

Military Strategy Revisited

A Critique of the Lykke Formulation

Lt. Col. Richard E. Berkebile,
U.S. Air Force, Retired

This issue of *Military Review* included the original publication of Col. Arthur F. Lykke's seminal formulation of military strategy, "Defining Military Strategy = E + W + M." (Graphic from *Military Review*, May 1989)

Army War College professor and retired colonel Arthur F. Lykke published "Defining Military Strategy = E + W + M" in the May 1989 edition of *Military Review*.¹ Labeling this article seminal is an understatement. It shaped the views of generations of officers and its influence extended well beyond the Department of Defense (DOD) into other federal agencies and militaries worldwide. Nonetheless, this critique contends Lykke's formulation of military strategy as the sum of ends, ways, and means is misaligned with international security and operational environments, and with actual practice.

Specifically, the mathematics do not match the process, and the purpose of the military is too narrowly construed for the nature of conflict. The dependent variable end state is missing, the independent explanatory variables are incorrectly aligned in the equation, and the description of military roles is too isolated from

the political environment. Critics posit the United States crafts strategy poorly and the evidence is in the outcomes.² They have a point. Our collective understanding of strategy undermines optimal outcomes. As the United States grapples with twenty-first century challenges predicted to feature persistent disorder, it is time to revisit the concept of military strategy.³ This review analyzes Lykke's definition and description of the military strategy process and its potential effects on outcomes. It does not address his conception of force development strategy.⁴ This article unfolds in two steps. First, I examine Lykke's original military strategy formulation and, second, explore whether it makes any substantive difference if my observations are correct.

The Formulation of Military Strategy

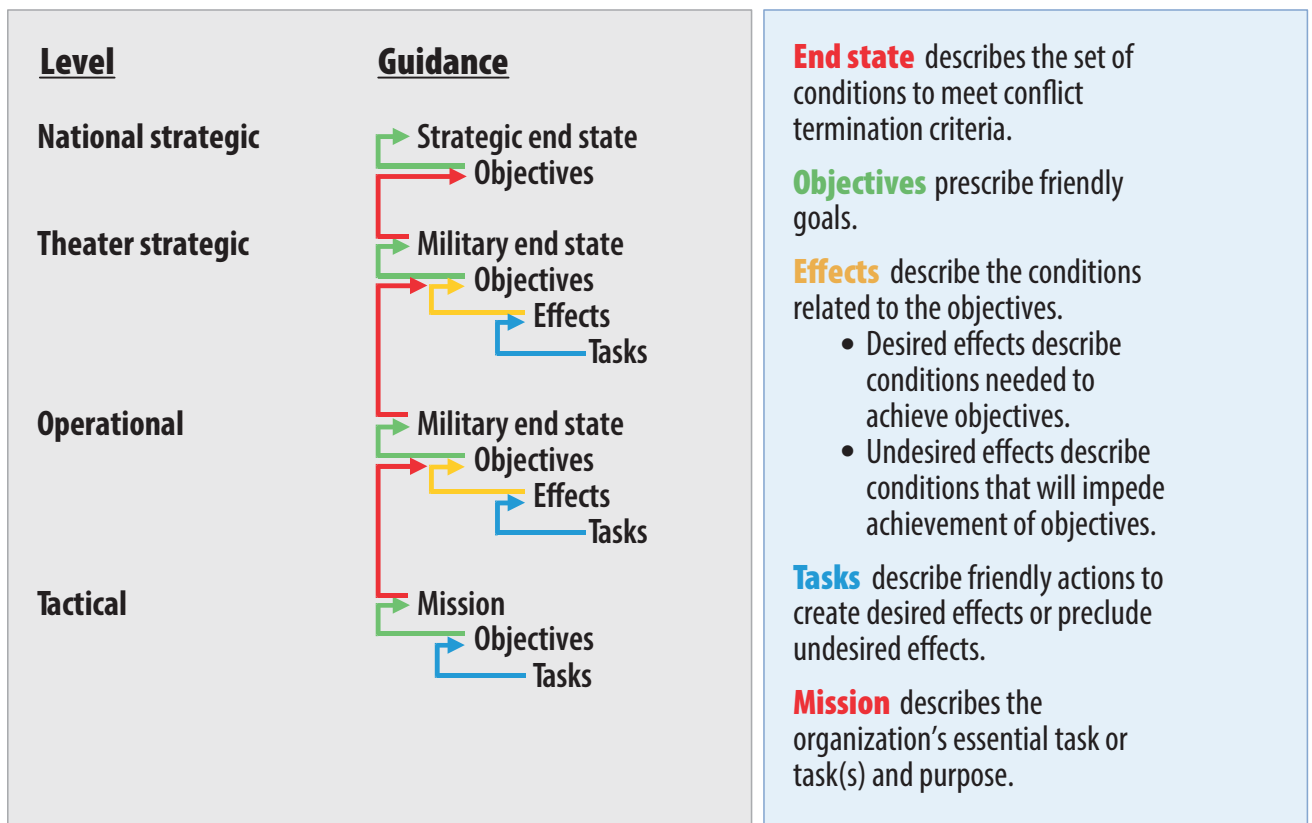
Definitions frame thinking. Military definitions "improve communication and *mutual understanding* within DOD [and] with other U.S. Government departments and agencies [emphasis added]."⁵ As Lykke notes, "the [definitional] problem is not just semantics, it is one of effectively and competently using one of

the most essential tools of the military profession. ... Only with a mutual understanding of what comprises military strategy can we hope to improve our strategic dialogue.”⁶ Bureaucratic processes such as strategic formulation are both a cause and an effect of definitions. Definitions also constrain the range of options and implementation of policy, particularly among federal bureaucracies.⁷

Therefore, the examination of Lykke’s definitions is a necessary first step to establishing the context of collective institutional understanding. Lykke defined military strategy based on Gen. Maxwell D. Taylor’s characterization of national or grand strategy as a function of ends, ways, and means.⁸ Specifically, he created a corresponding militarized synonym for each

Doctrine asserts warfare exists at three inter-laced levels—strategic, operational, and tactical.¹⁰ Organizationally, however, global responsibilities led to splitting the strategic level of war into national and theater echelons.¹¹ This caused a numerical mismatch between three levels of war and four echelons of organization. Doctrine adapted to the different levels of war and echelons through “nesting” or “linking” planning efforts. Nesting is illustrated in figure 1, in which an operational level military end state equates to an objective contributing toward the achievement of a theater strategic military end state, which in turn is a contributing objective toward a strategic end state.

Organizational echelons use overlapping but sometimes different vocabularies. While doctrine and



(Figure from Joint Publication 5-0, *Joint Planning*, June 2017)

Figure 1. End State, Objectives, Effects, Tasks

element: ends (military objectives), ways (military strategic concepts), and means (military resources).⁹ Although it is unclear whether it was due to Lykke’s influence, the DOD applied these concepts across its organizational hierarchy.

theorists are necessarily meticulous in defining terms in a military context, they are less finicky in using them. For example, end state is a description of the aggregate conditions envisioned or desired by an appropriate commander.¹² In this context, appropriate commander

refers to someone with the requisite authority to direct military actions at the operational or strategic level of war such as a joint task force commander, combatant commander, secretary of defense, or president. The concept of an end state is known by many labels such as strategic objective, national objective, national strategic end state, ultimate objectives, theater objectives, national policy, political end, political objective, political object, desired end state, military end state, strategic end state, and strategic effect.¹³ I used end state to refer to outcomes rather than objective to distinguish it from Lykke's use of military objectives as a synonym for ends. Objective is further encumbered by alternative meanings both colloquially and within joint doctrine.

While vocabularies differ across echelons, the creation processes are essentially the same. For example, the ends, ways, and means construct is used at the national, theater strategic, and operational levels.¹⁴ Lykke himself recognized "strategists, planners, corps commanders and squad leaders are *all* concerned with *ways* to employ *means* to achieve *ends*."¹⁵ Therefore, unless specifically noted, this article's use of the terms process and strategic process is meant to be inclusive of other echelons and levels of war.

Lykke's model of the strategic process as an addition problem makes it accessible to most readers. The fallacy is the formulation does not match either Lykke's narrative description or the actual strategic process. To be exact, Lykke equates his linear equation to the *definition* of military strategy, not the strategic *process*, but the nuance gets lost in application. Lykke's definition depicts military strategy as the dependent variable on the right side of the equation. This conflated the dependent variable military strategy with the outcome or end state. In practice, the dependent variable is an end state and the strategic process equation should encompass the four variables of ends (objectives), ways (concepts), means (resources), and end state (military end state).

On the left side of the equation, Lykke identified three independent variables: ends/objectives, ways/concepts, and means/resources.¹⁶ Lykke describes the ends as a function of the interaction between ways and means, not a variable *independent* of them. In other words, one independent variable is a function of the other two. This approaches perfect multicollinearity between the variable ends and the variables ways and means. Perfect multicollinearity among independent

variables is a mathematical problem that makes it nearly impossible to determine the individual effect of the involved variables on the dependent variable. While the strategic process is unlikely to be subjected to statistical analysis, perfect multicollinearity has a similar effect on logical or intuitive analysis. It makes discerning the relative importance and effect of ends, ways, or means on the end state, an already difficult task, even more difficult.

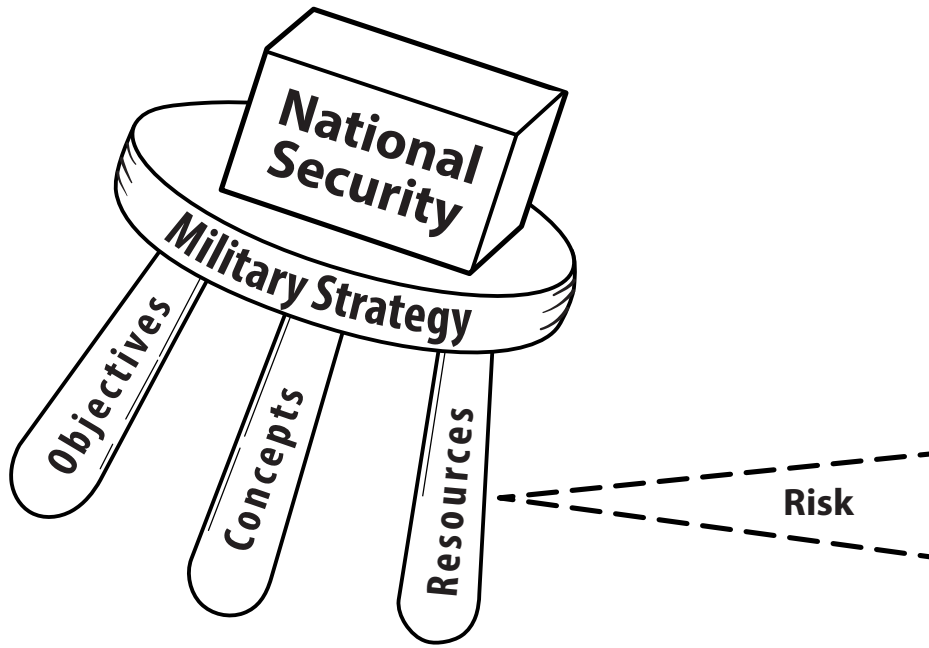
For example, let us examine the notion of balance.¹⁷ Lykke uses a stool to illustrate the risk of military strategy with unequal objective, concept, and resource legs.¹⁸ Figure 2 (on page 4) suggests objective, concepts, and resources interact with each other to produce an end state (military strategy in the graphic). An imbalance among the legs is a direct risk to the outcome. However, Lykke's narrative suggests adjusting the interaction of concepts and resources to reach an objective, not overall military strategy or end state *per se*.¹⁹ Imbalance among the three variables is a risk to the objectives and only indirectly a risk to the process outcome. Thus far, a corrected equation would be:

$$O = f(C*R)$$

where O is an objective, C is a concept, R is a resource, $C*R$ is the interaction between concepts and resources, and f stands for function of.

Admittedly, there is considerable risk when objectives are inadequate for the end state. This risk, however, is a matter of necessary and sufficient objectives rather than imbalance among objectives, concepts, and resources.²⁰ As posited, the dependent variable is the end state. The end state is a function of the summation of objectives, where the summation must be sufficient to result in the end state. For efficiency, the objectives should likewise

Lt. Col. Rich Berkebile, U.S. Air Force, retired, is an instructor at the Army Command and General Staff College on Fort Leavenworth, Kansas. He holds a BS in international affairs from the U.S. Air Force Academy, an MS in international relations from Troy University, and a PhD in political science from the University of Missouri. Commissioned in the Air Force as a security forces officer, he served in a variety of assignments as a flight commander, squadron commander, plans officer, instructor, and Air Component Command staff officer. He retired from U.S. Strategic Command.



(Graphic from Arthur Lykke, "Defining Military Strategy = E + W + M," *Military Review* 69, no. 5 [1989])

Figure 2. Lykke's Original Depiction of Strategy

be necessary. For example, cost in terms of casualties, treasury, reputation, or domestic political opportunities is usually an important consideration. Given the complexity and contingency of war and imposing will, sufficiency is the more important of the two conditions. As costly as objectives could be, they are even costlier or less effective over time in contested environments. Inefficient or unnecessary objectives are tolerable, provided they are not counterproductive. Of course, determining unnecessary objectives is a retrospective process at best discerned well after operations are underway or completed. Strategists should not interpret this to mean costs do not matter or the more objectives, the better. It means if sufficiency is in doubt, add or adjust objectives. If the costs of the objectives are unsustainable, search for alternative ways to achieve them or source the means from other agency, national, subnational, or supranational actors. This suggests a second new model of:

$$ES = \sum_{1}^{n} O$$

where *ES* is an end state, *O* is an objective, and *n* is the total number of objectives. See figure 3 (on page 5) for how this new model might show up in a strategic process that directs military strategy toward a political end state.

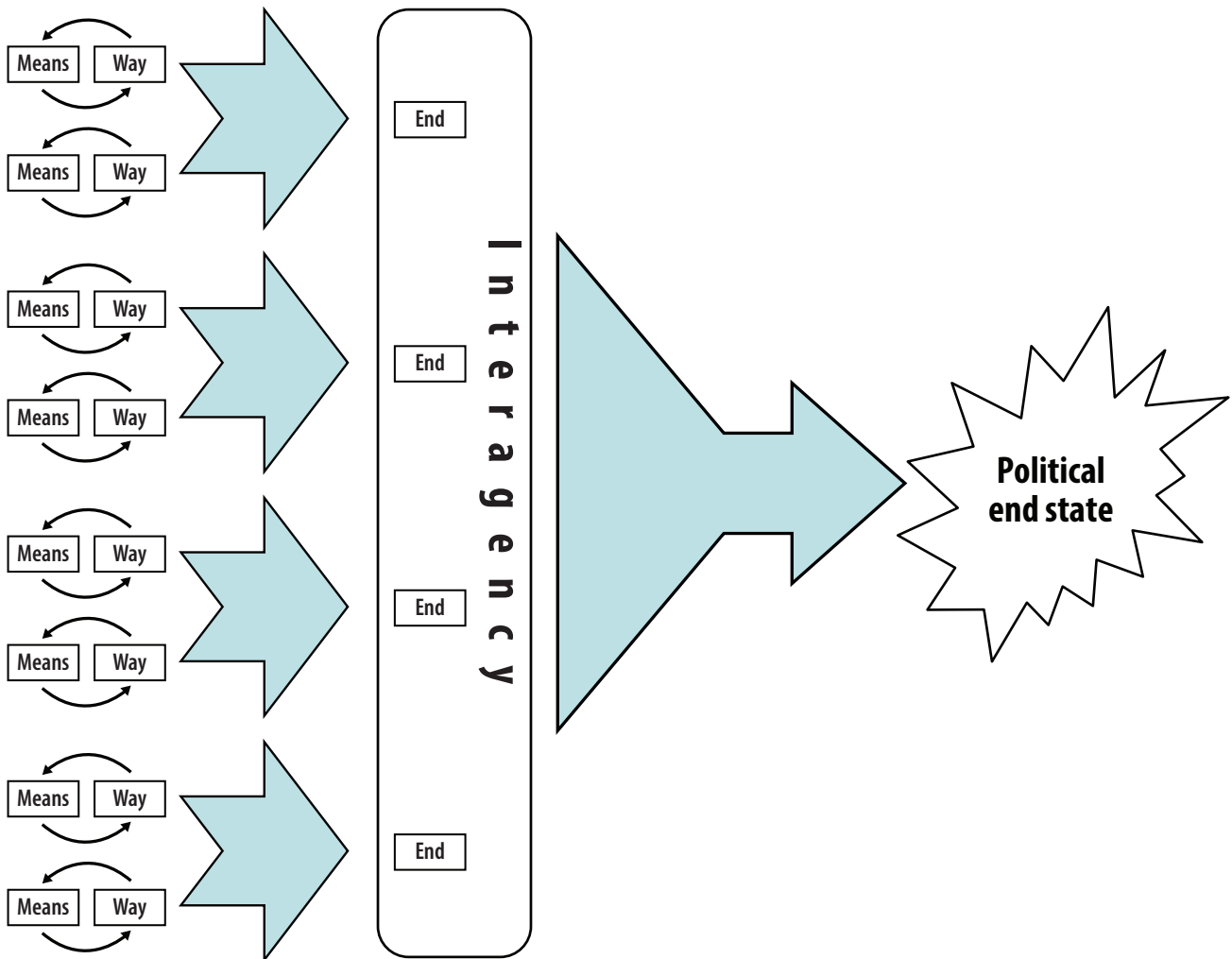
The combined effect of a missing dependent variable and collinear independent variables suggests the strategic process actually consists of two steps, where $ES = \sum_{1}^{n} O$ precedes $O = f(C^*R)$. The relationship of objectives to end state is listed first because logically one cannot determine ways and means prior to knowing the targeted objective. The objectives, in turn, create a set of conditions defining

an end state. In reality, the order of steps should not be dogmatically followed. Planning, in both its strategic and operational forms, is "inherently an iterative process."²¹ For example, when anticipating the interaction of available means and the repertoire of ways will not achieve an objective, planners and decision-makers should reassess either the objectives or the end state.

Lastly, the concept of a military strategy or military end state is too constrictive for application in the real world except in the most restrictive conditions approaching purely traditional warfare between states. As Carl von Clausewitz observed,

war is not merely an act of policy but a true political instrument, a continuation of political intercourse, carried on with other means ... and the commander in any specific instance, is entitled to require that the trend and designs of policy shall not be inconsistent with these means ... The political object is the goal, war is the means of reaching it, and means can never be considered in isolation from their purpose.²²

A framework of specialized military strategy or end states is a step toward implementing exactly what Clausewitz warned against—considering force or the military



(Graphic by author)

Figure 3. A Model for Strategic Process Encompassing Military and Interagency Processes Toward a Political End State

instrument in isolation from its political purpose. It positions the military to judge the suitability of the political object in accordance with institutional interests, rather than a judgement of the military instrument's contribution to the political object in the national interest. This is not to suggest the military institution consciously defies the state but that it conceives and prepares its repertoire of capabilities and missions too narrowly. To be most effective and in alignment with the nature of the environment, the state should not be conceived as having four distinctive and coequal instruments of power.²³ Strategy and planning need an integrated framework. Any historical ability to isolate military operations from the political environment was erased by modern technology.

Does It Make a Difference?

If the revised two-step model of the strategic process is more accurate than Lykke's E + W + M formulation, the question of substantive difference emerges. In other words, does this different understanding really matter for achieving strategic outcomes? I posit Lykke's widespread and influential framework, supported by bureaucratic inertia, inhibits the understanding of strategy and leads to excessively narrow specialization and self-conception within the DOD. The misperceptions are not universally ascribed but are widespread enough to inhibit strategic and operational agility and optimal outcomes.

Lykke's original article references a political end but not an end state, and his equation includes neither.²⁴

Based on classroom experience teaching strategic novices, this necessitates active supplementation of the written word to clarify the strategic process and explain the relationships among variables. While in itself a minor nuisance, the written, simpler, and less accurate formulation often has greater long-term resilience. In other words, ends, ways, and means are recalled but not their relationship to end state.

One might observe novices do not, hopefully, make strategy. Nonetheless, institutional understanding is handicapped at inception because the individual understanding of the strategic process is unclear. Does institutional myopia focus analysis excessively on the interaction of ends, ways, and means at the cost of end state analysis? Intuitively, one suspects it matters. Nonetheless, assessing the effect of a mental framework is very challenging. For instance, understanding is an unobservable mental activity. Misunderstanding may manifest in conversation or application but can just as easily remain hidden. Individual understanding and decision-making may be shaped or suppressed by group dynamics. It is even difficult to identify the key personnel who applied their strategic framework. Decision makers change from crisis to crisis and are potentially dispersed far from Washington, D.C.

Second, the alignment of independent variables in the equation masks their relationship to the end state. Objectives are a function of the interaction between ways and means. End state is a function of the sufficiency of the objectives. It is not implausible ways and means can adequately achieve all objectives yet the achievement of all objectives fall short of desired end state conditions. The doctrinal application of operational art and creative thinking appears to conflate ways' effect on both objectives and end states.²⁵ It does not include assessing objectives' sufficiency for creating the end state. Determining the *individual* effect of ends, ways, and means on the end state is essential. This determination must be done in an ambiguous present and in interaction against a thinking and counteracting opponent within an unknown and highly contingent future. Misperceiving the relationships among the variables cannot be helpful.

Lastly, and of greatest import, the idea of a purely military strategy and military end state inhibits holistic understanding of the environment and the orchestration of ends, ways, and means. Strategy attempts

to create an outcome—a complex *political* outcome. Understandably enough, the military values clarity and shuns complexity. Foundational joint doctrine publications illustrate this. Joint Publication (JP) 1, *Doctrine for the Armed Forces of the United States*, uses the term clear or clearly twenty-two times; JP 3-0, *Joint Operations*, uses the terms thirty times; and JP 5-0, *Joint Planning*, uses them sixty-one times. While recognizing a need to operate in conditions of ambiguity, institutionally and, based on personal observation of the modal officer personality, there is intense dislike of doing so beyond what can be explained by the brutality, death, maiming, and destruction of war.²⁶ For example, doctrine defines military end state as the “point in time and/or circumstances beyond which the president does not require the military instrument of national power as the primary means to achieve remaining national objectives.”²⁷ Unstated, but deeply ingrained, is the desire to reach the military end state as rapidly as possible. Rapidity, however, must not be divorced from completeness or locally self-sustaining.

The incommensurability between an insular military end state, erroneously epitomized as characteristic of World War II, and sustainable, comprehensive outcomes is not lost on the DOD. The 2018 *National Defense Strategy* prioritizes preparedness for war, abstracted as *lethality*, while aiming to remain “proficient across the entire spectrum of conflict.”²⁸ Army Field Manual (FM) 3-0, *Operations*, accounts for the environmental mixture of politics and violence, or more precisely intense violence followed by perhaps localized violence and stability within a consolidation area.²⁹ Still, the military, rightly, emphasizes traditional warfare over irregular warfare. The problem is the need for a spectrum of capabilities, stability operations, and irregular warfare lapses due to inadequate organizational attention combined with active attack from institutional antibodies. For example, FM 3-24, *Counterinsurgency*, was completed after a thirty-year national policy and doctrine hiatus.³⁰

A military end state framework attempts to insulate the military from aspects of the actual social environment in which it operates. Institutions necessarily have specializations.³¹ The DOD's unified action concept exists because successful outcomes require capabilities and resources the U.S. military does not have.³² There

is no command structure to orchestrate independent federal agencies, let alone multinational or nongovernment actors, short of the president. Successful unified action, therefore, depends on a common end state and common objectives.³³ Returning to the military end state framework, it changes the equation $ES = \sum_1^n O$ to $ES_m = \sum_1^n O_m$, where m stands for military end state or military objectives. This framework suggests parallel end states of $ES_{d,i,e}$ for diplomacy, information,

counterinsurgency and governance are among the most difficult and most institutionally avoided.³⁹ Although not the subject of this article, the military instrument of power needs more capabilities in these areas than it would care to believe.⁴⁰

Conclusion

Lykke's conceptualization of strategic process remains an invaluable contribution to strategy liter-

“There is no command structure to orchestrate independent federal agencies, let alone multinational or nongovernment actors, short of the president. Successful unified action, therefore, depends on a common end state and common objectives.”

and economics respectively, the summation of which would result in an overarching political end state.³⁴

This dissection of a political object defies its nature. Edward Carr's original conception of “instruments of power” warned they were separable for analysis but inseparable in application.³⁵ The military end state framework encourages institutional self-conception triumphs over optimal national outcomes. This suggests two changes—one structural and one cultural. The United States needs more integrated planning teams and to reward leaders cooperating for the common good.³⁶ The common good, in turn, requires decision makers and planners broadly educated in politics in addition to their institutional art and science.³⁷ There is reason to suspect the current system fails to produce common objectives.³⁸ How much can be ascribed to the understanding of strategic process is unclear.

Even with a single end state construct, planners still must achieve unity of effort through creating objectives and assigning responsibility for the ways and means to achieve them across cooperating actors. The choice of implementing instruments may be obvious. The destruction of an enemy maneuver force is likely to be overwhelmingly an application of military ways and means. Other objectives will require a combination of instruments and be more difficult to synchronize. For example, objectives concerning

ature. His narrative touched on all the major process variables and influenced generations of military and interagency students. However, his famous equation dropped the dependent variable end state, depicted means, ways, and ends in a misaligned relationship to outcomes, and conceived of military operations isolated from the political environment. The flaws of Lykke's original framework have been exacerbated by information age technologies. Military operations and end states are increasingly inseparable from the political environment down to the tactical level of war. Objectives must be assessed with regard to end states for both necessity and sufficiency. In turn and separately, the adequacy of ways and means must be assessed with regard to particular ends/objectives. An indivisible political environment implies much better institutionally integrated strategy and planning teams are needed.

The two-step model suggested in this article is itself incomplete. End states are not typically global but rather limited to a specific geographic region. As war and conflict alter conditions in an area, typically and often unhelpfully conceived as contained within national borders, the global system reacts. As strategist Richard Yarger observed, this is yet another type of risk requiring assessment “of the probable consequences of success *and* failure.”⁴¹ Future research should model these interactions as well. ■

Notes

1. Arthur F. Lykke Jr., "Defining Military Strategy = E + W + M," *Military Review* 69, no. 5 (1989).
2. Colin S. Gray, "Irregular Enemies and the Essence of Strategy: Can the American Way of War Adapt?" (Carlisle Barracks, PA: U.S. Army War College, 2006), 34–38, 44–45; Frederick M. Downey and Steven Metz, "The American Political Culture and Strategic Planning," *Parameters* 18, no. 3 (1988): 35; Antulio J. Echevarria, *Toward an American Way of War* (Carlisle Barracks, PA: Strategic Studies Institute, 2004), 18; Linda Robinson et al., "Improving Strategic Competence: Lessons from 13 Years of War" (Santa Monica, CA: RAND Arroyo Center, 2014), 33; Bruce E. Fleming, "Military Self-Definition as Strategy," *Infinity Journal* 2, no. 2 (2012): 34.
3. Kevin D. Scott, "Joint Operating Environment 2035: The Joint Force in a Contested and Disordered World" (Washington, DC: Joint Chiefs of Staff, 2016), 4.
4. Lykke, "Defining Military Strategy," 4.
5. *DOD Dictionary of Military and Associated Terms* (Washington, DC: U.S. Government Publishing Office [GPO], 2018), i.
6. Lykke, "Defining Military Strategy," 3.
7. Graham T. Allison, "Conceptual Models and the Cuban Missile Crisis," *The American Political Science Review* 63, no. 3 (1969): 689.
8. Lykke, "Defining Military Strategy," 3.
9. *Ibid.*, 3–4.
10. Joint Publication (JP) 1, *Doctrine for the Armed Forces of the United States* (Washington, DC: U.S. GPO, 25 March 2013, incorporating change 1, 12 July 2017), I-7.
11. Edward J. Drea et al., *History of the Unified Command Plan 1946–2012* (Washington, DC: Joint History Office, Office of the Chairman of the Joint Chiefs of Staff, 2013), 9–10; JP 3-0, *Joint Operations* (Washington, DC: U.S. GPO, 17 January 2017), II-11.
12. JP 3-0, *Joint Operations*, GL-9, IV-2. My definition modifies JP 3-0 to make it level of war agnostic, communicate its futuristic nature, and make it independent of objectives.
13. *Ibid.*, A-1, IV-2, IV-5; Field Manual (FM) 3-0, *Operations* (Washington, DC: U.S. GPO, 2017), 1-14; Lykke, "Defining Military Strategy," 5; B. H. Liddell Hart, *Strategy* (New York: Signet, 1967), 338-39; H. Richard Yarger, "Towards a Theory of Strategy: Art Lykke and the US Army War College Strategy Model," in *U. S. Army War College Guide to National Security Issues*, ed. J. Boone Bartholomees Jr. (Carlisle Barracks, PA: U.S. Army War College, 2012), 49; Harry R. Yarger, *Strategic Theory for the 21st Century: The Little Book on Big Strategy* (Carlisle Barracks, PA: Strategic Studies Institute, 2006), 50, 52.
14. JP 1, *Doctrine for the Armed Forces of the United States*, I-8, II-3.
15. Lykke, "Defining Military Strategy," 4.
16. Strategy is a political/social phenomenon and variables are rarely independent in the strictest sense.
17. Yarger, *Strategic Theory for the 21st Century*, 14; Lykke, "Defining Military Strategy," 6.
18. Lykke, "Defining Military Strategy," 6.
19. *Ibid.*, 6–7.
20. Yarger, *Strategic Theory for the 21st Century*, 63. Yarger observed there is a third type of risk based on both successful and unsuccessful outcomes. This risk is beyond the article's scope.
21. JP 5-0, *Joint Planning*, IV-47–IV-48.
22. Carl Von Clausewitz, *On War*, eds. and trans. Michael Howard and Peter Paret (New York: Alfred A. Knopf, 1993), 99.
23. Richard E. Berkebile, "Reframing Strategy: Framing, Unity of Effort, and Operational Outcomes," in *Through the Joint, Interagency, and Multinational Lens: Linking the Strategic Environment and Operational Planning*, vol. 2, eds. David A. Anderson and Heather R. Karambelas (Fort Leavenworth, KS: Army University Press, 2017), 33.
24. Lykke, "Defining Military Strategy," 5.
25. JP 3-0, *Joint Operations*, II-4.
26. JP 1, *Doctrine for the Armed Forces of the United States*, II-3; Yarger, *Strategic Theory for the 21st Century*, 48; Clausewitz, *On War*, 117.
27. JP 5-0, *Joint Planning*, IV-20.
28. Office of the Secretary of Defense, "Summary of the 2018 National Defense Strategy of the United States of America" (Washington, DC: Department of Defense, 2018), 5–6, accessed 21 March 2018, <https://www.defense.gov/Portals/1/Documents/pubs/2018-National-Defense-Strategy-Summary.pdf>.
29. FM 3-0, *Operations*, 8-1–8-2.
30. FM 3-24, *Counterinsurgency* (Washington, DC: U.S. GPO, 2006), vii.
31. Samuel P. Huntington, *Political Order in Changing Societies* (New Haven, CT: Yale University Press, 1968), 22.
32. JP 1, *Doctrine for the Armed Forces of the United States*, I-1–I-2.
33. *Ibid.*, V-1, GL-13. In the referenced sentence objective is used concerning unity of effort. Since it was the singular form, I concluded it equated to end state in this article's context. The following endnote defines unity of effort with the plural form objectives, which matches the sense of term as I used it.
34. Lykke uses political end.
35. Edward Hallett Carr, *The Twenty Years' Crisis, 1919-1939: An Introduction to the Study of International Relations* (1939; repr., New York: Palgrave Macmillan, 2001), 102.
36. James L. Jones and Kim Campbell, "All Elements of National Power" (Washington, DC: The Atlantic Council of the United States, 2014), 5, 9–11.
37. Richard A. Chilcoat, *Strategic Art: The New Discipline for 21st Century Leaders* (Carlisle Barracks, PA: U.S. Army War College, 1995), 2; Celestino Perez, "Errors in Strategic Thinking: Anti-Politics and the Macro Bias," *Joint Force Quarterly* 81 (2nd Quarter, April 2016): 11.
38. Christopher J. Lamb, "Redesigning White House and Interagency Structures," in *Civilian Surge: Key to Complex Operations*, eds. Hans Binnendijk and Patrick M. Cronin (Washington, DC: National Defense University Press, 2009), 34; Christopher J. Lamb and Megan Franco, "National-Level Coordination and Implementation: How System Attributes Trumped Leadership," in *Lessons Encountered: Learning from the Long War*, eds. Richard D. Hooker Jr. and Joseph J. Collins (Washington, DC: National Defense University Press, 2015), 202–6.
39. Lamb and Franco, "National-Level Coordination and Implementation," 204–5.
40. For a discussion of this topic see Berkebile, "Reframing Strategy," 2017.
41. Yarger, *Strategic Theory for the 21st Century*, 63.