Operationalizing Knowledge

A New Chapter in the Saga of US War Fighting and Cognition

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War is the unfolding of miscalculations.

—Barbara Tuchman

This article addresses what has changed in the conduct of war, especially with respect to the way intermediate-level leaders—lieutenants to colonels and some noncommissioned officers—experience, talk about, and conduct their business within the context of the operational level of war. In modern military parlance, the United States and many militaries around the world divide warfare into three levels: strategic, operational, and tactical. Most people conceive of the individual military member as simply a tactical entity—

someone who engages the enemy in close physical proximity, conducting maneuvers within a specific domain such as the battlefield, sea, or air. This article, however, looks at the art of war from the perspective of the operational level: a practice, an outlook, and a set of organizing and planning constructs situated between tactics and strategy.

To some extent, this study deals with and in abstractions. Many of the concepts discussed, tested, and implemented by the US Department of Defense (DOD) appear vague and open-ended. Nevertheless, the article attempts to give the reader an account of some of the debates going on within the military institution—debates not readily found in public culture. As discussed later, the operational level of war is not just an organizational or even a bureaucratic construct. Rather, it is a contested space, a nexus of theory and praxis, where the modeling of enemy networks and the flirting with ideas and frameworks such as complex adaptive systems structure the formation of actual military units and organizations. Debates featured in various blogs catering to "warrior-monk" types of professional soldiers, such as the *Small Wars Journal* blog, are turning the operational level of war into a discourse. Ways of conceiving the enemy and making sense of the political purposes and desired end states of military campaigns are not just policy platitudes left to higher-level and civilian-led strategies. Nor are they ignored or simply forgotten about by the military, as one might assume. These issues are addressed in some ways more intellectually and intensely by service members working at the operational level than by politicians and national civilian leaders.[1]

The structure of this article is simple. First, it offers a very brief account of the history of the operational level of war, including a further discussion and refinement of definitions along with a treatment of recent developments in operational thinking, functions, and areas of responsibility. It then proceeds with a case example of an organizational command and control (C2) entity—US Joint Forces Command's standing joint force headquarters (SJFHQ)—in order to showcase the extent to which campaign design and planning have become epistemological,

bureaucratic, and cognitive at the operational level. A few points regarding how defense and development concerns relate and come into being as a "system of systems," requiring new models of thinking and adaptation, follow naturally from the case example.

The Operational Level of War

In a broad and limited sense, military strategy concerns itself with the geopolitical outcomes of war or a particular military campaign. A more nuanced way to think about strategy takes into account the ways in which military organizations strategize and implement certain ideas and practices in order to attain specified aims.[2] Strategy encompasses higher-order agendas such as national security, peacekeeping, and economics (including the economics of conflict).[3] Situated between tactics and strategy is the *operational level of war*, a term relatively absent from the history of Anglo-Saxon military terminology and thought.[4] The operational level endeavors to translate strategic objectives into military campaign plans, focusing on the combination of tactics employed to assert decisive victory over an enemy. Service members and defense contractors in-theater who work at the operational level design campaigns and orchestrate operations (using not only military but also economic and political assets). In 1982 the operational level of war officially appeared for the first time in US military doctrine.[5] According to a joint doctrine publication, "The operational level links the tactical employment of forces to national and military strategic objectives. The focus at this level is on the design, planning, and execution of operations using *operational art*: the application of creative imagination by commanders and staffs . . . to design strategies, campaigns, and major operations and organize and employ military forces" (emphasis in original).[6] Although the boundaries among the strategic, operational, and tactical can be quite blurry, operations have come to encompass the bulk of campaign design and planning. Jacques Richardson makes the additional point that "strategy tends thus to be linear and stable, [while] operations [are] linear but often of unpredictable stability."[7] The

term *operational art*, then, describes the skills, operating concepts, and "art form" of engineering successful campaigns at the operational level. At this level, military members serve as conduits and translators between strategy and tactics; they are also knowledge organizers, data miners, and process managers. More than anything else, the operational level has shaped the growing bureaucracy of warfare and the expanding military-contractor / knowledge-economy complex.

The appearance of new railroad systems and the growth of modern armies in the latter half of the nineteenth century meant that logistics needed more planning and that the fate of war likely would not depend upon the outcome of any one or two decisive battles, but upon the result of a series of strategic engagements. This prospect gave rise to the notion that a war of annihilation is no longer always tenable or desired. Tactical operations require more medium-term planning and strategic vision. In the early twentieth century, Soviet-era Russian and German war thinkers developed flanking techniques and various styles of attack, including the German blitzkrieg, which constituted early operational planning and coordination. The sequencing of tactical battles over space and time became associated with the operational level of war: a level of "grand tactics" exercising deception, deep attacks, strikes against the center of gravity, and the element of surprise.

The operational level of war has evolved significantly since World War II. War of attrition is no longer the foremost strategy. Instead of pursuing cumulative destruction (and attrition-style warfare), the military utilizes relational maneuver to disrupt an enemy's system by targeting its weak points. In relational maneuver, avoidance of the enemy's strength is paramount. Edward Luttwak further explains that although war of attrition depends upon resources, relational maneuver depends upon knowledge.[8]

In today's context, the operational level has grown in size and scope. Many people believe that discussions at the national strategic level about how and why we go to war are seldom firmly grounded in the unfolding operational nature of war. Rather, the abstract national po-

litical terms used in these discussions shed little light on just what the operations and complexities of war really amount to. Justin Kelly and Mike Brennan observe that our national civilian leaders have become mere sideliners and "strategic" sponsors of war.[9] War as a national experience and enterprise has become increasingly separated from civilian life and governance. Because contemporary politics demands briefer wars, deployments, and smaller combat footprints, the operational level is left with serious challenges. It has to devise comprehensive campaigns, stretching across a broad range of domains, that involve traditional military objectives, nation building, and development. Refashioned concepts and resurrected "working philosophies" such as the shock-and-awe campaign, as well as winning hearts and minds and systemic operational design, are examples of recent obsessions with operational art. The shift towards viewing and modeling the enemy as a complex adaptive system and the emphasis on devising new processes for decision making based on sensing-deciding-acting-adapting feedback loops continue to inform missions today.

Effects-Based Operations and the Standing Joint Force Headquarters

Recent developments in operational-level thinking have led to new frameworks and organizational constructs—changes fueled by the military's focus on knowledge and information management. Intelligence no longer involves just revealing secrets and deciphering code; rather, intelligence professionals gather vast information and turn databases into elaborate epistemological networks, maps, and systems. Buzzwords like *transformation* and the *knowledge battlefield* reverberate in meeting rooms and twinkle in the rituals of PowerPoint slide presentations. The immediacy of complexity meets with the engineer's obsession for planning, and what soon emerges are organizational constructs, touted as planning multipliers, and C2 weapons systems. Development issues are also necessarily brought into the fold, especially in the postconflict phases of war, to deal with stabilization, transition, and reconstruction.

In a very telling account of this so-called mission creep, H. R. McMaster in a chapter detailing effective civilian-military planning, asserts that "operational level plans should identify and advance macroeconomic policies that remove obstacles to economic growth (for example, legal impediments to foreign direct investment and subsidies that provide a disincentive to entrepreneurship or incentivize corruption) and provide a stable economic environment (such as low inflation)."[10]

My experience working with the SJFHQ at Joint Forces Command in Norfolk, Virginia, in 2007 highlights just how one of these multifaceted planning and information-gathering organizations operates.[11] The SJFHQ received official sponsorship back in October 2004 when former secretary of defense Donald Rumsfeld directed that each regional combatant command establish its own SJFHQ as part of a larger transformational push to support the global war on terrorism. The history of the SJFHQ, however, reaches back even further to the military experiments and exercises formulated in the late 1990s. In particular, Millennium Challenge 2002 (MC02), a large-scale military game and exercise costing approximately $250 million, explored and tested future war-fighting concepts, including the advent of new communication technologies and net-centric warfare. Consisting of live exercises, computer simulations, and role players, MC02 displayed several concepts. Some of them received lukewarm reception while others having to do with knowledge networks and the leveraging of computers to gather and share information received nearly immediate validation.[12] The SJFHQ, one such organizational construct "in play" during MC02, sought to realize an operational concept called effects-based operations (EBO). Maj Craig Barkely defines EBO as

> operations that are planned, executed, assessed, and adapted based on a holistic understanding of the operational environment in order to influence or change system behavior or capabilities using the integrated application of selected instruments of power. . . . Effects-based planning integrates diplomatic, informational, military, and economic elements to create the desired condition to meet the national objective. However, it is important to remember, an effect describes the potential or intended con-

dition of the political, military, economic, social, infrastructure, and informational systems not the immediate target effects at the tactical level.[13]

EBO generated a plethora of supporting tools and derivative concepts as well. Conceived of as a holistic approach to understanding the operational environment of the enemy, EBO looked to influence behavior by generating and anticipating the first-, second-, and third-order effects of any given action or inaction across a wide range of domains. The enemy and its networks were converted into an intricate and evolving system of systems, including such categorical divisions as the political, military, economic, and so forth. As an epistemological approach, EBO needed a new language, new measurements, and a matrix of inputs and outputs. Its four operating components consisted of a further breakdown into knowledge-base development as well as effects-based planning, execution, and assessment. The knowledge-base component included formation of the collaborative information environment (CIE), defined as a process and network(ing) tool. The ability of planning officers and military members in the field to share information in real time became formalized. CIE consisted of a virtual configuration of networks and chat rooms that fostered communication between military and civilian governmental organizations. The shared information provided system-of-systems-analysts data that they could interpret in their attempts to locate critical nodes and centers of gravity for planning an array of strikes. Meanwhile, information collected and analyzed fed another concept called the operational net assessment (ONA). This concept functioned as an evolving database, producing information on specific nations and regions as well as various stakeholders and interrelationships between those stakeholders in the context of historical and projected contingencies. In theory, ONA was the SJFHQ's planning touchstone, serving as an integrated and continuous model of institutional memory.

The SJFHQ consisted of 58 core members, with an additional six system-of-system analysts as needed, organized for the purpose of aiding in the rapid establishment of a joint task force (JTF) headquarters. The concern was that past JTFs and JTF headquarters had to pull people

together in an ad hoc fashion in order to respond to a given crisis. These crises often carry normative labels such as humanitarian assistance, disaster recovery, and major combat operations. Having a separate group not tied to a service-specific command or even pulling resources away from a regional combatant command's staff ensured the SJFHQ's ready availability for deployment. Additionally, since SJFHQs trained and worked together on planning and populating the ONA databases, they were already joint, ready to serve as the core around which a JTF headquarters would then coalesce during operations. SJFHQs were created to save time and to introduce flexibility as well as new war-fighting and operational-level concepts while offering the military a "low density, small footprint, but high demand" solution.

The SJFHQ organization included four main areas of working responsibilities: information superiority, planning, operations, and knowledge management. The information superiority group worked with the CIE and contributed much to the ONA, discussed earlier. The planning group consisted of experts, or individuals trained to locate subject-matter experts, in such diverse fields as political-military affairs, service-specific capabilities, special operation forces, and nongovernmental organizations. Additionally, planners doubled themselves into red and blue team counterparts, role-playing how an enemy might plan and conduct operations in the same battlespace. The operation group within the SJFHQ monitored ongoing missions and focused on measuring and tracking the effects of certain actions taken by the JTF. Meanwhile knowledge managers worked on organizing information and provided guidance on where to find relevant and timely information in order to conduct various tasks.

In their relatively short life span, SJFHQs have been deployed to Iraq, Afghanistan, Lebanon, Pakistan, Doha, Japan, and New Orleans. The SJFHQ provided its team members a venue for reflecting on the nature of the civilian interagency as well as the tensions and fissures among strategy, operations, and tactics. EBO called for campaign designers and planners to use and leverage a host of assets, including those residing beyond the DOD. Everyone understood that the phrase

implementing the national instruments of power did not denote a form of collective strategy but an exercise involving intricate operational art. My work and interviews with various SJFHQ members revealed that, from their deployments and training exercises, many of them learned about the uncoordinated nature of civilian-military relations and the impossibility of operationalizing the knowledge and tools theoretically resident within a whole-of-government approach.

Defense and Development

The type of military planning undertaken today at the operational level, especially in places like Iraq and Afghanistan, amounts to what generals and military analysts have called mission creep. Battles are no longer just mechanized outbursts of war or even the advanced coordination of air and land strikes across multiple echelons. Furthermore, US warfare has changed significantly since Vietnam. Operational artists will have us believe that the battlefield stretches across a multitude of domains. Consequently, Soldiers, Sailors, Airmen, and Marines function as multitaskers training on the job, or as my colleagues said, "flying while building the plane at the same time." Future military members will serve as security advisers, civil protection trainers, economic and development coordinators, and civil/electrical engineers. In the long and short of it, they have become ambidextrous nation builders and consultants.

It is useful to remember that during decolonization, social scientists and political thinkers began treating the newly formed nations as a real-world problem and an academic subject fruitful for social science research and theory making. At the same time, area studies blossomed in conjunction with the Cold War, and development began to take shape as a "New World Order," promising to deliver modernization and progress to Frantz Fanon's *The Wretched of the Earth*.[14] During this period, traditions were at once being reinvented by nationalist elites and confronted by processes of modernization. Social theories and concepts engaged with real-world political concerns surrounding the can-do modernization era immediately following the end of World War II. More

often than not, these theories helped reproduce the power structures of Western hegemony in its categorization and treatment of societies as (un)stable, (un)developed, (un)modern, and, ultimately, "things" that could be studied, understood, and controlled.

Foreign policy makers and social scientists were interested in the transition from traditional societies to modern nation-states and in ways to study changes in society. Societies not under the complete control of Western industrialized nations appeared volatile and entropic—in need of development and, hence, security. Development seemed an insurgency prophylaxis that defense had to administer and manage from the beginning. As we fast-forward to the present, this legacy is still with us today: the US military conducts its business from the operational standpoint that it is a force for good.

If war is entering a new period of reenchantment, this reenchantment is not due simply to advances in technology. For Christopher Coker, the modern military can perform surgical strikes and limit the number of casualties because war is much more about gathering and evaluating information.[15] Rather than just redrawing the map, new wars transform the world ideologically. This does not represent anything new in world history, but incorporating development, humanitarian assistance, and postconflict stabilization and nation building into war amounts to a different kind of reenchantment. Things become much more interrelated, and dense networks across space and time challenge the military member's ability to process information and respond quickly and effectively. As a result, this challenge has come to bear on the theory and praxis of operational art.

Conclusion

According to Peter Paret, "Wars are fought not to be won but to gain an objective beyond war."[16] This statement captures not only the controversies and ambivalence surrounding the US military's attitude towards itself and recent missions but also the way it plans and makes

sense of these objectives at the operational level. EBO failed, or is failing, for many reasons. On the one hand, during EBO's concept development and experimentation phase, several senior generals expressed skepticism over the rigid nature of cumbersome networks and systems modeling. They saw EBO as a solution looking for a problem not yet articulated or even well understood. On the other hand, the SJFHQ adopted the EBO framework as an operational design and planning tool. Various members of the SJFHQ acted as representatives of various functionalities—subject-matter experts—and some even stood as proxies for and brokers in civilian-military relations. In the absence of idealized interagency at the national strategic level, the SJFHQ attempted to replicate and erect a simulacrum of various strategic viewpoints and interagency stakeholders.[17] SJFHQs and the US Joint Forces Command no longer exist, but the SJFHQ concept has transitioned into a set of joint enabling capabilities residing within logistics at the Joint Staff level. EBO, however, continues to elicit debate. Critics rightfully ask how we can know for sure that certain actions will lead to certain effects. Others, however, maintain that EBO is useful for specific situations and that nodal and air strikes based on EBO have proved successful in the recent past. These continuing debates resemble and echo a military-science version of the structuralist/poststructuralist practice-theory paradox: when all you have in mind is structure, you end up seeing change; and when you are obsessed with change, you are sure to find structure and patterns.

Operational art will continue to evolve as a consequence of changes in war and vice versa. The pendulum certainly has swung the other way for now. Many military officers are preaching more than ever for a return to a simpler mission and a more restricted notion of the operational. They are clamoring for civilian leaders to issue a trickle-down approach, whereby strategy and bureaucracy pave the way for clear-cut operations and campaigns with tangible and attainable goals. But this is impossible.

The operational level of war standardizes and systematizes the way military members plan and even experience military operations. Air Force and Navy operational artists are busy making their designs and plans interoperable—or "joint," to use the catch phrase. In peacetime, national militaries train together and adopt terminology; they are exchanging more than just beans and bullets. Even though technologies and processes so vital to the operational level of war are a far cry from the battles of antiquity, the uniformity of experience these servicemen and servicewomen share today continues. They validate new operational concepts and even maintain situational awareness from the comfort of an air-conditioned room before a panel of flat-screen monitors. Some will continue as knowledge and project managers on future teams like the SJFHQ—reservist incarnations of their corporate selves. Meanwhile, troops on the front line are becoming more sophisticated and imbued with a disproportionate sense of incommensurable realities and responsibilities. They will have to cope and interface with the various levels of warfare, for if nothing else, these levels are already ontologically ascribed onto them. In a recent monograph on how operational art devoured strategy, Kelly and Brennan say that "an American soldier on a street corner in Baghdad not only personifies a strategic decision to invade Iraq, but also the entire political, social, diplomatic, cultural, and economic evolution of the United States from before its war for independence. The actions of this [soldier] are fraught with a broad spectrum of implications—military, Iraqi domestic political, U.S. domestic political, and international political implications."[18] ✪

Notes

1. For example, Maj Robert J. Reiss Jr., USAF, says that "the operational chain (combatant command, operational command, tactical command, support) runs from the commander U.S. Strategic Command (Offutt Air Force Base), to Air Force Strategic Command commander JFCC SGS [Joint Forces Command Space and Global Strike] (Barksdale) then commander Joint Service Office (Vandenberg), to the warfighter." The operational level is very much the business of military planners; civilian leaders and politicians cede this responsibility to the military. See Reiss's article "The C2 Puzzle: Space Authority and the Operational

Level of War," *Army Space Journal* 5, no. 2 (Summer 2006): 17, http://www.smdc-army forces.army.mil/Pic_Archive/ASJ_PDFs/ASJ_VOL_5_NO_2_Article_1.pdf.

2. See Scott Sigmund Gartner, *Strategic Assessment in War* (New Haven, CT: Yale University Press, 1997).

3. Michelle R. Garfinkel and Stergios Skaperdas, "Economics of Conflict: An Overview," in *Handbook of Defense Economics*, vol. 2, *Defense in a Globalized World*, ed. Todd Sandler and Keith Hartley (Amsterdam: North Holland, 2007), 649–709.

4. Edward N. Luttwak, "The Operational Level of War," *International Security* 5, no. 3 (Winter 1980–1981): 61–79.

5. Field Manual 100-5, *Operations*, 20 August 1982, 2-3; and ibid., May 1986.

6. Joint Publication 3-0, *Joint Operations*, 11 August 2011, I-13, http://www.dtic.mil /doctrine/new_pubs/jp3_0.pdf.

7. Jacques Richardson, *War, Science and Terrorism: From Laboratory to Open Conflict* (Portland, OR: Frank Cass, 2002), 253.

8. Luttwak, "Operational Level of War."

9. Justin Kelly and Mike Brennan, *Alien: How Operational Art Devoured Strategy* (Ann Arbor, MI: Nimble Books, 2010).

10. H. R. McMaster, "Effective Civilian-Military Planning at the Operational Level: The Foundation of Operational Planning," in *Commanding Heights: Strategic Lessons from Complex Operations*, ed. Michael Miklaucic (Washington, DC: National Defense University Press, 2010), 101.

11. Joint Forces Command was disestablished as of 31 August 2011.

12. See US Joint Forces Command, *Millennium Challenge 2002 Executive Report: Thinking Differently*, March 2003, http://www.ndu.edu/library/docs/MC02Executive_Report.pdf. Specific concepts receiving lukewarm reception included force projection; information operations; joint tactical actions; joint intelligence, surveillance, and reconnaissance; decision superiority; and three initiatives: the Joint National Training Center, Joint Fires Initiative, and Joint Enroute Mission Planning Rehearsal System–Near Term. The other concepts receiving validation included collaborative information element, standing joint force headquarters, joint interagency coordination group, effects-based operations, and operational net assessment.

13. Maj Craig A. Barkley, *The Standing Joint Force Headquarters: A Planning Multiplier?* (Fort Leavenworth, KS: School of Advanced Military Studies, US Army Command and General Staff College, 2006), 15, http://www.dtic.mil/cgi-bin/GetTRDoc?AD=ADA449950& Location=U2&doc=GetTRDoc.pdf.

14. For more information about area studies, see Pinar Bilgin and Adam David Morton, "Historicising Representations of 'Failed States': Beyond the Cold-War Annexation of the Social Sciences?," *Third World Quarterly* 23, no. 1 (February 2002): 55–80; David A. Hounshell, "Epilogue: Rethinking the Cold War; Rethinking Science and Technology in the Cold War; Rethinking the Social Study of Science and Technology," *Social Studies of Science* 31, no. 2 (April 2001): 289–97; Christopher Simpson, ed., *Universities and Empire: Money and Politics in the Social Sciences during the Cold War* (New York: New Press, 1998); and David Szanton, ed., *The Politics of Knowledge: Area Studies and the Disciplines* (Berkeley: University of California Press, 2004).

15. Christopher Coker, *The Future of War: The Re-enchantment of War in the Twenty-First Century* (Oxford, UK: Blackwell, 2004), 35.

16. Peter Paret, *The Cognitive Challenge of War: Prussia 1806* (Princeton, NJ: Princeton University Press, 2009), 3.

17. Anyone who has worked in the DOD and/or the State Department can attest that military strategy and operations are not synched up in reality with the rest of the interagency. The National Security Council does deliberate on matters of national security, but even this body is at the mercy of politics. Some members are more powerful than others. See David J. Rothkopf, *Running the World: The Inside Story of the National Security Council and the Architects of American Power* (New York: PublicAffairs, 2005).

18. Kelly and Brennan, *Alien*, 68.

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