



Seabee, assigned to Naval Mobile Construction Battalion 5, yells out enemy locations in simulated attack during field training exercise, Fort Hunter Liggett, California, April 27, 2016 (U.S. Navy/Stephen Sisler)

A COG Concept for Winning More Than Just Battles

By Jacob Barfoed

The center of gravity (COG) is a central concept in U.S. and North Atlantic Treaty Organization planning doctrines, yet the current U.S. center of gravity concept is the target of much criticism from

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practitioners and scholars alike. The purpose of this article is not to discuss the alleged problems with the concept in current doctrine—plenty of other articles have already done that.¹ Rather, the purpose is to propose a solution in the shape of a revised COG concept. More specifically, the article connects the COG concept to compellence and coercion theory to strengthen the concept's theoretical foundation;² presents

the concepts of strategic will and ability COGs to strengthen the concept's usefulness at the strategic level;³ provides a clear and simple method for identifying and validating COGs;⁴ exemplifies the concept's usefulness in counterinsurgencies and peacekeeping missions;⁵ and provides a method for using the concept to not only link actions, effects, and objectives but also link national-strategic objectives to operational ones. In essence, the article presents a COG concept that will help commanders and staffs focus on not just winning battles but also winning wars and the subsequent peace.⁶

What and Why

For this article, *center of gravity* is defined as an entity that is the primary component of physical or moral strength, power, and/or will to fight at a given level of command.⁷ At the national strategic level, moral strength (will) as well as physical strength

(ability) COGs exist. Both types are physical entities but vary in purpose. At lower levels of command, only physical strength COGs normally exist. By affecting an actor's strategic will COG, one aims to influence his will by persuasion or coercion, whereas by affecting the strategic ability COG, one influences the actor's ability to carry out his overall strategy.⁸ By affecting an actor's operational COG, one influences his ability to achieve operational objectives with the current course of action (COA).

COGs have critical capabilities (what the COG can do in context of the actor's mission); critical requirements (means, resources, and conditions essential for a COG to perform its critical capabilities); and critical vulnerabilities (deficient, missing, or vulnerable critical requirements). A key element of operational art is to derive ways to affect the primary actors' COGs sufficiently to achieve national/coalition objectives, whether by strengthening, protecting, weakening, or destroying their COGs. This can be done by affecting their critical vulnerabilities, which are always contextual and therefore subject to change at any time during the campaign or operation. Consequently, COG analysis is an iterative, continuous process.

Strategic Will COGs

COGs representing moral strength exist at the national strategic level; they are called *strategic will* COGs. An actor's strategic will COG is the primary entity that inherently possesses the most of the following critical capabilities: determines—and can alter—policy and strategy, commands the resources and means required to achieve strategic objectives, and inspires and provides moral cohesion and the will to fight. In short, it is the actor's political strategic decision-making entity. Examples of strategic will COGs include a strong political leader, a ruling elite, and a strong-willed population (or a segment of it) determined to prevail. It follows that coalition cohesion cannot be a strategic will COG, as it is not an entity. Instead, the primary entity that provides coalition

cohesion can be the coalition's strategic will COG. Likewise, elements such as ethnic nationalism or ideology cannot be COGs, but they can be a critical requirement for the political leadership (the real strategic will COG) to inspire and provide moral cohesion and the will to fight. Since the will to fight ultimately dictates the beginning and end of a conflict, determining desired as well as undesired conditions of the primary actors' strategic will COGs and affecting them accordingly are central for achieving national/coalition strategic objectives.

Identifying and Validating Strategic Will COGs

Using information derived from the Joint Intelligence Preparation of the Operational Environment, the following factors should be considered in determining an actor's strategic will COG: Does the actor have a political leader who possesses all the critical capabilities listed above in the strategic will COG definition? If yes, then this leader is the strategic will COG. If some of the critical capabilities listed above are weak or missing for the actor's political leader, one of the following situations exists: One, the leader is clearly the entity who possesses most of the critical capabilities and is therefore the strategic will COG, but support from the primary entity that possesses the weak or missing capabilities becomes a critical requirement for the strategic will COG. Two, the identified leader is a marionette who possesses few or none of the critical capabilities for the strategic will COG. Instead, the real strategic will COG will be the entity that actually possesses most of the critical capabilities. Three, the leader shares the critical capabilities listed above with one or more people who then, as a group, is the strategic will COG. Four, the strength of will of an actor's population is such that it does not matter who the leader is. If a large part of a population feels so strongly about a policy that leadership cannot thwart, deflect, or dilute its will, then the population itself is the actor's strategic will COG.

Strategic Ability COGs and Lower Level Physical Strength COGs

COGs representing a physical strength exist in principle at each level of command. Thus, it is the entity representing the primary physical strength that an actor depends on to carry out his intent and achieve his objectives at a given level of command. At the national strategic level, these are called *strategic ability* COGs. Examples include a coalition military task force, a particularly strong element of national military power, a national security force, a political group's military arm, or even a strong nonmilitary entity in case the main strategic effort is not a military one.

Operational COGs are found at the joint force command (JFC) level. Examples include an armored corps, an air component command force, a maritime task force, a national police force, or a regional network of insurgent cells. Operational COGs are normally central elements or constituent parts of strategic ability COG. As an example, the national police force (operational COG) is a constituent part of the national security force (strategic ability COG). The strategic ability COG is not necessarily nested within the strategic will COG, but it is chosen and controlled by it as part of the actor's practice of strategy.

Normally, objectives can be achieved in various ways that potentially use different primary physical strengths (that is, physical strength COGs); consequently, identifying the various ways an actor can achieve his objectives is a critical step in identifying an actor's potential physical strength COGs. Defeating an actor's physical strength COG at a given level defeats the actor's current strategy/COA at that level. This forces the actor to change to another strategy/COA that depends on another COG (if one exists), and it also might force the actor to change his objectives at that level. Accordingly, an actor's COG changes when the actor changes the primary physical strength he uses to achieve his objectives. As such, operational COGs might change from phase to phase of an operation. Several

operational COGs might exist for an operation, but normally not simultaneously. Still, if an actor pursues two or more strategies simultaneously using different physical strengths and capable of achieving the actor's objectives by themselves, then multiple COGs can in principle exist simultaneously.

Identifying and Validating Physical Strength COGs

Identifying and validating physical strength COGs at a given level of command require that one identifies the actor's objectives at that level and the actor's strategy/COA for achieving those objectives. Then the following questions—all of which must be answered in the affirmative—can be used to identify and validate physical strength COG candidates:

- Is the candidate the primary entity used by the actor to achieve his objectives at the analyzed level of command? If it is an important or even essential entity but not the primary entity used by the actor to achieve his objectives, then it is a critical requirement for the physical strength COG. If it is not an entity but rather an important condition that must be present for the actor to achieve his objectives, then it is likewise a critical requirement for the physical strength COG.
- Does the candidate possess the most critical capabilities required to achieve the actor's objectives at the analyzed level of command? If some critical capabilities are missing, then support from the entities possessing them becomes a critical requirement for the physical strength COG.
- If the candidate is defeated, does this defeat the actor's COA at that level of command? If not, the candidate might be a physical strength COG for another possible COA for the actor.

COGs in Complex Operating Environments

One of the most severe criticisms of the COG concept is that it is ill-suited for the conflicts of today.⁹ Yet the proposed

COG concept is not only useful in a classic bipolar interstate military conflict but also in intrastate conflicts—such as counterinsurgencies—or in missions with no adversary.

COGs in Counterinsurgencies.

Counterinsurgencies normally present a complex and dynamic operating environment that reflects on COG analyses. The local population is often referred to as the COG in counterinsurgencies; however, it can only be the strategic will COG for an actor if it makes the strategic decisions for the actor. As an example, a part of the population, such as a large ethnic group, might be the strategic will COG for an insurgency that has the characteristics of a popular uprising of that ethnic group. This is not a leader-driven COG. However, support from the local population is often a critical requirement for the COGs of all actors involved in this type of conflict. In a different example, a key actor might be a relatively small political grouping. Here it might not make sense to talk about strategic- as well as operational-level physical strength COGs for the actor, in which case the two levels merge.

An actor, like an insurgent group, might not have a single, integrated strategy but rather a large number of parallel yet uncoordinated efforts. Such a situation raises the question of whether to identify physical strength COGs for each effort or a single physical strength COG representing the combined but physically scattered entities. An example could be a political group's military arm that operates through a large number of decentralized, largely autonomous cells, each with its own independent effort.

Strengthening the local allied government's strategic and operational COGs by addressing their critical vulnerabilities are often key U.S. strategic objectives. Thus, the ally's strategic will COG could most likely have weak or missing critical capabilities, such as a weak ability to inspire and provide moral cohesion for all ethnic groups in the population, along with related critical vulnerabilities. Likewise, the local ally's strategic ability COG could be the national security forces, with critical capabilities such as

defeating the insurgent network, protecting the population, and protecting the government and governmental services. The COG's operational national army and national police force as well as U.S. funding and training could be the critical requirements. Operational COGs for the ally would then be the national army and/or national police force nested in the strategic ability COG. Some of their critical vulnerabilities could be corruption and nepotism, a high desertion rate, and poor training. The JFC's mission would then be to address these critical vulnerabilities.

Non-Opposing COGs. In situations where there is no particular adversary, such as peacekeeping missions, the COGs of the key actors should still be identified and analyzed. While an actor might not be an adversary, his intent might still present an unacceptable condition for the national/coalition strategic objectives to be achieved. Knowing the critical capabilities, requirements, and vulnerabilities of the actor's COGs can aid the commander in influencing the actor.

The COG Analysis Model

To assist in finding ways to achieve the required condition of a specific COG, commanders and their staff should analyze the COG within a framework of three critical factors: capabilities, requirements, and vulnerabilities.

Critical capabilities are defined as what the COG can do—its primary abilities—in relation to achieving the actor's objectives at the given level in the context of a given situation. The critical capability concept is useful to identify and validate COGs, as it expresses how an actor could use a particular strength (the COG candidate) to achieve the actor's objectives at the analyzed level of command. If, for example, a specific military task force is identified as a COG, its critical capabilities could be the ability to defend area A against coalition forces and counterattack and cut off coalition forces. However, if the actor's mission changes, the same military task force could still be the COG but possess different critical capabilities. As such, critical capabilities are always contextual, as is the COG



U.S. Soldiers assigned to B Company, 1-502nd Infantry Regiment, 2nd Brigade, 101st Airborne Division (Air Assault), set up AN/PRC-155 (Manpack) radios at Fort Bliss, Texas, as part of annual Exercise NIE 17.2, July 13, 2017 (U.S. Army/Jordan Buck)

itself. In some cases, one or more of the critical capabilities required to achieve the actor's objectives might be a weak ability for a particular COG candidate; in this case, it would have associated critical vulnerabilities. In other cases, a COG might be missing an ability deemed critical for achieving the actor's objectives. In this case, support from an entity that possesses the missing ability becomes a critical requirement for the COG.

Critical requirements are specific conditions, resources, and/or means essential for a COG to perform its critical capabilities. If a military task force has critical capabilities, as in the example above, examples of means that could be critical requirements are a command and control (C2) system, armored land forces, and offensive air forces. Examples of conditions are air superiority, good weather, high tide, secure lines of communication, local popular support, and terrain and infrastructure that favor defense as well as

counterattack. Each of the COG's critical capabilities must be considered in relation to what the critical requirements are for the COG. There will normally be an overlap of requirements to perform the various critical capabilities, but it is useful to note which critical capability each requirement relates to. Critical requirements at one level may be COGs or closely related to COGs at the next lower level; that is, lower level COGs are nested within a COG at the next higher level. For example, the armored land forces mentioned above as a critical requirement might be a COG at the next lower level of command.

Critical vulnerabilities are requirements, or components thereof, that are deficient, missing, or vulnerable and might contribute to a COG failure to perform one or more of its critical capabilities—the lesser the risk and cost, the better. For example, a military task force is identified as the COG. The ability to defend a certain area is identified as one of

its critical capabilities, and an effective C2 system is identified as one of the critical requirements. If the C2 system (or components of it) is vulnerable to jamming, cyber attack, or physical destruction, it could be a critical vulnerability. If such a critical vulnerability is exploited, the COG will be weakened or cease to function either in general or at a specific time and/or space. Consequently, critical vulnerabilities represent risks associated with the analyzed actor's course of action, whether obvious to the actor or not.

Each critical requirement must be analyzed for vulnerabilities. While some requirements might be deficient or missing already, others need to be affected to become so. For these to be actual critical vulnerabilities, other actors must have the ability to influence them sufficiently to weaken one or more of the critical capabilities. Some critical requirements might only be vulnerable at a specific time and/or space. Similarly, there might be

Table. Using the COG Analysis Model

Center of Gravity Analysis Model	
Assessed objectives and potential COAs (note actor and level of command) The actor's (assumed) main objectives and potential COAs for achieving them, at the analyzed command level. For an adversary, assess as a minimum most likely and most dangerous COAs.	
<p>Center of Gravity Identify the COG for each COA (validate as described earlier); analyze according to this table.</p> <p>Determine the condition of the COG that must exist as well as conditions that must be avoided, in order to achieve U.S./coalition objectives at the analyzed command level. Example: entity destroyed vs. entity isolated (post-war combat effective entity needed for stabilization).</p> <p>The required condition should be reflected in own objectives; if not, revise as required.</p> <p>Conditions to be avoided must be reflected in rules of engagement (ROEs) and other restraints.</p>	<p>Critical Capabilities Identifying the COG's critical capabilities serves as a validation of the COG—does it possess the primary abilities required to achieve the objectives for the actor?</p> <p>Some abilities might be weak, in which case associated critical vulnerabilities must be identified.</p> <p>A critical capability deemed essential to achieve the actor's objectives could also be missing, in which case support from an entity that possesses the missing ability becomes a critical requirement for the COG.</p>
<p>Critical Vulnerabilities For every critical vulnerability (CV) identified, assess the impact on each capability and relate to the required condition of the COG.</p> <p>For opposing COGs: For each CV, determine the potential effect(s) that expresses how the CV can be exploited in order to achieve each potential effect—with what combination(s) of actions? What are the risks associated? Are there undesired effects? What combination(s) of effects can achieve the required condition of the COG? Those effects deemed decisive for achieving the required condition are designated decisive conditions (DC). Different COAs might select different combinations of effects and thus DCs.</p> <p>For friendly COGs: (How) can an opponent cause and exploit a vulnerability (effects and actions)? Which effect(s) achieved by the U.S./coalition could protect/prevent the vulnerability in order to satisfy the critical requirement (to achieve the required condition of the COG)—with what combination of actions?</p>	<p>Critical Requirements Each of the COG's critical capabilities must be considered in regard to what the critical requirements (conditions, resources, and/or means) are for the COG to perform it.</p> <p>There will normally be an overlap of requirements to perform the various critical capabilities, but it is useful to note which critical capability each requirement relates to.</p>
<p>Conclusions (key deductions) The key deductions should be formulated as elements for further planning, that is, desired and undesired condition(s) of the COG, DCs, effects, actions, ROEs, commander's critical information requirements, etc.</p>	

critical requirements that are potentially vulnerable, but the available or allocated means might not be sufficient to exploit the weakness or the political will to do so might be lacking. Such potential vulnerabilities should be noted, along with potential events that could alter their degree of vulnerability.

The table provides a method for using the COG analysis model to analyze an actor's physical strength COG at a generic level of command. Strategic will COGs are analyzed in a similar way.

Using the COG Concept for Planning

COG identification and analysis focuses the planning effort because it helps identify how an actor's will and primary ability might be influenced in order to achieve U.S./coalition objectives. Commanders and staffs should analyze all actors with central interests in the conflict and establish the conditions of each actor's COGs (strategic and operational) that must exist to achieve these objectives. COG analysis is a continu-

ous, iterative process that must continue throughout planning and execution of the operation as collaborative planning by multiple levels of command. The following steps describe how to use the COG concept to link actions, effects, and objectives, and how to link the JFC level of command with the national strategic level of command. For simplification purposes, only two actors are included: the United States and a single adversary (ADV). The text is worded as if the analysis takes place at the theater-strategic or JFC level, although strategic COG analysis should be started at the national strategic level of planning (that is, the National Security Council).

Applying Strategic-Level COG Analysis in the Planning Process

If strategic-level COGs are not already identified by higher command, the JFC should start by identifying and analyzing them, including both strategic will and ability COGs. Previously identified COGs should still be validated and the analyses refined since COGs and their critical capabilities, requirements, and vulnerabilities may change as the situation evolves.

1. Identify the U.S. strategic will COG (the strategic decisionmaking entity in the current strategic context) and analyze it using the COG analysis model.
2. Identify the ADV strategic will COG. Identify likely successors and assess the potential influence on the U.S. objectives for each one to replace the current leadership.
3. Analyze the ADV strategic will COG using the COG analysis model. Missing information must be provided through the Commander's Critical Information Requirements process (valid for all steps).
4. Identify the ADV objectives and motives driving them.
5. Determine the ADV policy change(s) required to attain the U.S. national strategic endstate and objectives, such as "no longer supports insurgents financially" or



U.S. Marines assigned to Alpha Company, 1st Battalion, 3rd Marine Regiment, conduct amphibious landing during Blue Chromite 18 aboard Kin Blue Beach, Okinawa, Japan, November 2, 2017 (U.S. Marine Corps/Aaron S. Patterson)

- “withdraws its forces and accepts U.S. peace terms.”
6. Determine the required condition of the ADV strategic will COG and its critical capabilities. The condition must support the desired policy change and should be reflected in the U.S. national strategic objectives. If the U.S. objectives do not reflect such considerations, they should be revised. An example could be “Country X has a stable, representative government.” Conditions to be avoided should be determined as well; these must be reflected in rules of engagement (ROEs) and other restraints for all diplomacy, information, military, and economic (DIME) instruments of power (IOPs). A condition to be avoided could be a leadership change instituting a leader not desired by the United States.
 7. Determine what possible combinations of strategic effects in the COG’s critical vulnerabilities could lead to the required condition of the ADV strategic will COG, as well as what central undesired effects could lead to the conditions to be avoided (ROE and other restraints). Those strategic effects that are deemed decisive for achieving the required condition of the related COG are designated strategic decisive conditions (DCs).
 8. Determine what possible strategic actions of the DIME IOPs could lead to each identified strategic effect. One action could in principle support several effects and/or DCs.
 9. Identify the various ways the ADV can achieve its strategic objectives using its available means. The primary entity used to achieve the objectives in each potential strategy is the strategic ability COG. Ability COGs should be identified, at a minimum, for the ADV’s most likely as well as most dangerous strategic COA; the COGs could be the same for several COAs. The ADV strategic COAs should aim at affecting U.S. strategic COGs and their critical vulnerabilities, which means this step must be revisited once U.S. strategic COGs are identified and every time they are refined or changed.
 10. Establish the required condition of the identified ADV strategic ability COGs and their critical capabilities (related to each adversary strategic COA); each condition must directly support the U.S. national strategic objectives. If the U.S. objectives do not reflect such considerations, they should be revised. An example could be “the weapons of mass destruction are destroyed.” Conditions to be avoided should be

determined as well; these must be reflected in ROEs and other restraints. An example could be “the Army’s armored and artillery units must not be reduced by more than 50 percent (for postconflict regional stability purposes).”

11. Determine what possible strategic effects in each COG’s critical vulnerabilities could lead to the required conditions of the ADV strategic ability COG, as well as undesired effects that could lead to the conditions to be avoided.
12. Determine what possible combination of strategic actions of the DIME IOP could lead to each identified strategic effect.
13. The different combinations of strategic effects and actions determined above are core elements of the U.S. strategic design. Different combinations form the core ingredients of different potential strategic COAs (along with strategic DCs, effects, and actions identified elsewhere in the planning process); those strategic effects in ADV critical vulnerabilities, which are selected for a specific COA and are deemed decisive for achieving the required condition of the related COG, are designated strategic DCs in that COA. Each strategic COA must be able to attain the national strategic endstate and the required DIME means to carry out the COA must be available. This might lead to a requirement for revising the national strategic endstate and objectives.
14. For each U.S. strategic COA, identify the strategic ability COG (the primary entity used in the COA) and analyze it using the COG analysis model. Determine strategic effects and associated actions required to protect the critical vulnerabilities. Do this as well for the U.S. strategic will COG analyzed in step 1. Incorporate this in the U.S. strategic COAs and use it to update step 9 (ADV COAs). The COG analyses of the U.S. strategic ability COGs (related to different COAs

candidates) will contribute to strategic COA development and selection by highlighting critical vulnerabilities and thus central risks associated with each COA candidate.

15. From the DCs in the selected U.S. strategic COA, objectives for the DIME IOP are developed, including the theater military-strategic objectives.
16. From the theater military-strategic objectives, JFC’s operational objectives are developed; normally, the military-strategic effects form the basis of the operational objectives. If the only means available to the military-strategic command is a single operational-level command, the operational objectives should closely reflect the military-strategic objectives deduced in step 15. If more means are available (more than one subordinate command), the same method described below can be used for military-strategic level planning to ensure a logical linkage between military-strategic objectives and operational objectives.

Applying COG Analysis for Operational-Level Planning

Overall, the logic is the same as the political strategic-level method described above. For simplicity, the following assumes that the operational objectives closely reflect the military-strategic objectives deduced in step 15.

17. Identify the ADV operational objectives. For simplicity, the following assumes the adversary’s operational objectives are the same as its military-strategic objectives (the adversary’s military-strategic and operational level merged); these can be deduced from the adversary’s strategic COAs (see step 9). Quite possibly, each identified ADV strategic COA with associated adversary DCs, effects, and actions leads to a different, but likely overlapping set of ADV operational objectives. For simplicity, the following assumes the same set of ADV operational objec-

tives for the most likely and most dangerous ADV strategic COA.

18. Identify the various ways the ADV can achieve its operational objectives using its available operational means. The primary entity used to achieve the objectives in each potential adversary operational COA is the ADV operational COG. COGs should be identified, at a minimum, for the ADV’s most likely as well as most dangerous operational COA; the COG could be the same for several COAs. An ADV operational COG should either be a critical requirement (a means) for the ADV strategic ability COG or be able to achieve a critical requirement (a condition). If it is not, the strategic COG analysis must be refined to ensure the operational COG is nested in the strategic COG. The ADV operational COAs should be assumed to exploit critical vulnerabilities of U.S. operational COGs, which means this step must be revisited every time U.S. operational COGs are refined or changed. This step (first performed in mission analysis) initially uses an interim U.S. operational COG based on commander’s initial planning guidance.
19. Establish JFC’s required condition of each ADV operational COA’s COG and its critical capabilities; each condition must directly support JFC’s operational objectives. If the operational objectives do not reflect such considerations, they should be revised. Conditions to be avoided should be determined as well; these must be reflected in ROEs and other restraints.
20. Determine which possible effects in each COG’s critical vulnerabilities could lead to the required conditions of the ADV operational COGs, as well as which undesired effects could lead to the conditions to be avoided (to be reflected in ROEs and other restraints). Those effects deemed decisive for achieving the required condition of the related COG are designated DCs. Sometimes a DC might also

describe the required condition of a COG.

21. Determine what possible combination of actions across the joint functions could lead to each identified effect. One action could in principle support several effects. The effects and associated combinations of actions must be developed through collaborative planning with the components to ensure they are creatable.
22. The different combinations of effects and related combinations of actions determined above are core elements of the operations design. Different combinations form the core ingredients of various potential JFC operational COAs (along with operational DCs, effects, and actions identified elsewhere in the planning process). Those effects in ADV critical vulnerabilities, which are selected for a specific COA and are deemed decisive for achieving the required condition of the related COG, are designated operational DCs in that COA. Each COA must be able to achieve the operational objectives, and the required joint means to carry out the COA must be available. This might lead to a requirement for revising—in dialogue with higher headquarters—the operational objectives and possibly the U.S. national strategic objectives and endstate.
23. For each JFC operational COA, identify the U.S. operational COG (the primary entity used in the COA—usually the supported component) and analyze it using the COG analysis model. Determine effects and associated actions required to protect the critical vulnerabilities. Incorporate this in the JFC operational COAs and use it to update step 2 (ADV operational COAs). The COG analyses of the U.S. operational COGs (related to different COA candidates) will contribute to COA development and selection by highlighting critical vulnerabilities and thus central risks associated with the COA candidate.

24. From the DCs and effects in the selected operational COA, objectives for the components are defined (that is, the subordinate commands). This happens through collaborative planning with the components to ensure the related actions are realistic and the objectives are achievable. Component-level planning will refine and revise as required, just as described here for operational-level planning.
25. For each branch and sequel developed, each step must be revisited.

Winning Wars and the Subsequent Peace

While current U.S. doctrine makes the COG concept the centerpiece in operational planning, there is a broad call for either revising or killing the concept.¹⁰ However, if the COG concept is to remain the centerpiece in military planning, it must not only help link actions, effects, and objectives but also link the JFC level of command with the national strategic level of command. It must provide conceptual guidance for addressing not just the adversaries' physical ability to wage war but also their moral power—their will—to do so. The proposed will and ability COGs concept aims at doing just that. Failing to revise the COG concept as proposed will likely continue the U.S. tendency to win its battles, but not the peace. JFQ

Notes

¹ For a recent critical article, see Dale C. Eikmeier, "Let's Fix or Kill the Center of Gravity Concept," *Joint Force Quarterly* 83 (4th Quarter 2016), available at <http://ndupress.ndu.edu/Portals/68/Documents/jfq/jfq-83/jfq-83_109-115_Eikmeier2.pdf?ver=2016-10-19-102203-410>.

² Paparone and Davis argue that the center of gravity (COG) concept suffers from a "lack of interdisciplinary awareness." See Christopher R. Paparone and William J. Davis, Jr., "Exploring Outside the Tropics of Clausewitz: Our Slavish Anchoring to an Archaic Metaphor," in *Addressing the Fog of COG: Perspectives of Center of Gravity in U.S. Military Doctrine*, ed. Celestino Perez, Jr. (Fort Leavenworth, KS: Combat Studies Institute Press, 2012), 68–70, available at <<http://usacac.army.mil/cac2/>

<cgsc/carl/download/csipubs/COG.pdf>.

³ Vandersteen argues that the COG concept "fails to provide convincing evidence for its use at the strategic level of war." See Kurt P. Vandersteen, "Center of Gravity: A Quest for Certainty or Tilting at Windmills," in *Addressing the Fog of COG*, 40.

⁴ This addresses a critique such as "the JOPP [joint operation planning process] . . . lacks a definitive COG qualifying procedure." See Daniel J. Smith, Kelley Jeter, and Odin Westgaard, "Three Approaches to Center of Gravity Analysis: The Islamic State of Iraq and the Levant," *Joint Force Quarterly* 78 (3rd Quarter 2015). Rueschhoff and Dunne raise a similar critique. See Jan L. Rueschhoff and Jonathan P. Dunne, "Centers of Gravity from the 'Inside Out,'" *Joint Force Quarterly* 60 (4th Quarter 2011), 121–122. In relation, Alex Ryan argues that "COG concept is so abstract to be meaningless." See also Eikmeier.

⁵ That the COG is a dead metaphor related to Prussian military challenges in the early 19th century is also a typical argument from critics. See, for instance, Paparone and Davis; and Robert Dixon, "Clausewitz, Center of Gravity, and the Confusion of a Generation of Planners," *Small Wars Journal*, October 20, 2015, available at <<http://smallwarsjournal.com/jrnl/art/clausewitz-center-of-gravity-and-the-confusion-of-a-generation-of-planners>>; and Stephen L. Melton, "Center of Gravity Analysis: The Black Hole of Army Doctrine," in *Addressing the Fog of COG*.

⁶ The proposed COG concept builds on Joseph L. Strange's concept of moral and physical COGs. Jacob Barfoed, "The COG Strikes Back: Why a 200-Year-Old Analogy Still Has a Central Place in the Theory and Practice of Strategy," *Baltic Security and Defence Review* 17, no. 2 (2014), available at <www.baltdefcol.org/files/files/BSDR/BSDR_17.pdf>. See Allied Joint Publication 5, *Allied Joint Doctrine for Operational-Level Planning* (Brussels: North Atlantic Treaty Organization, June 2013).

⁷ As defined in this article, with inspiration from Strange as well as Eikmeier.

⁸ Hereby, the proposed COG concept connects to strategic theory and the work of compellence and coercion theory scholars such as Schelling, Pape, and Jakobsen. See Thomas C. Schelling, *Arms and Influence*, rev. ed. (New Haven: Yale University Press, 2008); Robert A. Pape, *Bombing to Win: Air Power and Coercion in War* (Ithaca, NY: Cornell University Press, 1996); and Peter Viggo Jakobsen, "Reinterpreting Western Use of Coercion in Bosnia-Herzegovina: Assurances and Carrots Were Crucial," *Journal of Strategic Studies* 23, no. 2 (2000).

⁹ Paparone and Davis; Dixon.

¹⁰ See *Addressing the Fog of COG*, passim.