A rmy War College professor and retired colonel Arthur F. Lykke published “Defining Military Strategy = E + W + M” in the May 1989 edition of Military Review. 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. 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. 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.

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].” 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. 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. 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. Specifically, he created a corresponding militarized synonym for each element: ends (military objectives), ways (military strategic concepts), and means (military resources). Although it is unclear whether it was due to Lykke’s influence, the DOD applied these concepts across its organizational hierarchy.

Doctrine asserts warfare exists at three interlaced levels—strategic, operational, and tactical. Organizationally, however, global responsibilities led to splitting the strategic level of war into national and theater echelons. 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

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**Figure 1. End State, Objectives, Effects, Tasks**

<table>
<thead>
<tr>
<th>Level</th>
<th>Guidance</th>
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<tbody>
<tr>
<td>National strategic</td>
<td><img src="JointPublication5-0_JointPlanning_June2017.png" alt="Diagram" /></td>
</tr>
<tr>
<td>Theater strategic</td>
<td><img src="JointPublication5-0_JointPlanning_June2017.png" alt="Diagram" /></td>
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<tr>
<td>Operational</td>
<td><img src="JointPublication5-0_JointPlanning_June2017.png" alt="Diagram" /></td>
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<tr>
<td>Tactical</td>
<td><img src="JointPublication5-0_JointPlanning_June2017.png" alt="Diagram" /></td>
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- **End state** describes the set of conditions to meet conflict termination criteria.
- **Objectives** prescribe friendly goals.
- **Effects** describe the conditions related to the objectives.
  - Desired effects describe conditions needed to achieve objectives.
  - Undesired effects describe conditions that will impede achievement of objectives.
- **Tasks** describe friendly actions to create desired effects or preclude undesired effects.
- **Mission** describes the organization’s essential task or task(s) and purpose.

(Figure from Joint Publication 5-0, Joint Planning, June 2017)
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, concept, 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
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.” 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. A framework of specialized military strategy or end states is a step toward implementing exactly what Clausewitz warned against—considering force or the military
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.\textsuperscript{23} Strategy and planning need an integrated framework. Any historical ability to isolate military operations from the political environment was erased by modern technology.

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

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.\textsuperscript{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. 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. 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.” 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.” 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. 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.

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. The DOD’s unified action concept exists because successful outcomes require capabilities and resources the U.S. military does not have.
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. Returning to the military end state framework, it changes the equation $ES = \sum^i O$ to $ES_m = \sum^m O_m$, 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. Although not the subject of this article, the military instrument of power needs more capabilities in these areas than it would care to believe.

**Conclusion**

Lykke's conceptualization of strategic process remains an invaluable contribution to strategy literature. 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.” Future research should model these interactions as well.
Notes


16. Strategy is a political/social phenomenon and variables are rarely independent in the strictest sense.


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.


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.


