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# Designing Effective Military Strategies under Uncertainty

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G. K. Cunningham

**ABSTRACT:** The expanding complexity and variety of threats to national security will require Joint commanders and planners who champion innovative and comprehensive military campaigns. Thus to educate future pragmatic practitioners, academic faculty should devise curriculum which advances beyond formatting of plans and orders to establish contextual frameworks for strategy.

Uncertainty remains as inevitable today as it was when Carl von Clausewitz discussed “the fog of war” two centuries ago.<sup>1</sup> Nonetheless, national leaders, whether autocrats or democrats, set strategic goals which military commanders and planners are obligated to attain. No matter how “wicked” the problems, the intent of Joint military planning is to generate practical solutions. The goal should be to develop leaders capable of “thriving at the speed of war.”<sup>2</sup>

In the effort to swing the pendulum of possibility as close to the side of probability as possible, planners must analyze each contingent environment to generate military actions with speed, magnitude, and duration.<sup>3</sup> This article explores how Joint commanders and planners should incorporate the principles of operational design to deal with the wicked, ill-structured problems they confront. It examines the uncertainties of international security and the potential for use of design methodology in the development of theater strategy. It considers problems and challenges inherent in applying military strategy and recommends Joint professional military education equip commanders and planners to meet these challenges as a specific outcome of Department of Defense war colleges and senior service schools.

### Wonder and Warning

In the operating environment of the twenty-first century, social, political, economic, historical, and geographic factors constitute complex, ever-adapting open systems.<sup>4</sup> In warfare, adversaries are simultaneously protagonists and antagonists engaged in violent, destructive actions spanning a continuum of activity from cooperation to coexistence to deadly conflict. Nation-states operate in a condition of enduring

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1. Carl von Clausewitz, *On War*, trans. and ed. Michael Howard and Peter Paret (Princeton: Princeton University Press, 1984), 101, 140.

2. Joseph F. Dunford Jr., “The Character of War,” *Joint Force Quarterly* 89, no. 2 (April 2018): 3.

3. Clausewitz, *On War*, 92.

4. Simon A. Levin, “Complex Adaptive Systems: Exploring the Known, the Unknown and the Unknowable,” *Bulletin (New Series) of the American Mathematical Society* 40, no. 1 (January 2003): 3–19, <https://doi.org/10.1090/S0273-0979-02-00965-5>.

competition across a shifting continuum of cooperation, competition below armed conflict, and armed conflict.<sup>5</sup>

In this state of affairs, framing the operational environment decades out is difficult and ultimately often inaccurate. Intelligence estimates, while recognizing the speculative nature of the work, remain a planning necessity. That said, they uniformly forecast a future operating environment as bleak as it is uncertain. Worldwide trends and key developments extracted from the National Intelligence Council (NIC) main report, *Global Trends 2035*, include rapid globalization of technological advancements; workforces shrinking in developed countries, Russia, and China but growing in poorer, developing countries; and reduced productivity as global economies contract.

As national interests among major powers diverge, an escalating terror threat, continued instability in fragile states, the wider availability of lethal, long-range weapons systems, and the stress of expanding environmental degradations will disrupt societies and increase the risk of conflict.<sup>6</sup>

Accordingly, the accustomed post–World War II order may morph into more complex and far-reaching arrangements and violence may be perceived as a primary path to recognition, wealth, and power. Any victories so gained may be short-lived, however, as state and nonstate actors alike find it difficult to sustain control in the ever-shifting twenty-first century international environment.

The chairman of the Joint Chiefs of Staff's futures assessment, *Joint Operating Environment 2035*, is equally certain about uncertainty concluding, "these conditions illustrate *contested norms* and *persistent disorder* in the future security environment."<sup>7</sup> Nongovernment prognostications are often equally clouded. The World Economic Forum suggested US global dominance will fade as power rebalances itself across a small number of competitors. Most nation-states will endure in near-term decades but they will become increasingly strained by the rise of megacities, transnational oligarchs, and even online identities.<sup>8</sup>

### Possibility from Paradox

Despite the likelihood of imprecision if not complete blunder, strategic planners must consider and incorporate these prognostications in order to link military campaigning to national strategy effectively so strategy anticipates national policy outcomes. Clausewitz stated

5. Joint Chiefs of Staff (JCS), *Competition Continuum*, Joint Doctrine Note (JDN) 1-19 (Washington, DC: JCS, 2019), 1–4, [https://jdeis.js.mil/jdeis/JDN\\_pdf/jdn1\\_19.pdf](https://jdeis.js.mil/jdeis/JDN_pdf/jdn1_19.pdf).

6. National Intelligence Council, *Global Trends: Paradox of Progress* (Washington, DC: Office of the Director of National Intelligence, January 2017), 6, 65–69, <https://www.dni.gov/files/documents/nic/GT-Full-Report.pdf>.

7. JCS, *Joint Operating Environment 2035: The Joint Force in a Contested and Disordered World* (Washington, DC: JCS, 2016), 4–20, [https://www.jcs.mil/Portals/36/Documents/Doctrine/concepts/joe\\_2035\\_july16.pdf?ver=2017-12-28-162059-917](https://www.jcs.mil/Portals/36/Documents/Doctrine/concepts/joe_2035_july16.pdf?ver=2017-12-28-162059-917).

8. Ceri Parker, "Global Agenda: 8 Predictions for the World in 2030," World Economic Forum, November 12, 2016, <https://www.weforum.org/agenda/2016/11/8-predictions-for-the-world-in-2030>.

firmly that primarily, “it is clear that war should never be thought of as *something autonomous* but always as an *instrument of policy*; otherwise, the entire history of war would contradict us.”<sup>9</sup> Military strategy employs the threat or use of force to change the strategic environment to bring it into consonance with policy, “the positions of governments and others cooperating, competing, or waging war in a complex environment.”<sup>10</sup>

Joint planning generally follows a predetermined and heretofore effective methodology for analysis established in doctrine as *operational design*. The methodology can be visualized as a series of questions (see figure 1) that commanders and their planning staffs might address.

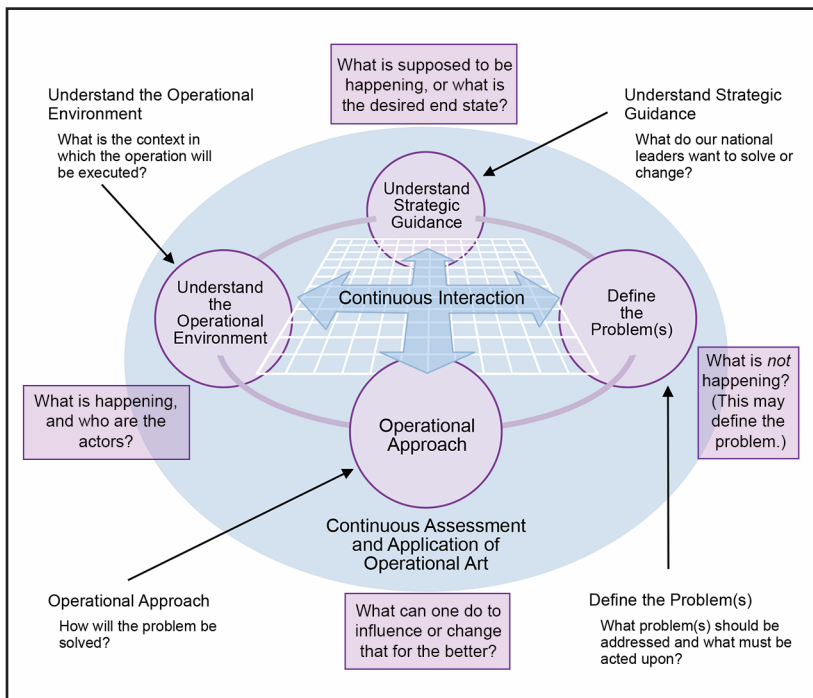


Figure 1. The operational design framework (adapted from Joint Publication 5-0)

Given this doctrinal framework, Joint commanders and planners face vagaries that provide an apt description of a complex, adaptive system of systems. It will be increasingly difficult to derive conclusions from analysis of data-driven intelligence collection, as the variety of network nodes and possible links between them will proliferate exponentially in unusual (or even unknowable) physical, behavioral, or

9. Clausewitz, *On War*, 88–89.

10. JCS, *Strategy*, JDN 2-19 (Washington, DC: JCS, 2019), II-1, [https://jdeis.js.mil/jdeis/JDN\\_pdf/jdn2\\_19.pdf](https://jdeis.js.mil/jdeis/JDN_pdf/jdn2_19.pdf).

functional relationships.<sup>11</sup> The validity of any such assessments of future conditions is unlikely to be easily measurable.<sup>12</sup>

Moreover, the spectrum of challenges faced by military commanders and planners includes contingencies where military power, traditionally applied in large-scale combat, may be of little value. The extensive logistical capabilities required by modern armed forces in warfare are equally suitable for humanitarian relief, disaster response, and crisis alleviation in peacetime. In earthquakes, tsunamis, hurricanes, floods, and wildfires, military forces are often the organizations of choice for immediate mitigation of danger and suffering due to the logistical resources they can bring to bear.

Often the soldier's favored means of local transportation, the heavy-lift helicopter, is the only means available to deliver aid and supplies to the sites of large-scale natural disasters where great swaths of infrastructure and utilities no longer exist. These contingencies, too, must be anticipated and planned for with as much energy and precision as combat operations.

### A Dangerous Enticement

Often strategic thinking is viewed as abstract reflection on strategic-level products or actions. Thucydides, Sun Tzu, Kautilya, Machiavelli, Clausewitz, Jomini, Mao Zedong, and others have their advocates.<sup>13</sup> But, excessive focus on grand strategy, as enticing as this may seem theoretically and philosophically, may present a dangerous diversion to Joint commanders and planners. Grand strategy as an overarching concept for focusing whole-of-nation resources to realize enduring national interests, in addition to being hard to define or articulate, may be neither useful nor achievable.<sup>14</sup>

Moreover, as a practical matter, US doctrine does not mention grand strategy as a functioning concept for national security and military campaigning. National strategy is the highest conceptualization of enduring, long-term national interests and values, including those associated with social and cultural issues. National strategy, then, acts as the “strategy of strategies” reflecting the nation’s predominant, broad, and comprehensive vision of the role of the United States.<sup>15</sup>

The president’s *National Security Strategy* is the commonly accepted promulgation of policy guidance as national strategy. Yet the difficulty comes when trying to apply national strategy to action. The background canvas is too broad, and the possible mixes of color and texture too

11. JCS, *Joint Intelligence Preparation of the Operational Environment*, Joint Publication (JP) 2-01.3 (Washington, DC: JCS, 2014), III-33–III-48.

12. Horst M. J. Rittel, and Melvin M. Webber, “Dilemmas in a General Theory of Planning,” *Policy Sciences* 4, no. 2 (June 1973): 155–69, <https://doi.org/10.1007/BF01405730>.

13. Peter Paret, ed., *Makers of Modern Strategy from Machiavelli to the Nuclear Age* (Princeton: Princeton University Press, 1989).

14. Paul D. Miller, “On Strategy, Grand and Mundane,” *Orbis* 60, no. 2 (2016): 237–47, <https://doi.org/10.1016/j.orbis.2016.01.002>.

15. JCS, *Strategy*, I-2.

plentiful. It is a relatively facile thing to identify likely major adversaries; it is quite another to develop practical plans and orders for countering their influence and deterring or defeating their aggression.

The *National Security Strategy* of 2017, for example, presents 99 priority actions across the whole of government. But these priority actions are not compared against each other or associated with resource constraints or operational feasibility. The *National Security Strategy* addresses outcomes and strategic goals but offers little with regard to resource allocations, fiscal constraints, or military effort, forces, or processes to be set against potential threats. It is aspirational in nature and relates little specific planning guidance.

### Pragmatism in Planning

While grand strategy is academically appealing, in practice military commanders and planners cannot luxuriate in theories and lofty strategic concepts. The contemplation of operational design as described earlier is a useful methodology to employ to this pragmatic end, but the requisite framing is often a troublesome enterprise. Strategic guidance is quite often difficult to obtain, much less understand. Further, William E. Rapp argues persuasively that it is psychologically, culturally, and even structurally difficult to communicate across the civilian and military divide that characterizes strategy formulation at national strategic levels.<sup>16</sup> Framing the operational environment is a complex and nuance-prone venture, demanding multicultural understanding in almost every instance. This context is culturally ambiguous, situationally convoluted and unclear, and subject to rapid change.

Arthur F. Lykke Jr.'s model of military strategy as national security supported by a three-legged stool provides a time-tested heuristic that has become a basic paradigm within current planning. While it has its detractors, the ends, ways, and means model is ingrained in US doctrine.<sup>17</sup> *Joint Planning*, Joint Publication 5-0 (2017) begins with a description of Lykke's model: "Joint planning is the deliberate process of determining how (the **ways**) to use military capabilities (the **means**) in time and space to achieve objectives (the **ends**) while considering the associated **risks**."<sup>18</sup> To the degree these three legs might be misaligned (tilt), the military strategist would likely encounter risk to assigned missions and tasks (see figure 2).<sup>19</sup>

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16. William E. Rapp, "Ensuring Effective Military Voice," *Parameters* 46, no. 3 (Autumn 2015): 13–26.

17. For a summation of opposing critiques to Lykke's model, see Gregory D. Miller et al., "A Dialogue on Strategy: On Strategy as Ends, Ways, and Means," *Parameters* 47, no. 1 (Spring 2016–17): 125–31; and Jeffrey W. Meiser, "Ends + Ways + Means = (Bad) Strategy," *Parameters*, 46, no. 4 (Winter 2016–17): 125–31.

18. JCS, *Joint Planning*, JP 5.0 (Washington, DC: JCS, 2017), I-1.

19. Arthur F. Lykke Jr., "Toward an Understanding of Military Strategy," in *Military Strategy: Theory and Application* (Carlisle Barracks, PA: US Army War College, 1989), 3–8.

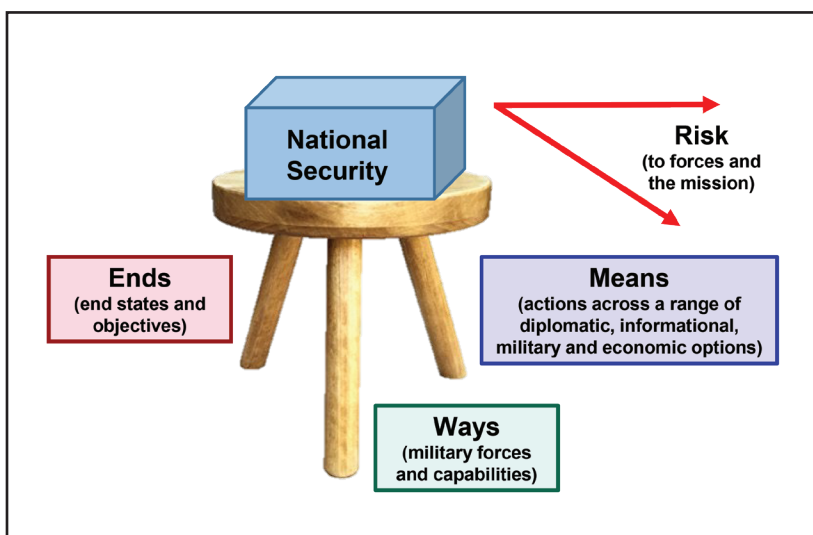


Figure 2. Lykke's ends, ways, and means model of military strategy (adapted from Lykke, 1989)

Unfortunately, national-level policy and guidance often misses elements of the Lykke model integral to its utility, such as the ways in which a strategy may be implemented or the means by which a strategy may be accomplished. Unfortunately, national strategy as a primary vehicle for carrying out policy determinations and achieving political outcomes and end states, tends to focus on the element of “ends” to the exclusion of other factors.<sup>20</sup> Military strategy requires both coherency and acceptance of risk.<sup>21</sup> Coherency between national or grand strategy and military strategy becomes hard to maintain when corresponding national-level guidance or direction is not part of the planning paradigm, a condition that impedes the assessment of risk.

Exacerbating the challenges of understanding national strategy as strategic direction are the difficulties associated with the constraints of limited forces and capabilities. Approaches which rigidly follow predetermined, assigned geographic theaters or which consolidate globe-spanning functions will be inadequate to confront, deter, or defeat adversaries who adroitly integrate and employ military and nonmilitary power at times of their own choosing. To meet this contemporary challenge, the concept of global integration was introduced in the 2016 *National Military Strategy* and further elaborated two years later as a planning principle in the chairman's instruction on the *Joint Strategic Planning System*:

Global integration is the arrangement of cohesive Joint Force actions in time, space, and purpose, executed as a whole to address transregional,

20. Richard K. Betts, “Is Strategy an Illusion?” *International Security* 25, no. 2 (Fall 2000): 7.

21. F. G. Hoffman, “Grand Strategy: The Fundamental Considerations,” *Orbis* 58, no. 4 (Fall 2014): 472–85.

multi-functional challenges across all domains. It is a top-down, iterative process that integrates planning, prioritizes resources, and assesses progress toward strategic objectives. Global integration ends include enhanced senior leader decision making, strategically integrated worldwide operations, and a balanced and lethal future Joint Force.<sup>22</sup>

## A Way Ahead

Operational design methodology provides a conceptual approach to problem solving well-suited to connecting national strategic policy guidance with theater strategy policy. The design process begins with understanding the strategic direction. Yet this step has typically been very difficult to do given the difference between national or grand strategy and military strategy as a framework for operational art. But the linkage is essential if military design is to produce ends that accomplish the policy objectives mandated by the need to sustain national interests in the face of dedicated opposition from sophisticated adversaries.<sup>23</sup> To attain this goal, commanders and planners should be well positioned to employ operational design in formulating military strategy.

Specifically with regard to strategy comprehension and formulation, the chairman's Officer Professional Military Education Policy (OPMEP) aligns national- and theater-level strategy to senior-level education for Joint officers—predominantly in grades O-5 and O-6—and equivalent international officers and US civilians for service at strategic levels, with an emphasis on Joint operations.<sup>24</sup> The OPMEP specifies, as a professional military education outcome, that war colleges must prepare graduates who are “strategically-minded warfighters or applied strategists who can execute and adapt strategy through campaigns and operations.”<sup>25</sup> A few pertinent recommendations for inclusion or application of operational design as a key topic within program curriculums follow.

First, institutions for Joint professional military education should give themselves a frank azimuth check to determine they are in fact accomplishing the objectives set forth by the chairman for these top-level schools. The tendency appears to be drifting from meeting those requirements to familiarization with theorists and national policy as grand strategy. The OPMEP clearly states these requirements are matters of federal law, not preference, and include not only national security strategy but “planning at all levels of war . . . [including] theater strategy and campaigning, joint planning processes and systems . . . [and] joint, interagency, and multinational capabilities and the integration of those capabilities.”<sup>26</sup>

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22. JCS, *Joint Strategic Planning System*, Chairman of the JCS Instruction (CJCSI) 3100.01D (Washington, DC: JCS, 2018), A-1, <http://www.jcs.mil/Portals/36/Documents/Library/Instructions/CJCSI%203100.01D.pdf>.

23. Tami D. Biddle, *Strategy and Grand Strategy: What Students and Practitioners Need to Know* (Carlisle, PA: US Army War College Press, December 2015), 6–9.

24. JCS, *Officer Professional Military Education Policy (OPMEP)*, CJCSI 1800.01F (Draft) (Washington, DC: JCS, 2020).

25. JCS, *OPMEP*, A-2.

26. JCS, *OPMEP*, A-1.



Second, Joint professional military education must both capitalize on and foster relationships based on existing alliances and coalitions. The OPMEP points out that international officers are intended recipients of US Joint professional military education at senior levels, a policy in keeping with Tami Davis Biddle's recommendation: "military students in particular ought to have every opportunity to learn to see their world through lenses other than their own. Cultural awareness and cultural literacy are essential to politics and to strategy."<sup>27</sup> Such broadening multinational perspectives support the framing of an operational environment.

Third, curriculum relating to Joint planning must embrace global integration with enthusiasm and incorporate interagency and multinational partners as a matter of routine.<sup>28</sup> Technological innovations, economic globalization, and worldwide social changes have altered the geostrategic landscape such that purely regionally focused planning will not support decision-making and problem-solving global in scope. Joint planning across all theaters and functions must apply a holistic perspective incorporating all elements of power in plans and orders that inherently reflect a Joint, interagency, and multinational character.

Fourth, the aperture through which senior service colleges view the Joint planning process needs to widen considerably. Joint Publication 5-0 includes principles of Joint planning, but makes only cursory mention of the principles of Joint operations, foregoing a discussion of how to integrate these important operational considerations with Joint planning in favor of a mere passing reference and a few examples. In fact, principles of Joint operations are mentioned five times in the context of validating Joint plans, but never completely listed.<sup>29</sup>

Rather than setting forth correct principles and concepts and allowing latitude in applying critical thinking and seeking creative solutions, planning doctrine has become heavily laden with process-bound conceptual rigidity. Operational design was conceived as a strategic thinking model, an intellectual framework intended to allow commanders and planners to quickly synthesize information and intelligence in chaotic, time-constrained conditions, collaboratively visualize how a Joint operation would unfold, and forge consensus around the commander's intent.<sup>30</sup> The extensive conceptual coverage of the four major components of operational design has now been reduced to a single graphic and a nine-step checklist of actions.<sup>31</sup> Top-level war college curriculum needs to compensate for this flawed doctrine and urge its correction.

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27. Biddle, *Strategy and Grand Strategy*, 55.

28. Hoffman, "Grand Strategy," 475–76.

29. JCS, *Joint Planning*, xix, III-5, V-35, C-6.

30. JCS, *Joint Planning*, III-7–III-18.

31. JCS, *Joint Planning*, IV-6–IV-7.

## Embracing Risk

The United States should embrace innovative and comprehensive military theater and functional strategies. These should reflect widely conceived, thoroughly coordinated campaign planning that capitalizes on existing alliances and coalitions, builds partnership capacity, and enthusiastically embraces global integration.

In a pervasive atmosphere of uncertainty, a professional military will need to change to accept complexity and risk, rely on adaptability, and embrace innovation. Educators, especially those responsible for the development of courses and curricula, should respond to this need by taking an approach to teaching that itself is less structured and more holistic.

If Joint professional military education is to seriously concentrate on the development of adaptive, innovative, chaos-tolerant leaders “capable of thriving at the speed of war,” then course design and curricular development must model the creativity and analysis we expect to produce.<sup>32</sup> To educate such practitioners, academic faculty should not simply address formatting of plans and orders but establish contextual frameworks for both the strategic planning process and the international strategic circumstances of each actual crisis or contingency. Such a perspective should impel top-level war colleges and schools, which are mandated to focus on strategy and campaigning.

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32. Dunford, “Character of War,” 3.

