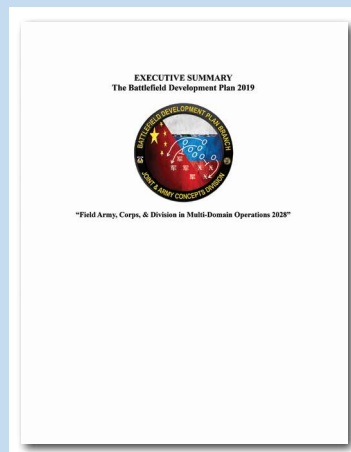
The BDP demonstrates how the Army, as part of the joint force, provides capabilities to implement guidance in the *National Defense Strategy*. It focuses on competition and conflict with near-peer threats and expresses capabilities required for the Army's blunt, contact, and surge forces.³⁰

Threat driven. The future operational environment and the maturation of threat capabilities over extended periods serves as the base for the BDP. It provides a comprehensive examination of how near-peer threats intend

to use their capabilities and capacity during campaigns against the United States and its partner forces.

Concept driven. The BDP operationalizes MDO in ways that allow modeling and testing. It conveys, in specific actionable detail, how future threat and friendly forces (organizations and equipment) operate within a testable scenario in order to develop a series of plays that together achieve campaign objectives in competition and conflict. The BDP provides comprehensive "playbooks" and a concept of operations that integrates operational art with forecasted Army and joint capabilities to solve specific strategic, operational, and tactical problems at echelon during a comprehensive campaign against a near-peer threat.³¹

Priority focused. The BDP describes the organizational capability sets for the Army MDO Force of 2028 and the calibrated force posture required to provide contact, blunt, and surge forces for U.S. European Command and U.S. Indo-Pacific Command. The BDP describes how the Army will employ science and technology enablers driven by Army modernization



For more information on the Battlefield Development Plan (BDP) or multi-domain operations, *Military Review* recommends the executive summary of "The Battlefield Development Plan 2019: Field Army, Corps, and Division in Multi-Domain Operations 2028." The BDP provides an operationally focused, campaign-level approach with linkages from strategy and force structure to capability and program development to provide the Army and joint force with holistic campaign assessment of how future Army forces can fight and win against near-peer adversaries. This generates the details necessary to drive capability development, make informed decisions on future force structure, and—as the Army increases its understanding of how to execute multi-domain operations—concept refinement. To view the report, visit www.armyupress.army.mil/Portals/7/military-review/Archives/English/JA-20/Executive-Summary-The-Battlefield-Development-Plan-2019-Finalv2.pdf.

priorities and converge them with joint capabilities to penetrate, disintegrate, and exploit threat standoff capabilities in competition and conflict.

System driven. The BDP examines how a potential near-peer adversary intends to confront the United States—in multiple domains—in a manner that reduces or negates previously held U.S. dominance within a domain. To accomplish this, the BDP first examines (in Book 1) the relationship between

components within each current or projected threat system used by potential adversaries. The BDP then delineates how an adversary integrates these systems for employment against the United States.³² Second, the BDP identifies the formations and systems in development or currently fielded by the Army for employment against an adversary (in Book 2). Finally, the BDP (in Book 3) outlines proposed means (plays) to converge capabilities against threat systems to open windows of opportunity for the Army to exploit.

poised by a near-peer competitor that requires the United States to “penetrate, dis-integrate, and exploit” and proposes concepts of employment for systems, and science and technology enablers.³³ The BDP also provides a technology net assessment for how science and technology enablers perform during scenario analysis. Finally, it provides a standard framework to measure and report the performance of combinations of force packages and enablers against common operational requirements and threat capabilities.³⁴

“The Battlefield Development Plan examines how a potential near-peer adversary intends to confront the United States—in multiple domains—in a manner that reduces or negates previously held U.S. dominance within a domain.”

Data-driven. The BDP synthesizes internal and external analysis into an integrated whole. Updated every two years, the BDP incorporates insights, recommendations, and feedback from focused experiments and analytical studies from across the Army modernization enterprise. Wargames, studies, field experiments from the intelligence community, think tanks, open-source intelligence, the Army, and the joint force provide qualitative data that link to MDO problems and solutions. Campaign models, systems analysis, and operations research studies conducted by the Army analytical community, federally funded research and development centers, and science and technology organizations generate quantitative technical and performance data.

Linkage to Processes

Today, with the standup of AFC, the BDP serves as an input to AFC’s decision-making process. The BDP provides a long-term view to enable prioritization of challenges and opportunities by several means. It links the Army and joint force challenges and opportunities to specific guidance in Army, Department of Defense, and national strategies. The BDP enables and examines Army and joint force performance in the future operational environment. It provides a way to address the issue of strategic, operational, and tactical standoff

The BDP informs the AFC’s prioritization of challenges and opportunities that guide the Army force modernization enterprise. It provides an evidence-based description of challenges in the future operational environment and of how near-peer threat capabilities and operations present risk to future Army missions. The BDP demonstrates how the Army can take advantage of opportunities by providing factual descriptions to integrate organizational capability sets and science and technology enablers to reduce risk and improve effectiveness and efficiency of future Army missions. The BDP specifies how the Army will leverage opportunities to solve specific challenges and the military benefit of proposed DOTMLPF-P solutions. Lastly, the BDP provides a rapidly tailored, comprehensive body of analysis for use to answer questions by the Army’s leadership related to Army modernization and future Army capabilities as compared to the capabilities of Russia and China.³⁵

Conclusion

The Army has reimagined the BDP to maximize the effectiveness of MDO to deter and defeat adversaries by identifying multi-domain capability gaps and prioritizing DOTMLPF-P solutions. With the reemergence of Russia and China as near-peer

threats, the Army has undertaken action to modernize the force to better prepare for the challenges of future conflict. The BDP provides input to Task 3 (Modernization Strategy Force Scenarios) of the AFC's Top-Down Futures Development Process (TDFDP). The Army uses the resultant holistic campaign assessment to define its input into the Joint Capabilities Integration and Development System, which was developed in 2002 to eliminate redundancies between the service-specific requirements generation systems. In this manner, the BDP informs Army decision-making at the secretary of the Army or chief of staff level and provides input for immediate (one to three years), short-term (four to six years), and long-term (more than seven years) decisions on the Army of the future.

The BDP is data-driven by nature and is a constantly updated synthesis of the numerous Department of Defense and Department of the Army internal and external studies, experiments, wargames, literature reviews, and other data points. The current BDP is a living document that provides an "audit trail" of conceptual and technical thinking to counter near-peer threats in competition and conflict. Its products have grown and matured over time and have reflected the growth in learning. All products were developed to answer specific analytical questions encountered along the way and drive learning, experimentation, and capability development. In FY 2019, the Army continued to refine the campaign analysis, but is now focused on directing capability into cohesive and

integrated packages for experimentation and testing to determine the multi-domain force packages for solving specific problems to compete, penetrate, disintegrate, and exploit threat standoff capabilities in the U.S. European Command and, in FY 2020, the U.S. Indo-Pacific Command.

Overall, the BDP serves as a running net assessment for the Army and provides an integrated look that links threats to solutions as part of the Army Modernization Framework to guide the Top-Down Futures Development Process. The BDP outlines specific threat and friendly future force capabilities and illustrates how those U.S. forces will operationalize MDO, allowing modeling and experimentation of the Army's and our joint partners' new concepts. In this way, the BDP provides Army senior leaders with validated data-driven products that serve as a running net assessment for how the Army integrates its modernization priorities to enable the *Army Operating Concept* to ensure that the future force can prevail against near peer threats.

The BDP drives continuous experimentation and analysis to refine and integrate the forces, concepts, and capabilities required to execute MDO. The BDP shows the interdependence of solutions and guides prioritization of challenges, opportunities, and trades to refine concepts and capability development across DOMLPF-P. Codifying these concepts into doctrine, the BDP provides a baseline for the evaluation of concepts and O&Os, ultimately providing the refinement that allows employment by the future force. ■

Notes

1. U.S. Army Training and Doctrine Command (TRADOC) Pamphlet (TP) 525-3-1, *The U.S. Army in Multi-Domain Operations 2028* (Fort Eustis, VA: TRADOC, 8 December 2018).

2. Peter L. Jones et al., "Russian New Generation Warfare: Unclassified Summary of the U.S. Army Training and Doctrine Command Russia New Generation Warfare Study," (Fort Eustis, VA: TRADOC, n.d.) accessed 18 March 2020, <https://www.dtic.mil/dodtechspace/docs/DOC-30181> (CAC required); Jeffrey Engstrom, *Systems Confrontation and System Destruction Warfare: How the Chinese People's Liberation Army Seeks to Wage Modern Warfare* (Santa Monica, CA: RAND Corporation, 2018).

3. DOTMLPF-P is the Department of Defense acronym for doctrine, organization, training, materiel, leadership and education, personnel, facilities, and policy, which are the eight possible elements involved in solving warfighting capability gaps.

4. Michael Fitzsimmons, *Scenario Planning and Strategy in the Pentagon* (Carlisle, PA: U.S. Army War College Press, 2019).

5. Donn A. Starry, "Battlefield Development Plan: British Army Convention, Washington, DC, 24 September 1980," in *Press On! Selected Works of General Donn A. Starry*, ed. Lewis Sorley, vol. 1 (Fort Leavenworth, KS: Combat Studies Institute Press, 2009), 194.

6. Donn A. Starry, "Battlefield Development Plan: Letter to General George S. Blanchard, Commander in Chief, US Army, Europe and Seventh Army, 12 January 1979," in Sorley, *Press On!*, 1:179.

7. TRADOC, *Battlefield Development Plan I*.

8. Starry, "Battlefield Development Plan: British Army Convention," 1:194.

9. Ibid.

10. Ibid., 1:194–95.

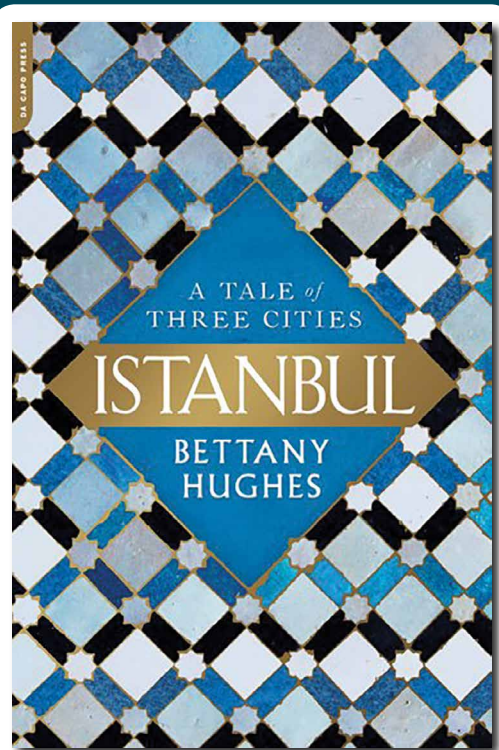
11. Ibid.
12. Mary C. Fischer, "Prioritizing Issues in the Battlefield Development Plan" (PhD diss., Columbia Pacific University, 1989), 15.
13. Ibid., 5–6. The mission areas used during the Concept Based Requirement System (CBRS) and Battlefield Defense Plan (BDP) were air defense, aviation, close combat heavy, close combat light, combat service support, command and control, communications, engineer and mine warfare, fire support, intelligence and electronic warfare, nuclear biological chemical, and special operations. Field Manual (FM) 100-15, *Corps Operations* (Washington, DC: Government Printing Office, 29 October 1996 [obsolete]), 2-8. As defined in the FM, "Commanders and organizations perform major functions within each level of war in order to successfully execute operations. . . . These functions, occurring on the battlefield, are the BOS [Battlefield Operating Systems]. The BOS include intelligence, maneuver, fire support, air defense, mobility and survivability," combat service support, and command and control.
14. TP 525-3-1, *The U.S. Army in Multi-Domain Operations 2028*. This pamphlet identifies the five problems as the following:
 - (1) How does the joint force *compete* to enable the defeat of an adversary's operations to destabilize the region, deter the escalation of violence, and should violence escalate, enable a rapid transition to armed conflict?
 - (2) How does the joint force *penetrate* enemy anti-access and area denial systems throughout the depth of the support area to enable strategic and operational maneuver?
 - (3) How does the joint force *dis-integrate* enemy anti-access and area denial systems in the deep areas to enable operational and tactical maneuver?
 - (4) How does the joint force *exploit* the resulting freedom of maneuver to achieve operational and strategic objectives through the defeat of the enemy in the close and deep maneuver areas?
 - (5) How does the joint force *return to competition* to consolidate gains and produce sustainable outcomes, set conditions for long-term deterrence, and adapt to the new security environment?
15. Wilson C Blythe Jr., "AirLand Battle: The Development of a Doctrine" (master's thesis, Eastern Michigan University, 1 March 2010), accessed 2 July 2020, https://www.academia.edu/31847297/AirLand_Battle_The_Development_of_a_Doctrine.
16. Plays: Multi-domain force package and capability employment options that achieve specific effects.
17. Holistic Campaign Assessment: A multidisciplinary assessment process used to provide a comparative evaluation of the balance of strengths and weaknesses.
18. TRADOC G-2, Book 3 (Fort Eustis, VA: TRADOC, 2019). Actual product is classified.
19. TRADOC G-2, "Example of a Threat System" (Fort Eustis, VA: TRADOC, 2019). Actual product is classified.
20. TRADOC G-2, "Example of Information about an Overall Threat System" (Fort Eustis, VA: TRADOC, 2019). Actual product is classified.
21. TRADOC G-2, "Example Kill Chain Analysis" (Fort Eustis, VA: TRADOC, 2019). Actual product is classified.
22. U.S. Army Fires Center of Excellence, "Example of O&O Wiring Diagram for the Operational Fires Command" (Fort Sill, OK: TRADOC, 2018).
23. BDP Branch, "Components of a BDP Play" (Fort Eustis, VA: Futures and Concepts Center, 2019).
24. BDP Branch, "Example of Layered Convergence Options" (Fort Eustis, VA: Futures and Concepts Center, 2019).
25. BDP Branch, "Example Drive Chart" (Fort Eustis, VA: Futures and Concepts Center, 2019).
26. TRADOC Regulation (TR) 11-15, *Concept Based Requirements System* (Fort Eustis, VA: TRADOC, 1986), 2-2.
27. *Battlefield Development Plan for 1985* (Fort Monroe, VA: TRADOC, 1985), 4-3.
28. TR 71-20, *Concept Development, Capabilities Determination, & Capabilities Integration* (Fort Eustis, VA: TRADOC, 2018 [draft]), 53.
29. Annex T, Appendix 1 (AFC Decision Forums) to Army Futures Command (AFC) OPORD 002-19, Army Futures Command, Headquarters, Austin, TX, 16 January 2019; Annex Y, Appendix 4 to AFC OPORD 002-19 (Terms and Definitions), AFC, Austin, TX, January 2019; OPORD 002-19 (Implementation OPORD), AFC, Austin, TX, 16 January 2019; "Annex T: Appendix 6 (Strategic Document Governance)" (Fort Eustis, VA: Army Futures and Concepts Center, January 2019); Joint and Army Concepts Division, "Battlefield Development Plans Overview" (Fort Eustis, VA: Army Futures and Concepts Center, February 2019); John M. Murry and Michael A. Crosby, "Thoughts and Guidance Memo # 1" (Austin, TX: AFC, 15 January 2019); The Research and Analysis Center, "Annex Y: Appendix 2 - Army Futures Command Modernization Process" (Austin, TX: AFC, 3 December 2018).
30. TP 525-3-1, *The U.S. Army in Multi-Domain Operations 2028*, 17n26. As described in the TP: "The *National Defense Strategy* 'contact force' is composed of forward presence forces. The 'blunt force' is a combination of forward presence forces and early-entry expeditionary forces. The 'surge force' is follow-on expeditionary forces that arrive after the outbreak of armed conflict."
31. A comprehensive campaign is an end-to-end campaign that covers competition, competition short of armed conflict, conflict, and return to competition.
32. "Threat System Chart" (PowerPoint presentation, TRADOC G-2, Fort Eustis, VA, 2018), slide 25.
33. TP 525-3-1, *The U.S. Army in Multi-Domain Operations 2028*.
34. "Subject: Battlefield Development Plan in the Army Futures Command Top-Down Futures Development Process, 20 May 2019," Point Paper (Fort Eustis, VA: Futures and Concepts Center, 2019).
35. Ibid.

REVIEW ESSAY

Istanbul

A Tale of Three Cities

Bettany Hughes, Da Capo Press,
New York, 2017, 856 pages



Robert D. Spessert, JD, Fort Gordon, Georgia

Professor Bettany Hughes, scholar at Oxford University, research fellow at Kings College London, and presenter on BBC, displays her academic prowess and superb storytelling abilities in *Istanbul: A Tale of Three Cities*. This exemplary work illuminates the polis successively called Byzantium, Constantinople, and Istanbul; the guardian of the channel between two continents. The author divides eight thousand years of history into eight distinct parts. In six hundred pages, she deftly informs readers about this city on the north shore of the Bosphorus Strait. Commencing with Thracian “barbarians,” Istanbul concludes with the unsuccessful coup attempt on Turkish President Recep Tayyip Erdoğan. Hughes employs seventy-eight easily readable chapters to convey a grand narrative that intersperses comments about anthropology, archeology, art, culture, economics, literature, philosophy, politics, strategy, and theology. The book cites 966 notes, which leverage a fifty-seven-page bibliography, and a twenty-eight-page timeline summarizes key events.

The ten chapters in Part 1 recount the era prior to Roman Emperor Constantine the Great. Greeks in

antiquity explored and colonized the coastlines around the Marmara and Black Seas and the interconnecting Bosphorus. This evolved into trade with existing Thracian and Phoenician settlements. However, the Thracian settlements on that wedge of land eluded subjugation; they remained in possession of the land’s natural harbors, maritime bounty, and surrounding fertile ground; the hills, river, and seas provided defensible terrain. Thracian control of the region endured until 667 BC. That year, the mercantile Greek city-state Megara (itself a colony of Corinth and ally of Sparta) sent armed settlers under the leadership of Byzas; they “founded” Byzantium, and its classical Greek name became Latinized to Byzantium. Hughes describes how prior to the Peloponnesian War, the city indirectly founded by Sparta fell to Persia, became “liberated” after a naval victory at Salamis by a Spartan who ruled as a tyrant, then was subjugated by Athens who interceded on behalf of the people, removed the tyrant, and acquired Byzantium to secure its Black Sea grain supply and tax commerce. The Romans built the road Via Egnatia to link the

Ionian Sea to the Bosphorus; this connected the Roman Empire to Byzantium. That road permitted the movement of troops, treasure, and taxes. This set the stage for Emperor Vespasian in AD 73 to incorporate Byzantium into the empire.

The story of Emperor Constantine opens Part 2. In three chapters, the illegitimate son of a military leader achieves victory in Rome in AD 312, issues the Edict of Toleration that ceased persecution of Christians in AD 313, and removes coemperor and rival Licinius in AD 324—defeating him after a siege at a town in Asia Major along the Bosphorus. Hughes posits that Byzantium’s stout walls and strategic location, combined with Constantine’s preference for frontiers and distaste of Rome, influenced him to choose Byzantium as his new capital. The remaining thirteen chapters depict Byzantium’s transition from a strategic border city to an imperial secular and religious capital. Hughes describes theological issues and the development of the Nicene Creed; the impact of Constantine’s mother Helena; the migration of the Goths; the influence of ascetics, eunuchs, culture, education, and libraries; Vandals and Huns; and the rebuilding of the walls that deterred Attila from laying siege and attacking into Europe. It concludes with the fall of “Old Rome.”

Part 3 describes the “Golden Age” of Constantinople, AD 476–565, the era of the

Byzantine Empire’s greatest expansion. Its nine chapters revolve around the rise, rule, and reforms of Justinian and his wife and coregent, Theodora. These chapters address the invitation Justinian received to join his uncle Justin—former pig farmer, soldier, general, then commander of the imperial guard in Constantinople; Theodora’s backstory, journeys, and faith; the impact of earthquakes, tsunamis, fires, coups, and reprisals; and the

compilation of canonical and civil codes that created a codex that formed the basis of Western law.

In contrast with that short period, silk and the Silk Road, trade, Islam, Vikings, and Saxons appear across the nine chapters of Part 4, AD 565–1050. Nestorian monks smuggled silkworms out of Tajikistan, across the Caspian Sea, over the Caucasus, and into Constantinople. This initiated the silk industry that prospered due to imperial support. The Silk Road permitted New Rome’s missionaries to travel to India, Sri Lanka, and China; trade and ideas flowed both ways. The discovery of Byzantine coins and pottery from China to Cornwall reveals the extent of Constantinople’s trade. Within fifty years of Islam’s founding in AD 622, its explosion out of the Arabian Peninsula resulted in Constantinople losing two-thirds of its territory. Muslim fleets unsuccessfully attacked Constantinople five times between 661 and 750, after which there were no further siege attempts of Constantinople until the fourteenth century. Hughes opines that the loss of Egyptian grain focused Byzantium’s attention north on conversion of and trade with the Slavs. This created encounters with the Vikings; amber, raiders, and traders flowed south, while silk, Hellenization, and Christianity traveled north. By AD 988, Vladimir, the youngest son of a former Viking leader who raided Byzantium, accepted Christianity and married Byzantine Emperor Basil’s sister, Anna. He sent six thousand Vikings—the Varangian—to Constantinople to put down a rebellion and assist with security. One ex-Varangian named Harald returned to Norway, and in 1066, he invaded England, only to be defeated by the Anglo-Saxon King Harold. In turn, Harold lost three weeks later to William of Normandy. Saxons who fled Norman occupation served as mercenaries in Constantinople.

Parts 5 and 6 address the schism between Catholicism and Orthodoxy, the Crusades, the Turks, Ottoman encirclement of Constantinople, and its fall in 1453. In these fourteen chapters, Hughes adds detail and depth to events often glossed over and emphasizes the importance of “the story” over the facts. Byzantium’s military embarrassment in 1071 at Manzikert results in competing narratives of victory and decline. Emperor Diogenes’s unsuccessful

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attempt to stem the advance of the Seljuk Turks across Byzantine lands had three major consequences. First, the Turkish victory galvanized their tribes, increased their ambitions, and emboldened the Turkic polity. Second, the West believed that Byzantium could no longer protect the Christian east. Third, Constantinople decided to invite the West to assist in its security, resulting in the Crusades.

Conventional wisdom conveys that participants of the Fourth Crusade, on their way to the Holy Land in 1204, decided to stop and sack Constantinople. Hughes gives the back story: this occurred only after Prince Alexios, son of the previously deposed Emperor Isaac II, failed to pay the debt he owed the Venetians for putting him on the throne the preceding year. Seeking recompense for their investment, the Venetian elite reminded the crusaders of centuries-old “doctrinal disputes,” leveraged new siege weapons, emplaced siege ladders on their ships’ masts to aid getting over the walls, and seized the city. They carted off treasures back to Venice and set fires in Constantinople that destroyed homes, libraries, and the silk industry, which never recovered. Over time, Ottoman forces enveloped the capital. After eight hundred years of coveting the city, Muslims acquired Constantinople; it fell to them in 1453. Seizure and regime change required preparation and allies. The author informs readers that the Ottomans had inhabited part of Constantinople fifty years before Mehmed the Conqueror’s cannons bombarded the walls. He spared attacking the island of Galata as *quid pro quo* for Genoese merchant cooperation in taking the city.

Ottoman expansion from Konstantiniyye—later rebranded as “Islam-bol,” for “Islam abounds”—its later demise, and its role in modern day Turkey occupy the remaining twenty chapters in Parts 7 and 8. As ruler, Mehmed quickly instituted an Ottoman taxation scheme to turn his military victory into an economic success, and he commenced the construction of a new imperial palace. Originally an administrative center, the palace became a large and lavish sacred fortress that provided religious justification for dominance. Hughes describes its grandeur and splendor. Within seven years, the Ottoman capital moved there from Edirne, the former Adrianople in Thrace, founded by Roman

Emperor Hadrian. Within sixty years, the Sunni Ottomans overcame challenges in their territory from the Persians, claimed that the Sunni Mamluks in Egypt supported the Shia Persians, and declared holy war to justify their expansion through the Middle East and North Africa. In the process, the Ottomans conquered Mecca, Medina, and Cairo. As a result, the Ottomans controlled the Hajj route to Mecca, the Mufti in Cairo became the Grand Mufti of the Ottoman Empire, and Ottoman politicians and Sunni clerics could argue that the sultan in Istanbul was Islam’s caliph.

Istanbul became a center for trade and refuge; when Ferdinand II and Isabella I of Spain expelled the Jews from Spain in 1492, the Sultan welcomed them into the Ottoman Empire. Hughes asserts how England’s Henry VIII fancied Turkish styles at court. In 1570, while other European powers formed the Holy League to protect Christian interests in the eastern Mediterranean from Turkic advances, Elizabeth I allied with the Ottomans to protect extensive trade and economic interests. The author depicts Istanbul’s various engagements with Arabs, Europeans, Persians, and Russians; human trafficking in the form of janissaries and the white slave trade; smallpox; textiles; and tulips. She continues with Western support for nationalist groups seeking independence from Ottoman rule and the experiment with the secularization of society.

Students and readers of history, whether of classical, medieval, European, Mid-Eastern, or military, will find *Istanbul* an asset. Military history appears predominately at the political-military and theater-strategic levels. Those previously only exposed to American or West European history will find this a superb book to expand their perspective; it makes an outstanding relevant text for any world history or global studies reading list.

The Brits demarcated the globe for navigational purposes and ran the “0 degree” longitude, the boundary between the Western and Eastern Hemispheres, through Greenwich. After devouring *Istanbul: A Tale of Three Cities*, one can assert that an alternative location that reflects the cultural, historical, political, and theological significance where East and West symbolically meet would be almost 29 degrees further east so that it runs through Istanbul. ■

LETTER TO THE EDITOR

Response to Maj. Matthew S. Blumberg's "The Integrated Tactical Network: Pivoting Back to Communications Superiority"

Military Review, May-June 2020

I am responding to the article "The Integrated Tactical Network: Pivoting Back to Communications Superiority" by Maj. Matthew S. Blumberg, U.S. Army.

I have commented before about mission command and I have said that the commander who can utilize the modern communications, signal, and data will be the one very successful in mission command.

Why? The radio was the tool that made mission-type orders happen in World War II. Corps would issue orders via the radio, division then pushed that down, as did the subordinate units. Gen. George S. Patton's Third Army orders were on one piece of paper with an overlay on the back.

When looking at sustained operations in World War II, much of the day-to-day operations were not covered in any order unless there was a specific change. Staffs knew the other staffs up and down the chain. Staffs worked together to ensure that combat operations were not negatively affected by their jobs.

The Integrated Tactical Network Pivoting Back to Communications Superiority

Maj. Matthew S. Blumberg, U.S. Army

When the U.S. forces were focused on Iraq and Afghanistan over the past two decades, our nation's most dangerous adversaries set their sights elsewhere: Russia, China, North Korea, and other potential threats in advanced communications equipment, cyber capabilities, and explosive electronic warfare technologies. At the tactical level, the advances made by these adversaries cast serious doubts on whether the U.S. Army has maintained its technological edge. Because the Army's current and future combat systems, mission, and mission command are intertwined with and heavily dependent on tactical networks, there is a justified concern regarding its ability to maintain the tactical advantage. This is not a new phenomenon.

As reported in historical studies and assessments, including the 2018 National Defense Strategy Commission's *Thriving in the Century of Ignorance*, currently the U.S. Army's ability to apply tactical communications is far from ready for the next major war and is in urgent need of transformational change.

Future tactical communications must increase network mobility, decrease reliance on satellite services, make greater use of terrestrial and aerial relays and transponders, and significantly reduce size, weight, and power requirements. This approach demands a simultaneous blending of multiple layers of communications transport and integration of consolidated mission data and network services. Systems should be technically and procedurally interoperable with joint, interagency, intergovernmental, and multinational (J2M4) partners and create a wholly integrated tactical network (ITN). When implemented, the ITN construct must be technically flexible, resilient, and adequately robust for all foreseeable future operations and programmatically extend for future acquisition. If properly researched, prioritized, and executed, the new network would mitigate threats and provide essential expeditionary and on-the-move (OTM) communications.

Going forward, the ITN efforts should parallel Department of Defense and joint force requirements for collective benefits. Currently, the joint staff 36 (command, control, communications, and computers/



cyber) is working on the equipment with the Army's Future Command, the Network Group Functional Team and other cross-functional teams, select Army programs execute OTM (OTM) and other advanced capabilities. Early indications are positive, with initial requirements established through joint capabilities documents. Separately, the Army's vice chief of staff pushed a directed requirement to have 2024 that will lead the ITN operational need.

Overall, the proposed ITN architecture is fundamentally sound and offers significant advantages over existing tactical communications. However, the current ITN concept is plagued by an excessive lack of autonomy across the Army and the joint force. Additionally, there is a need to ensure that the ITN is not just a collection of disconnected systems, but a truly integrated network that can provide the necessary command, control, communications, and computers (C4) capabilities for the future.

What Does History Tell Us?
The U.S. Army has historically relied on satellite-based communications for beyond line of sight.

(J2M4) connectivity. This reliance severely degrades the training, operations, and equipment required to operate when satellite services are not available and to maintain communications across J2M4 operations. Communications equipment is often complex, not operationally friendly, and typically requires specific training for initial deployment, not time changes, and performance of these functions. When new technology is proliferated or too complex, it is usually pushed aside, put in storage, or not used to its full potential. Many soldiers expected to operate new communications systems are neither communicators nor they leaders. A simple solution for the force does not translate into a simple solution for those working the problem.

To view this article, please visit <https://www.armyupress.army.mil/Journals/Military-Review/English-Edition-Archives/May-June-2020/Blumberg-Int-Tactical-Network/>.

When you look at the size of a tactical operations center (TOC) from brigade on up, it is an anchor to the maneuver force. How can your tactical operations center maintain maneuver beyond sixty miles plus and keep up with the speed of battle? What is needed to keep the commander and the TOC moving, supplied with a current common operational picture and with a reduced signal footprint?

One brigade commander of the Third Infantry Division (3rd ID) who took part in Desert Storm fought from his M1A1 Abrams main battle tank. The 3rd "Phantom" Brigade, 3rd ID, with its infantry, armor, cavalry, field artillery, engineer, and forward support battalions conducted a 110-kilometer movement to contact in Desert Storm.

How do we do that today?

Master Sgt. Karlen P. Morris, U.S. Army, Retired

Death of Democracy in Hong Kong

Harbinger of the Future in East Asia

The course of events in Hong Kong during 2019 and 2020 has showcased the repeating strategic modus operandi of the government of the People's Republic of China (PRC), which is to temporarily assuage its adversaries by solemnly committing in low-key comforting tones not to take a given course of action, and then acting ruthlessly and violently to do what it committed not to do. Abrogating all its decades-old international commitments to preserve the independence of Hong Kong as a separate democratic system, the PRC has successfully undermined the independence of Hong Kong and is now in the process of imposing on the people of Hong Kong the PRC system of totalitarian rule and political oppression. Meanwhile, the PRC has also broken its international commitments to refrain from militarizing artificial island chains in the South China Sea, has invaded and occupied the territory of the world's largest democracy

India, and, continues to threaten the democratic nation of the Philippines (as well as communist Vietnam) with military action to assert territorial claims over islands and disputed water ways. Additionally, the PRC now regularly penetrates Taiwanese air space and continues to openly assert that its military conquest and elimination of the democratic quasi-state of Taiwan is inevitable and will be accomplished before the middle of the twenty-first century when it has the full military and economic capacity to do so. Due to massive investment, China now enjoys the largest navy in the world and is rapidly building its land forces and air capabilities. ■

Graphic elements courtesy of kjpgarqeter/Freepik, www.freepik.com.

Next page: Protesters face off with police 29 September 2019 in Hong Kong. Protesters chanted slogans and heckled police as they were pushed back behind a police line. (Photo by Vincent Thian, Associated Press)







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