



# Improving Joint Operational Concept Development within the U.S. Department of Defense

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## About the Authors



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## About the Defense Program

Over the past 10 years, CNAS has defined the future of U.S. defense strategy. Building on this legacy, the CNAS Defense team continues to develop high-level concepts and concrete recommendations to ensure U.S. military preeminence into the future and to reverse the erosion of U.S. military advantages vis-à-vis China, and, to a lesser extent, Russia. Specific areas of study include concentrating on great-power competition, developing a force structure and innovative operational concepts adapted for this more challenging era, and making hard choices to effect necessary change.

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## Executive Summary

**F**or the first time in nearly four decades, the Department of Defense (DoD) is developing joint warfighting concepts designed to counter advanced military rivals—specifically China and Russia. The last such effort took place at the height of the Cold War in the late 1970s and early 1980s to address the strategic and operational challenges posed by the Soviet Union’s conventional advantage on Europe’s Central Front. Now, as the 2018 National Defense Strategy (NDS) emphasizes, the joint force must “prioritize preparedness for war” which includes developing “innovative operational concepts” for military advantage.<sup>1</sup> As operational concepts are fundamentally visions of future war that guide future force design and development, the joint force first must answer the question of how it intends to fight future wars before it tries to answer questions of what it needs to fight with.

Yet, if the DoD is going to move to “joint concept driven, threat informed capability development,” it faces a considerable challenge in that its joint concept development and experimentation process is fundamentally broken.<sup>2</sup> While the post-Cold War era has witnessed repeated efforts to develop joint operational concepts, the process fails to yield innovative warfighting approaches to guide future force and capability development. Instead, the process produces concepts that seem almost intentionally designed not to drive significant change. These concepts are not truly “joint,” but rather lowest-common-denominator assemblages of existing service concepts that privilege service priorities. Any innovative joint ideas that make it through the development process are so watered-down and vague that they fail to provoke change (and thus threaten the interests of key stakeholders). In this environment, individual service concepts win out over joint concepts and drive investment priorities.

However, warfighting concepts and critical investments must be joint because the services have become increasingly interdependent at the operational level.<sup>3</sup> Moreover, current wargaming and analysis suggest that this operational interdependence will be a critical aspect of future conflict with a highly-capable peer adversary such as China or Russia—whether as a strength or a weakness remains to be seen. One can expect an advanced, adaptive adversary to seek out any gaps and seams presented by the U.S. military and exploit those to its advantage. In this regard, the current joint force is not “joint” enough for a high-end war against a peer adversary that has developed counters to critical,

long-standing U.S. operational advantages such as air, maritime, and information dominance. As this paper discusses, successfully waging war at the scale and intensity that a conflict with a peer rival would entail will demand entirely new ways of warfighting that in turn will require a forcing function that integrates individual service capabilities into an actual “joint” fighting force. Recent efforts to develop threat-focused joint warfighting concepts—if successful—represents the best chance for that result actually to occur.

This paper briefly discusses three past attempts by the DoD to develop joint concepts, including AirLand Battle, Air-Sea Battle, and a more recent effort, the Advanced Capabilities and Deterrence Panel (ACDP). It uses these examples to showcase the challenges of overcoming stovepiped and parochial service-led efforts and to illustrate the drawbacks of building service-centric concepts and covering them with a patina of jointness. These cases highlight how the persistent pathologies of the joint concept development process have rendered post-Cold War joint concepts useless for encouraging operational innovation or driving change in service investment priorities.

Ongoing work to develop new joint warfighting concepts provides the DoD with a long-overdue opportunity to focus its concept development on tangible threats and consequent operational objectives. The current effort is the first time in decades that the DoD is organizing concept development around countering a specific threat instead of supporting idealized notions of how the joint force preferred to operate against vague or undefined groups of adversaries. However, without major changes to what is widely viewed as a consensus process that does not foster a competition of ideas, the DoD risks repeating the same concept development mistakes it has made in the past. Additionally, new joint concepts must be rigorously tested and refined through a campaign of experimentation to validate their viability for future force design. That experimentation piece is currently missing.<sup>4</sup>

The Joint Staff is trying to rebuild its joint concept development capability after years of neither prioritizing nor adequately resourcing that work. Generating truly new ways of warfighting with the potential to transform future force design will require the sustained attention of the Office of the Secretary of Defense (OSD), the Chairman and Vice-Chairman of the Joint Chiefs of Staff (CJCS and VCJCS) to push new joint concepts through the system. The DoD’s senior leadership must overcome the tendency of each service to drive toward consensus products that are aimed more at protecting existing priorities and long-standing prerogatives than generating creative ideas.

The paper makes the following recommendations to improve the joint concept development process:

- Focus joint concept development on priority challenges in a future operational environment.
- Empower the combatant commands to drive joint concept development.
- Explore alternative visions of future war and validate joint concepts through extensive wargaming and experimentation—not by consensus.
- Expand experimentation in field and fleet exercises.
- Increase the competition of ideas by fostering a departmental culture of “thinking red.”
- Promote tighter integration between concept developers and technologists.
- Establish a focused, high-level concept and capability development organization.

Fixing the process is a critical first step to developing useful joint operational concepts, but the DoD also must ensure that joint concept development starts from the proper perspective and focuses on the correct set of issues while also remaining forward looking. To date, the DoD’s thinking on China and Russia has focused on maintaining or regaining the level of operational dominance the joint force possessed during the post–Cold War “unipolar moment.” Then, concepts generated by the Joint Staff, such as “Joint Vision: 2010,” were premised upon assumptions of “information superiority” that would facilitate the stated objective of “full spectrum dominance.”<sup>5</sup> Pursuit of such operational chimeras results in the DoD devoting too many of its scarce resources to solving intractable operational problems created by Chinese and Russian efforts to undermine U.S. military advantages. Rather than chase minuscule marginal returns to its extant way of doing business, DoD concept and capability development instead should focus on creating operational dilemmas for China and Russia.

It was evident that the DoD remains tied to its traditional ways of warfighting when General John Hyten, vice chairman of the Joint Chiefs of Staff, said an initial

effort at developing a new joint warfighting concept based largely on how the U.S. military has operated for the past 30 years proved an utter failure when tested in a series of wargames in late 2020.<sup>6</sup> That result, Hyten said, has spurred efforts to develop alternative warfighting approaches in follow-on iterations.

That an initial effort at developing a new joint warfighting concept relied so heavily on traditional ways of warfighting, even though it intended to counter new adversaries and new operational challenges, betrays a rushed product. A successful, threat-focused operating concept requires a thorough depth of analysis—both about adversary capabilities and concepts, as well as those of the joint force for the time period envisioned and the time needed to synthesize inputs before delving into concept shaping and refining. Trends in previous joint concept development, which prioritized churning out product and working out consensus over the more mundane, but necessary, deep analysis work, do not bode well for how this current effort will turn out.

It has been well over three years since the NDS called for new warfighting concepts. The DoD needs entirely new warfighting approaches. It will be impossible to remain competitive against a peer adversary if the U.S. military continues to operate the way it does today. It would be nothing short of a tragedy if the process gets bogged down in bureaucratic disputes or produces only marginal change in an effort to achieve service consensus.

Finally, proposed conceptual solutions to warfighting challenges, no matter how sound, will only drive programmatic change if they are endorsed and empowered by the most senior civilian and uniformed leaders. While the department’s post–Cold War track record is not altogether reassuring, the political and bureaucratic momentum behind efforts to develop new joint warfighting concepts are considerable, and the strategic and operational challenges China and Russia pose are far more urgent and serious than those from Iran, North Korea, or terrorist groups. If—and it’s a big if—the DoD can get the process right and focus on creating dilemmas for China and Russia, the positive impacts in terms of transforming the joint force could be profound.

## Introduction

**O**perational concepts are fundamentally about ideas, and ideas matter. As former U.S. Army General David Fastabend aptly put it: “The operational concept is the ‘Aha!’ idea that answers the question ‘What is the current problem of warfare, and how do we solve it?’”<sup>7</sup> They provide a vision of how the force intends to operate in the future and adapt to expected changes in the future operating environment. When done right, concept development and experimentation can spur creative thinking about how to address the military’s most intractable challenges at the theater or campaign level of war. Concepts also describe the capabilities the future force will require to execute that conceptual vision.

While serving as commander, U.S. Joint Forces Command (JFCOM), Marine Corps General James Mattis emphasized the centrality of operational concepts. “Concepts can transform organizations,” he wrote, pointing to innovative operational concepts as the driving force behind the Army’s AirLand Battle doctrine and the Marine Corps’ embrace of maneuver warfare and the “dramatic institutional changes” that resulted. Concepts “guide change by motivating experimentation in and exploration of new operating methods,” leading to new ways of warfighting. “Done properly,” he said, “they propose solutions to challenges for which no doctrine exists or they propose alternatives to existing doctrine.” Concepts “provide the basis for experimentation” and are “at the heart of future force and capability development.”<sup>8</sup>

In an unusually candid assessment, Mattis went on to declare the joint concept development process a failure. “New concepts are often initiated by bureaucratic fiat vice conceptual need,” he wrote, “and have proliferated to the point that their sheer number confound meaningful analysis.” In his telling, the joint concept development process “seems to exist primarily to perpetuate itself,” and the output generated has had little if any impact on future force development. The process lacked focus, he said, and “Many of the concepts have little if anything new to contribute and merely rehash established ideas with new terminology.”<sup>9</sup> Mattis clearly viewed JFCOM’s role in the process as peripheral and advised then-Secretary of Defense Robert Gates to disband it, which the Department of Defense (DoD) subsequently did in 2011.<sup>10</sup>

As with most contemporary DoD “joint” integration efforts, joint concept development stems from the Goldwater-Nichols Department of Defense

Reorganization Act of 1986. This seminal piece of legislation aimed to address the DoD’s long-standing lack of interservice cooperation and coordination that had hindered unity of effort in Operation Eagle Claw (the failed rescue of U.S. hostages in Iran in 1980) and Operation Urgent Fury (the invasion of Grenada in 1983). It assigned the chairman of the Joint Chiefs of Staff responsibility for developing joint concepts and doctrine with the hope that an illuminating vision would emerge to guide future force and capability development.<sup>11</sup> That hoped-for result never materialized.

Over three decades of repeated efforts to develop joint operational concepts, none has resulted in any real changes to the way the U.S. military fights or how the joint force is designed. During the post–Cold War period of unrivaled U.S. military advantage and uncontested dominance across operating domains, these failings had little warfighting impact, particularly within the context of competition with lesser regional powers and conflict with irregular foes. That is no longer the case. As the 2018 National Defense Strategy (NDS) makes clear, the reemergence of military competition with China and Russia, combined with decades of deferred or misspent investments in the future, has eroded the joint force’s relative military advantage until now “every domain is contested—air, land, sea, space, and cyberspace.”<sup>12</sup>

While individual service efforts to develop new, multidomain concepts have made some headway, “they are hardly joint and provide insufficient decision space to geographical combatant commanders.”<sup>13</sup> The current strategic environment demands deeper integration than can be achieved by stitching together extant service

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ideas. Only inherently joint concepts can effectively constrain an enemy’s decision space and present them with dilemmas by confronting them with a range of potential threats generated by the entire joint force from every operating domain. While Goldwater-Nichols arguably succeeded in inculcating greater jointness, it could not have predicted 1) the overlap and integration of previously siloed warfighting domains, or 2) the rise of

multiple military competitors that could match, or exceed, U.S. military dominance in key domains. As the joint concept development process goes forward, it is important to identify the gaps and seams the joint force must address as it seeks to develop new and innovative concepts.

Developing inherently joint concepts has been made all the more challenging as what capacity the department had for joint concept development largely dissolved with the disbandment of JFCOM. Since 2011, the DoD has not prioritized or adequately resourced joint concept development and experimentation, and ultimate responsibility for concept work has been vague. That changed with the release of the 2018 NDS which called for new joint concepts to provide advantage against peer rivals. Now, the Joint Staff is trying to rebuild that capability within the J-7 Directorate for Joint Force Development while simultaneously developing new joint concepts.

To fully address its gaps in thinking about the future of warfare and reverse the erosion of its warfighting advantages, the DoD must develop not just new operational concepts, but new ways of developing operational concepts. Doing so requires the DoD to overcome its legacy concept development processes and foibles. Failing to foster a competition of ideas across services, functions, and combatant commands will result in more of the same watered-down, consensus answers that provide little added value. That will not be good enough because the U.S. military must change the way it fights future wars or risk defeat to either of its great-power rivals—an increasingly capable China and a resurgent Russia. Trying to secure military advantage over two forces that are either at or very near parity will require entirely new ways of warfighting—innovative ideas, in the form of concepts, are central to this effort.

This paper makes a case for why the current joint concept development process produces suboptimal results and why a new approach is needed to spur innovative ways of warfighting and new capability development in order to generate advantages against rival peer military powers China and Russia. Specifically, it discusses why the U.S. military's traditional warfighting approach will not suffice against rival military peers with qualitative parity and a marked advantage in the correlation of forces because any potential conflict against either rival would be fought on their doorstep and far from the United States. It examines case studies of joint concept development that highlight failings in the process that hinder truly joint concept work. Finally, it makes a number of process and organizational recommendations on how to improve joint concept development and its influence on force design and capability development.

## Why Joint Operational Concepts Matter Now

In their seminal study of military innovation, historians Barry Watts and Williamson Murray identified the factors that determined the success or failure of pre-World War II military institutions to adapt to new ways of warfighting in an era of rapid technological and military change. “Institutional processes for exploring, testing, and refining concepts of future war,” they write, “are literally a sine qua non of successful military innovation in peacetime.”<sup>14</sup> The authors point to the examples of carrier aviation and amphibious warfare, where an iterative process of concept development and experimentation spurred innovation and new ways of warfighting in the American military that led to operational victories during World War II.

Today's strategic environment is in many ways similar to the 1920s and 1930s interwar period of multi-sided dynamic technological and military competition amid significant advances in capabilities such as aircraft, mechanization, radios, and radar. Yet, not every nation was able to harness those new technologies and weapons to develop new ways of fighting, as the Germans did with Blitzkrieg, the U.S. Navy with carrier aviation, and the British with an integrated air defense system.<sup>15</sup> Driving innovation in this environment will demand that the DoD embark on a rigorous process of testing and refining its visions of future war. In doing so, the department also must heed the lessons identified by historians Watts and Murray that such visions of future war must be well connected to operational realities.<sup>16</sup>

As discussed in the following section, for far too long the U.S. military has relied on legacy warfighting approaches that are of diminished utility when pitted against the operational realities that would characterize conflict against advanced peer rivals. Devising new concepts of future war are central to driving institutional innovation and adaptation to address altogether new operational challenges, ideally long before a potential conflict breaks out. “The war of operational concepts does not wait for the bullets to fly,” Fastabend wrote. “It is ongoing every day, and therefore we can never rest.”<sup>17</sup> The pace at which great-power rivals China and Russia are modernizing their forces in a quest for military advantage demands that the U.S. military refine joint concept development with some urgency.

### Limitations of the Legacy Warfighting Approach

The 2018 NDS shifts the DoD's focus to "defeating aggression by a major power"—specifically, an increasingly capable China and a resurgent Russia. It aims to strengthen deterrence by preparing the joint force for high-end warfighting against peer adversaries.<sup>18</sup> Secretary of Defense Lloyd Austin has made clear that China is the pacing threat, and therefore the department's focus and prioritization should be set squarely on solving the operational challenges the joint force would face in a high-end fight in the Western Pacific against the People's Liberation Army (PLA).<sup>19</sup> Those challenges are many and continue to accumulate due to the DoD's lagging response to the erosion of its military position relative to the PLA in East Asia. That erosion is itself a product of the DoD's prolonged "period of strategic atrophy," as highlighted in the NDS.<sup>20</sup>

The corrosive effects of that intellectual atrophy permeated joint concept development, leaving it shackled to assumptions and traditional ways of thinking from prior decades that are no longer relevant. What joint concept work there was during the post-Cold War period produced minor modifications to the "Desert Storm model" of warfighting geared toward defeating lightweight regional powers such as Iraq, Iran, and North Korea.<sup>21</sup> That legacy

model, focused on halting a cross-border invasion by a third-rate military, entailed a lengthy buildup of combat power in theater, a methodical air campaign designed to "roll back" enemy defenses and establish air superiority, and then unleashing overwhelming air and ground forces.<sup>22</sup> Concept work focused on the "canonical" threat of the post-Cold War period, which was a facsimile of the Iraqi military the United States had resoundingly defeated in 1991—often called "Iraq equivalents" in force structure debates.<sup>23</sup> Indeed, so ingrained was the thinking from Operation Desert Storm that its five operational phases became the doctrinal and conceptual template for campaign planning in the post-Cold War era.

The success of that warfighting approach in 1991 against one of the world's largest militaries at the time gave the United States little incentive for change. As former Pentagon strategist Jim Mitre notes, with a low bar set at defeating militarily inferior adversaries, "New concept development stalled, old assumptions ossified, and capability development was simply not a priority."<sup>24</sup> Confident in the overwhelming superiority of the American way of war, the Pentagon devoted little

intellectual effort to new concepts that might stray from its proven model. Yet operational concepts developed in a period of largely uncontested American military dominance have limited applicability against formidable adversaries that approach parity, and even superiority, in critical warfighting areas. Moreover, Desert Storm, as well as air operations in the Balkans, were limited in scale and fought within a concentrated area of operations that would bear little resemblance to the theater (and likely global) scale of a conflict with either China or Russia.

When a military power discovers a successful warfighting model, it tends to stick with it, to its own detriment. As historian Mark Herman explains: "The tendency of the dominant military power to codify and only modestly improve its existing military paradigm gives an aspiring adversary a relatively static target to undermine over time."<sup>25</sup> That's exactly what happened. Great-power rivals China and Russia observed U.S. operations in Desert Storm in 1991 and saw that allowing the United States an uncontested period to concentrate combat power in the region was a poor strategic choice. To head this off, both countries embraced "active defense," strategies to deter, delay, or possibly defeat any U.S. intervention against them. These strategies

rested on the recognition that highly accurate precision-guided weapons, enabled

by sophisticated sensors and information networks, had become the dominant capability in conventional warfare and had ushered in a new warfighting paradigm—the mature precision strike regime (MPSR).<sup>26</sup> China and Russia recognized this paradigm shift and spent recent decades developing the capability to launch sustained salvos of precision-guided munitions at ranges long enough to threaten critical U.S. assets such as forward air bases and aircraft carriers. At the same time, they developed comprehensive plans and developed advanced capabilities to attack the networks and sensors that enable U.S. forces to carry out precision-guided warfare at long ranges.

The MPSR poses two significant operational challenges to U.S. overseas military operations: First, it will be harder for the joint force to fight its way into a contested theater. Second, once there, it will have to contend with close-in and long-range fires of greater accuracy, density, and volume than it has previously encountered and against which it has limited defenses. Though the United States likely will continue to enjoy an absolute advantage in global military capacity, it will face localized

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numerical disadvantages, and Chinese and Russian fires will exacerbate this discrepancy. These fires will cause serious attrition to U.S. forces operating forward, and they will cause “virtual attrition” through their ability to force commanders to hold their forces out of range of potential threats, which will prevent them from getting near enough to join the fight.<sup>27</sup>

It is not lost on U.S. competitors that the American way of war is entirely dependent on achieving air superiority over the theater of operations. Air superiority became such a core assumption of U.S. military planning that the post-Cold War Army divested itself of organic air defenses, in the belief that it would always operate under the protective “aluminum umbrella” provided by the Air Force. A warfighting approach that relies on dominating a single domain is destined to fail because a thinking adversary will readily develop a counter when presented with an obvious target to focus its efforts. To wit, China accurately identified weaknesses in America’s legacy warfighting approach—specifically, a reliance on achieving air dominance. China understood the threat posed by the U.S. military’s air-delivered precision fires

and responded by developing counters to two critical components: 1) the need for airfields, both land- and sea-based, to launch, recover, and maintain aircraft, and 2) the extensive command, communication, and intelligence network (which China considers to be the U.S. military’s center of gravity) to support a theater-level precision-strike campaign.

### Joint Force Not Joint Enough for Future War

For the past two decades, the U.S. military has fought exclusively in two domains: land and air, with the air fight focused almost exclusively on providing support to ground troops. A high-end war against a peer competitor would present altogether different operational challenges and a massive expansion of the operating environment beyond anything today’s generation of American troops has ever experienced, to include battle fleets engaging on and under the sea, aerial combat at significant scale, and persistent combat in space, cyberspace, and the electromagnetic spectrum. The dynamics caused by the greater intensity in combat across all these domains will invariably put increased pressure on the relationships between the services and demand greater integration across service and domain boundaries.

The services have independently embarked on efforts to develop warfighting concepts to address the operational challenges posed by adversary anti-access and area-denial (A2/AD) networks. These efforts are coalescing around a notional warfighting approach, Joint All-Domain Operations (JADO), which aims to attack simultaneously across domains—“convergence”—to present adversaries with multiple dilemmas at a tempo that complicates their response and ideally enables the joint force to operate inside the adversary’s decision-making cycle. Vice-Chairman of the Joint Chiefs of Staff (VCJCS) General John Hyten has described JADO as really “just an expansion of the combined arms problem to air, land and sea, plus space and cyber.”<sup>28</sup>

While it might sound simple in theory, in practice, combining those disparate and separately “owned” capabilities simultaneously is exceedingly complicated. Moreover, it is inherently difficult for military officers who have spent their careers thinking about fighting in a specific doctrinally proscribed way to think creatively about using new capabilities and forces in new ways—particularly with other services. Getting military officers to do so, historian David Johnson notes, will require addressing “fundamental questions of each service’s culture and deeply held views about warfighting.”<sup>29</sup>



*A BGM-109 Tomahawk missile launches from the guided-missile destroyer USS Sterett (DDG-104) during a weapons training exercise off the coast of California in June 2010. Tomahawk missiles are one of many platforms that comprise a mature precision strike regime. (Mass Communication Specialist Carmichael Yopez/U.S. Navy/DoD)*



*An amphibious tank of the Chinese People's Liberation Army lands on a beach during the third phase of the Sino-Russian "Peace Mission 2005" joint military exercise on August 24, 2005, near Shandong Peninsula, China. This exemplifies one of the many capabilities China or Russia may use in a potential amphibious or land invasion. (China Photos/Getty Images)*

To this point, the DoD has made far too little progress in generating a unifying vision of future war as part of a unified joint concept—with buy-in from the services—around which to orientate a future theater-level campaign plan. In part this is because the services focus on dominating tactical engagements in their specific domain. This results in the DoD's routine innovation ecosystem solving for micro-level tactical problems, not macro-level operational problems, a shortcoming that has been pervasive in the post-Cold War era. The showdown with the Soviet Union presented the DoD with macro-level operational challenges it was forced to solve, such as: stopping a Warsaw Pact air and ground offensive from overrunning NATO's defenses on the Central Front so quickly that nuclear escalation wasn't credible, or maintaining a steady flow of reinforcements across the Atlantic in the face of Soviet submarine and air attacks.

There is a pressing need for joint concepts and experimentation focused on solving for the most complex, macro-level problems facing the joint force, such as how to defeat a Chinese amphibious invasion of Taiwan or how to stop a Russian land invasion of one of the United States' Baltic allies. Developing response options to both challenges will demand the full panoply of capabilities brought to the fight by the entire joint force. At the theater or campaign level, the potential strength of the

U.S. military comes from an ability to fight in a "joint" fashion that forces an adversary to plan for attacks from multiple domains and vectors. In practice, U.S. armed forces' demonstrated joint warfighting ability is owed more to the creativity and adaptability of combatant command staffs and their ability to cobble together service-specific force packages into an effective fighting "whole" that is stronger than the sum of its parts.

While the joint force has been able to get away with this approach against lightweight regional adversaries with limited capability, it will not work against peer adversaries that approach parity in key capabilities and will enjoy marked advantages in force generation due to the conflict theater being located on their borders, as is the case with both China and Russia. Moreover, existing gaps and seams between the services, and particularly between combatant commands, present adversaries with exploitable vulnerabilities that must be closed. To create dilemmas for peer rivals, the joint force must be able to operate as an integrated whole able to dynamically respond to favorable battlefield developments that likely will prove exceedingly transient. How the various capabilities brought to the fight by each of the individual services complement and reinforce each other must be thoroughly explored, tested, and refined well ahead of any conflict.

## Case Studies in Joint Concept Development

**T**he following case studies of joint concept development efforts provide useful lessons for both concept development and the Joint Staff's effort to build a joint concept development capability. They highlight the preponderance of stovepiped and parochial approaches that prevent the emergence of truly "joint" thinking about the future of warfare and limit capability and concept development.

### AirLand Battle

The ideas that eventually evolved into AirLand Battle doctrine began with the acknowledgment that trying to stop Soviet armored spearheads in a battle of attrition at the point of attack was unlikely to work; a new idea was needed. A more effective concept would have to pose dilemmas for Soviet and Warsaw Pact planners who believed fast-moving, deeply echeloned Operational Maneuver Groups could quickly overwhelm NATO's defenses, forcing the alliance into choosing between the lesser of two evils—capitulation or rapid nuclear escalation. In response, U.S. Army General Donn Starry pushed a concept for "deep attack" to target follow-on echelons to prevent a "free ride" where they "stack up behind assaulting forces at the [front line] until a breakthrough is achieved."<sup>30</sup> The main instrument to do this was battle-field air interdiction—requiring integration of air forces into the overall ground battle.

The resulting close collaboration between the Army and Air Force was a product of a specific unifying problem that required solving—how to defeat a Warsaw Pact invasion of Western Europe.<sup>31</sup> Yet, while "joint" AirLand Battle often is held up as the example of successful joint concept development, AirLand Battle was fundamentally an Army concept, and later became Army doctrine in 1981. Consequently, the Air Force never embraced it with anywhere near the same fervor as the Army. At best, it coordinated and deconflicted Army and Air Force initiatives for fighting the Warsaw Pact. Even that success was muted, as the two services never solved the deconfliction issues that arose when the increased ranges of Army fires began to overlap what had been historically Air Force areas of responsibility on the deep battlefield.

As David Johnson notes, the unifying effect of defending NATO did not last long after the Cold War's end and ultimately had but a transient impact on inter-service cooperation.<sup>32</sup> Indeed, long-standing disputes about the relative roles of ground and air power only

heated up in the aftermath of Desert Storm in 1991 and the post-Cold War downsizing with a rash of "who won the war" debates and articles. These debates intensified after the airpower-centric interventions in the Balkans during the 1990s. The arguments—and the prestige and price tags associated with them—polarized views between competing camps, Johnson writes, and "the conditions were set for future wars to be assessed by institutionally motivated judgments about the relative decisiveness of ground or air power."<sup>33</sup> In point of fact, Air Force leaders "began marshalling an argument that precision air power, properly packaged and employed, offered the theater commander the option of delaying, halting, and possibly defeating" an armor-heavy enemy ground offensive.<sup>34</sup> The Air Force quickly moved to translate its successful performance in the Gulf War air campaign into what was billed as a new "joint" but in reality was an airpower-centric concept that aimed to bring about the "rapid halt" of enemy cross-border invasions.<sup>35</sup>

Prior to Operation Desert Storm, the development of longer-range surface-to-surface missile systems and attack helicopters extended the operational range of ground commanders. This caused conflict between the Army and Air Force both in Desert Storm and later in Operation Iraqi Freedom in clearly defining roles and responsibilities. In a case of history repeating itself, we're already seeing the reemergence of friction among the services with the increased overlap of traditional roles and responsibilities in new service-centric concepts aimed at all-domain operations. For example, some have argued that the Army's ongoing pursuit of longer-ranged precision fires encroaches on a fundamentally Air Force mission.<sup>36</sup> One senior Air Force leader went so far as to call the Army's long-range fires concept "stupid."<sup>37</sup> It would be an enormous setback for the joint force's ability to develop truly new ways of warfighting if the effort gets mired in long-standing service parochial clashes.

### The Air-Sea Battle Concept

The brief life of the Air-Sea Battle (ASB) effort highlights the service cultural clashes that can arise in concept development efforts. The 2010 Quadrennial Defense Review (QDR) announced the creation of a joint Air-Sea Battle concept, an Air Force–Navy effort to target and strike sophisticated adversaries with advanced A2/AD networks. The unclassified version of ASB described it as a way to "preserve U.S. ability to project power and maintain freedom of action in the global commons."<sup>38</sup> ASB was directed at finding ways to defeat China's development of a dense array of A2/AD defenses such that U.S.

air and sea forces must fight their way through concentric rings of long-range precision munitions. The concept aimed to disrupt and destroy A2/AD networks to enable U.S. forces freedom of action.

Resistance to ASB arose almost immediately with much of the criticism centered on it being conceived as a “multi-service” operational concept, not a “joint” one. While there was general agreement that ASB was rightly aimed at addressing a pressing operational challenge, its existence outside the Joint Staff made it a target, with critics claiming it was written “behind closed doors without collaboration.”<sup>39</sup> Detractors also worried that ASB’s undue influence on joint force development could lead to “an unbalanced joint force, optimized for one set of threats, but unable to respond to another.”<sup>40</sup>

Seeing it as a budget grab by the Air Force and Navy and thus “a near existential fight for its very future,” the Army, and to a lesser extent the Marine Corps, waged an internal bureaucratic battle to sideline the effort.<sup>41</sup> The Army’s justifiable fear that it would lose relevance, budget allocation, force structure, and end strength following drawdowns in Iraq and Afghanistan only added to the stridency and intransigence of the Army’s opposition to ASB as an overarching joint concept. Crippled by the Army’s obstruction, the Air-Sea Battle effort never gained wide acceptance and ended its inconsequentially short life tucked away in a small Pentagon office.

The ASB initiative occurred during a period when joint concept development was particularly disordered in the wake of JFCOM’s shuttering. Though many of JFCOM’s previous responsibilities had been shifted to the Joint

Staff J-7, along with hundreds of personnel, there was a lack of an overarching strategy or guidance as to what exactly that organization was supposed to produce.<sup>42</sup> In the end, by failing to account for the potential contributions of land forces, ASB left a critical operating domain out of a nominally joint concept, thereby generating bureaucratic antibodies to its existence. The more lasting downside was that the bureaucratic battles waged to obstruct and sideline ASB set back the DoD’s efforts to respond to China’s rapidly developing counter-intervention concepts and A2/AD systems.

Warfighting concepts from this period suffered the same fatal flaw of having “lost the balance, or intimate connection with operational reality,” which historian Murray identified in the cases of air power theorists and strategic bombing.<sup>43</sup> In this case, ostensibly joint concepts such as the Joint Operational Access Concept, were dedicated to overcoming A2/AD systems in order to establish a lodgment on enemy soil for U.S. ground forces.<sup>44</sup> These conceptual ideas collided with operational reality of the emergence of the mature precision strike regime—an operating environment in which multiple military powers possess the means and methods to carry out long-range precision fires at scale.

The services responded too slowly to the implications of the mature precision strike regime. It was only last year that the commandant of the Marine Corps, General David H. Berger, stated what had appeared obvious for some time, that “large-scale forcible entry operations . . . could not be carried out in the face of an adversary that has integrated the technologies and discipline of



*A Chinese destroyer launches missiles in an offshore blockade exercise during the third phase of the Sino-Russian “Peace Mission 2005” joint military exercise on August 23, 2005, near Shandong Peninsula, China, exemplifying Chinese and Russian capabilities in the maritime domain. (China Photos/Getty Images)*

the mature precision strike regime.” He acknowledged that the operational challenges posed by adversaries so equipped will require “sweeping change” to force structure, capabilities, and concepts.<sup>45</sup> It was the strongest statement yet by a service leader that the China challenge necessitated an entirely new warfighting approach. It remains to be seen whether the rest of the service chiefs will follow the commandant’s lead and be willing to change their self-conception as a service, sacrifice their own “sacred cows,” and be willing to subordinate their efforts within a joint framework.

### **The Advanced Capabilities and Deterrence Panel**

When Robert Work became Deputy Secretary of Defense in 2014, he was determined to jump-start the DoD’s response to the return of great-power competition and take actions to reverse the erosion in the military balance between the United States and China and Russia. The overall effort was known as the “Third Offset Strategy,” and its core mechanism was the Advanced Capabilities and Deterrence Panel (ACDP). This was a modern iteration of a highly focused Cold War effort, the Advanced Technology Panel, that developed new capabilities and employment concepts to counter the Soviet Union.<sup>46</sup> Work sought to convince the rest of the department’s senior leadership that using force-planning constructs based only on existing capabilities and operational concepts placed the force at risk in an era “where opponents enjoy guided munitions parity and can throw long-range missile strikes as dense as our own and as accurate as our own.”<sup>47</sup> This reality presented an operational challenge that the U.S. military had never confronted and would require entirely new response options.

The services’ slowness to respond to this dramatic change in relative military advantage became evident when ACDP began to compare status quo concepts of operation and programmed capabilities against alternative concepts and capabilities to address the challenges posed by a MPSR. Yet, what the services touted as new concepts lacked a coherent vision of future warfare or anything resembling theories of victory and failed to provide the granularity upon which to base force design decisions. In reality, there was little appetite among the services to think creatively about new concepts. Instead, their reaction was to go into a defensive crouch when proposed joint concepts potentially threatened programmed force structure and doubling down on legacy platforms and systems. The services remained beholden to traditional ways of operating in no small part because those ways perpetuated the capability and capacity

combinations the services favored rather than “joint” warfighting approaches that might threaten favored programs.

Realizing that incremental change would not be enough to change the military balance with regards to advanced peer rival China, ACDP aimed to develop entirely new ways of warfighting. In an effort to spur the services to begin consideration of alternative visions of future warfare and develop more innovative concepts, ACDP pursued two major initiatives. The first was an effort to reinvigorate the wargaming enterprise across the DoD to examine and refine new ways of operating against peer rivals.<sup>48</sup> The second was the establishment of the Warfighting Lab Incentive Fund (WLIF) to support development of new service and joint concepts to “support field experiments and demonstrations that take concepts from paper to real world execution.”<sup>49</sup>

**The reaction among the services was to go into a defensive crouch when proposed joint concepts potentially threatened programmed force structure and doubling down on legacy platforms and systems.**

To further drive exploration of new visions of future war, in mid-2016, Deputy Secretary Work convened a meeting in Norfolk, Virginia, with the lead concept developers from the Army, Navy, and Air Force to discuss new concepts for theater level warfare against China and Russia. It was the first time they had met to discuss complementary, joint, and cross-cutting concept development for high-end warfighting. The year before, Work had charged the Army to develop a follow-on to Air-Land Battle—which became Multi-Domain Operations—and now pushed for new joint concepts to address the threats China and Russia pose.<sup>50</sup> Yet, despite Work’s call for greater integration, the services would make only halting progress in developing their own all domain concepts while work on joint concepts continued to lag.

### **Joint Operational Concept Development: A Broken Process That Drives Toward Consensus**

As these case studies show, joint concept development continues to lag, in part, because of the bottom-up approach to concept and force development, where the individual services—and their parochial interests—dominate the process. The lesson from these case studies is that without a driving force to ensure interoperability, the services revert to their parochial lanes. Through pure

inertia, they test and develop concepts and supporting technology that focus on the domains within which they operate, without full regard to the applicability to other services or the joint world.

One of the more significant challenges facing joint concept developers is pleasing all parties in the name of garnering concurrence. Concurrence isn't figurative; for senior leaders to approve joint documents such as a new joint concept, they first must go through a review and coordination process in which relevant stakeholders within the DoD can raise concerns. And while the Joint Staff J-7 office has responsibility for the drafting of new joint operational concepts, concept

approval is dependent on clearing a number of review committees,

a general officer steering committee, the Joint Chiefs of Staff, and ultimately the Chairman of the Joint Chiefs of Staff (CJCS).<sup>51</sup> Invariably, this extensive and collaborative review process results in consensus documents that, almost by design, fail to generate a competition of ideas.

The Joint Staff finds it exceedingly difficult to transcend service parochialism and arrive at truly joint warfighting approaches at least in part because there are few joint concept developers. To be sure, the J7 concept writing cadre are, by design, joint-focused first and foremost. The challenge is that the concept team is more than just the J7 writers. Concept development teams typically are made up of service planners who are assigned on a temporary basis and who invariably bias toward service equities. The end products ultimately suffer as they are typically vague and watered-down and fail to say anything concrete. When concept writers do try to push meaningful change, they feel required to represent all service equities in some way. That makes

the concept read like a collection of various service concepts that lack little real analytical work on how they all might fit together, assuming they can at all. If a concept originates from a particular service, the other services will spend time trying to figure out the service's angle and then finding counterarguments, rather than trying to make it succeed in any meaningful way.<sup>52</sup>

As a result of this work not being adequately prioritized and resourced, the Office of the Secretary of Defense (OSD) and the Joint Staff lack the means to develop joint concepts and carry out experimentation at the scale required. In 1995, the Commission on Roles and Missions of the Armed Forces said that while,

individually, the services performed impressively in Operation Desert Storm,

**The Joint Staff finds it exceedingly difficult to transcend service parochialism and arrive at truly joint warfighting approaches at least in part because there are few joint concept developers.**

they did not work well together: "[I]n the absence of a unifying vision to guide their efforts," it said, "each Service develops capabilities and trains its forces according to its own vision of how its forces should contribute to joint warfighting." Additionally, joint doctrine represented "a compendium of competing and sometimes incompatible concepts."<sup>53</sup>

Nearly three decades later, it is clear that the DoD has made little progress in terms of generating a unifying vision of future war or a joint concept around which to orientate future force design and capability development. Instead, the result is something Fastabend warned about years ago: "At the joint level, pseudoconcepts occupy the place of something far more important—a real visualization of the future of joint combat."<sup>54</sup> Developing true joint concepts based on coherent visions of future warfare must begin with prioritizing and resourcing the process itself to develop concepts that the services believe in and that they can build a force around.

## Improving Joint Concept Development

**J**oint concepts cannot be simply an amalgamation of service preferences to create the lowest common denominator acceptable to all parties, because that is not how a potential adversary would fight the U.S. armed forces. Moreover, the DoD needs to better visualize how it intends to fight a joint campaign against advanced rivals that span combatant commands and domains. As the DoD seeks to rebuild its joint concept development and experimentation capability, the following recommendations are intended to improve that process.

**Focus joint concept development on priority challenges in a future operational environment.** A lesson from AirLand Battle's development is that the services are more likely to hit the mark if they have a specific target to focus concept and capability development. Those charged with developing concepts and enabling capabilities for AirLand Battle during the 1970s and 1980s had the advantage of being focused on solving for a very specific operational challenge—stopping large, powerful Warsaw Pact tank armies from steamrolling NATO's thinly arrayed covering forces along the inner-German border. As David Johnson notes: "Conceptual coherence can only emerge from an institutional consensus that there is a problem that must be solved against a specific adversary, armed with specific capabilities, in a specific place."<sup>55</sup> Therefore, joint concepts should focus on solving for priority warfighting scenarios.

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Efforts to generate conceptual coherence are hampered by the fact that there are currently too many concepts under development, all of which are ostensibly intended to guide force design and development. There is the chairman of the Joint Chief's Capstone Concept for Joint Operations (CCJO), underneath which are nested the threat-based joint warfighting concepts for specific theaters, supporting concepts for various functional elements of the joint force, and joint warfighting concepts developed by individual combatant commands (CCMDs).<sup>56</sup> Redundancy makes little sense

when there is limited bandwidth in the department for developing coherent and innovative joint concepts and multiple joint concept documents can cloud matters when it comes to force development. The focus should be on the priority theater and concept development resources should be directed at solving priority CCMD operational challenges.

At the same time, concept developers must avoid the temptation of producing just another iteration of existing war plans. Joint warfighting concepts must remain future-oriented if they are to drive force design and capability development, which is their intended purpose. They must include coherent and operationally realistic visions of future war and provide innovative response options to emerging challenges or those for which no solution currently exists. Ideally, those response options should propose new ways of operating that have not already been embraced. As General Mattis wrote, "To be justified, a new concept should not merely provide value added to existing doctrine, but should offer a new conceptual paradigm that stands as a clear alternative to existing doctrine."<sup>57</sup>

**Empower the CCMDs to drive threat-based joint concept development.** The CCMDs should drive threat-based joint concept development because they are most familiar with those theater specific operational problems that confront the joint force. The CCMDs are the organizations that ultimately plan and execute military operations using the forces at their disposal. Shifting to a CCMD-centric concept development process could break the service stranglehold over operational concepts and put the onus on the organizations that would actually be responsible for planning and executing future campaigns based on joint concepts. Moreover, CCMD staff are steeped in the problem set. They observe great-power rival's military operations on a daily basis. They are well aware of the logistical through-put challenges in their specific theater and potentially vulnerable transport choke points. As a panel convened by the Defense Science Board noted, since "their successors will be the ultimate recipients of capabilities produced through [the joint concept] process," the CCMDs should have a major role in concept development.<sup>58</sup>

Ideally, as Johnson says, "[T]he services should organize and equip themselves in ways that provide the Joint Force Commander capabilities and organizations that best realize the theaterwide campaign plan by providing integrated fire and maneuver."<sup>59</sup> To that end, joint concept development must focus intently on solving each CCMD's most pressing operational challenges, not on advancing any one service's preferred approach to

operating in its specific domain. But that's not how it currently works—the service approach remains dominant. A threat-based approach to concept development will require deep buy-in and participation from the CCMDs.

There are, however, some drawbacks to a CCMD-centric approach. A central challenge is that the CCMDs are focused on the near term. Their primary responsibilities are to prevent war through their theater campaign plans, and to develop and execute contingency and operations plans in the event war occurs. These are truly monumental tasks, and they limit the ability of the CCMD staffs to think in terms of future concepts and capabilities. To develop joint concepts, the CCMDs must be able to prepare for the “fight tonight,” while also look over the horizon at looming capability challenges being fielded by great-power rivals and develop response options.

This raises the second challenge. Currently the CCMDs do not have the personnel to do both near-term planning and the future scanning required for concept development. And far too few of their personnel are dedicated to thinking about extant war plans, let alone future challenges. This is a product of CCMD preference for peacetime engagement, and as strategist Tom Ehrhard notes, “a gradual separation from war thinking and war planning,” with the result that “regional staff dedicated to peacetime shaping ballooned at the expense of operational war planners.”<sup>60</sup>

Finally, the rigidity of CCMD exercises, planned months and often years in advance, often precludes consideration of new concepts and they are rife with competing priorities because they occur so infrequently. CCMD exercises are typically executed by the service with the largest role to play in any given scenario; not surprisingly, exercises are more service-specific than joint. Introducing new concepts into planned exercises can require up to a year of preparation and planning, resulting in a rigid and overly prescribed outcome, and inhibiting agile experimentation and an iterative feedback cycle.

If the CCMDs are supposed to adopt and embrace new joint warfighting concepts to address threats specific to their theater, it stands to reason that they should have a significant hand in the concept development process. If the CCMDs are to take their rightful place leading joint concept development, they will need to revisit their priorities. They will need to spend more time and resources thinking about the future beyond the zero- to two-year time frame. They will need to shift their focus from military diplomacy and shaping to focusing on warfare. This may require fairly substantial reorganizations of

CCMD staffs. Finally, the CCMDs will need to enable an agile cycle of research through future-focused exercises.

**Explore alternative visions of future war and validate joint concepts through extensive wargaming and experimentation—not by consensus.** Wargaming and experimentation are crucial to developing visions of future war as well as challenging assumptions and testing the viability of new concepts and capabilities for future warfare. Both are essential to exploring alternative solutions to hard challenges. Wargaming is central to what Peter Perla calls the “cycle of research”—created by weaving together wargames, exercises, and analysis. To be effective, “[I]t requires some person, some group, or some organization in a position of authority and influence . . . to make use of its output to affect current and future decisions, concepts, and plans.”<sup>61</sup> That means a governance structure must be put in place to build connective tissue between departmental wargaming and senior leader decision-making so that insights generated through wargaming and experimentation filter up to those making programmatic decisions.

This connective tissue does not exist. One of former Deputy Secretary Work's primary intentions in trying to revive the DoD's wargaming enterprise was to better align wargaming with senior leader priorities and to provide a mechanism to disseminate game information. Yet, whether wargaming results and insights actually inform senior leader decision-making depends to a large extent on the demand signal from those same leaders and their willingness to invest the time required. It's a rarity to find senior departmental leaders who are willing to actually participate in wargames.

Wargaming new theater-specific warfighting concepts should be a continuous and iterative process, which will demand considerable resources, and is a lot to ask of the Joint Staff J-7 office, which already conducts wargames for the CJCS, including the Globally Integrated Wargame.<sup>62</sup> Testing, refining, and validating theater-specific joint warfighting concepts will require their own campaign of wargaming analysis. These must be adequately resourced and not shuffled off to the individual services. Threat-based joint concept development requires thorough threat analysis.

Additionally, it's essential that wargame participants have a deep knowledge of the DoD's advanced capabilities as well as those of peer rivals. This can be a challenge as there is a relatively small cadre of joint force professionals who make their living studying peer rival theories of warfare. Players often are unfamiliar with the capabilities that other services or components bring to the table or new capabilities such as cyber weapons. To be



*An X-47B unmanned combat air system demonstrator flies near the aircraft carrier USS George H.W. Bush (CVN-77) after launching from the ship on May 14, 2013, in the Atlantic Ocean. Unmanned systems and other new technologies demand a greater focus in wargaming in order to examine the future character of war. (Erik Hildebrandt/U.S. Navy/DoD)*

effective, participants must be familiar with a wargame's "cookbook" of capabilities, otherwise an inordinate amount of time will be spent trying to educate rather than gaming out employment options. Moreover, it's important that they can evaluate the impact of advanced capabilities to determine those that provide military advantage and may require additional investment. This will require a significant time investment on the part of participants but also will require, in some cases, providing them with access to the department's most guarded capabilities.

Wargaming is particularly important in preparing to fight against China, as the PLA remains something of a question mark in terms of how it operates, given its lack of recent operational experience. During the Cold War, the U.S. defense establishment had a good idea of how the Soviets would operate in a potential war due in part to the Soviet theory of victory resembling the operational art they had refined by the end of World War II. That is not the case with the PLA; there is a real possibility that it may be developing new ways of warfighting that the United States won't know about until a conflict begins. Wargaming plays an important part in this learning process, just as it did during the interwar period at the

Naval War College, filling in yawning knowledge gaps of how the pre-World War II Japanese navy would operate by exposing students to a thinking adversary with widely varying strengths and capabilities.<sup>63</sup>

**Expand experimentation in field and fleet exercises. Operational concepts are only useful to forces in the field once they have been tested and validated through experimentation.** Experimentation is a crucial part of the cycle of learning, of challenging assumptions, of exploring ideas to see what works and, as importantly, what does not—"to separate the good ideas from the bad," as a Defense Science Board study said. It is particularly important when exploring concepts and capabilities for future warfare: "[F]irst get the big ideas about right, then subject them to experimentation and intellectual debate, then refine them based on what is learned."<sup>64</sup>

A shortcoming in the current process is that concepts are subjected to experimentation only after concept development. While perhaps suitable for assessing specific capabilities where one service has the lead, it's an approach "ill-suited for complex and multifaceted warfighting concepts."<sup>65</sup> Instead, it should be an iterative process of exploration and refinement. Moreover, this experimentation should be carried out at the joint

level, preferably at the combatant commands, as there is something to be said for familiarity in military operations; combat should not be the first time service elements work together. For example, the reason the Air Force wants to work closely with the Air Force is because service personnel speak a similar language, have a common background for the most part, and for many elements practice together and establish somewhat second-nature tactics, techniques, and procedures. The challenge is that personnel are too busy doing their day jobs to take part in preparing for and executing experiments, which is one of the reasons live experimentation in particular has dropped off and too often is only crammed into the margins of pre-planned events.

An additional challenge is that J-7 disbanded those divisions with responsibility for leading and conducting joint experimentation and only within the last year reestablished this capability, albeit with some ambiguity about resources and mandate. Driven largely by budgetary considerations, this move led to concerns with how new joint concepts would be rigorously tested and refined.<sup>66</sup> This is an area where the CCMDs can make significant contributions—aside from theater-specific ideas—in providing support for experimentation. Former Pacific Fleet Commander Admiral Scott Swift was a trailblazer in this regard, offering his fleet as a “battle lab” to wargame, test, and experiment with new ways of warfighting.<sup>67</sup> The CCMDs, along with concept development teams, should tap into the WLIF to support field experiments and help spur continuous innovation in warfighting concepts.

**Increase the competition of ideas by fostering a culture of “thinking red.”** Operational “red teams” are critical to generating creative ideas, as the Defense Science Board noted, “using a smart adversary to challenge all concepts.”<sup>68</sup> That requires a much more comprehensive red team effort than currently exists in the DoD, where it is mostly an ad hoc affair. A Department-wide effort is needed to expand the degree to which defense professionals “think red,” an essential critical thinking skill that atrophied with the end of the Cold War. Red teaming provides a means to challenge established thinking to sharpen reasoning, reveal gaps, and propose alternative ways of framing problems. Red teaming is essential in preventing “group think” in concept development. Red teams should include diverse perspectives, drawing on the views of analysts, operators, scientists, engineers, and intelligence professionals. An effective red teaming capability must be capable of constantly assessing alternative concepts and force combination tradeoffs. For that reason, red teaming

## **A department-wide effort is needed to expand the degree to which defense professionals “think red,” an essential critical thinking skill that atrophied with the end of the Cold War.**

must occur early and often in the concept development process. Typically, red teaming only happens when the process is too far along and with too many “concurs” slapped on a concept to make major changes should a red team find fault. For full effect, the products and insights generated by red teams must be linked to changes in senior leadership decisions; otherwise, they are just empty intellectual exercises.

**Develop a top-down model for joint concept and capability development.** Pushing a cohesive joint concept through the system will require sustained attention from the highest levels of OSD and the Joint Staff, ideally from the “big four,” the Secretary, Deputy Secretary, Chairman, and Vice Chairman. That means it must be more of a top-down driven effort than the current process led by the Joint Staff J7 directorate. An effective process must accept the limitations of a three-star joint director relative to service leadership—no J7 can be expected to overcome the parochialism, seniority, and budgetary power of the service chiefs. Ultimately, the military services are supposed to act on what the joint concept process produces.

Yet the system as currently designed is not incentivized to pick particular concepts at the expense of others. Nonconcurrence on Joint Staff Action Processes—the means to move documents around the Joint Staff for review—is considered a third rail to be avoided if at all possible, systematically reinforcing this aversion to upsetting the apple cart. Only the DoD’s senior-most leaders can oversee a process that captures dissenting viewpoints, makes hard choices between legacy and future programs, and then actually ensures that the services adhere to that decision in the program and budget process.

**Promote tighter integration between concept and capability development.** As the Defense Science Board put it: “Military innovation is more likely when there is the opportunity for concurrent technology push and needs pull.”<sup>69</sup> Generating military advantage will require more closely linking operational concepts with technology innovation so the two can feed off each

other. The U.S. armed forces have long held a competitive advantage in their ability to develop new ways of operating that leverage new technologies, ranging from the development of carrier aviation in World War II to the employment of unmanned systems over the past two decades.

The DoD needs a new organizational structure that brings together concept developers with engineers and technologists. This organization must be empowered and resourced to deliver operational impact against specific challenges. This is particularly true of joint and CCMD priority capabilities that are traditionally orphaned in the budgetary process as they do not necessarily align with any single service. Integrating technology opportunities within concept development is critical in periods of disruptive change, as seen today with advances in emerging technologies, such as autonomous systems, robotics, and artificial intelligence. As strategist Frank Hoffman has noted, the almost certain convergence of these “disruptive” technologies on future battlefields will have a compounding effect that will drive revolutionary changes in warfare, as major technological breakthroughs have done repeatedly in the past.<sup>70</sup> The challenge is combining technology development and innovation, which must be a bottom-up process, guided by top-down driven concept development.

The Joint Staff is working to institute a “concepts to capabilities” approach to more tightly integrate innovative concept and “disruptive technologies” for capability development.<sup>71</sup> Without question, the DoD must develop a much tighter, iterative coupling of operational concepts with novel acquisition approaches to rapidly operationalize emerging technology in order to out-innovate adversaries. Close collaboration between operators and technologists is a challenge within the DoD because the acquisition and operational communities are distinct, not only in organizational cultural terms but also in processes and execution. Nevertheless, enhancing collaboration between these communities is essential, particularly in today’s strategic environment as the United States is engaged in a dynamic military-technical competition with China.

Clear and precise concepts are essential for effective capability development because they define how a specific capability will be used in the field. This is critical for effective systems design, particularly of highly complex systems; if the concept is vague or poorly defined, system designers will be able to deliver precisely what is needed for the operator.<sup>72</sup> That means concept developers must infuse greater technical

thinking into concept ideation, which in turn requires that technologists be part of the concept development process. Failure to more closely integrate concept developers and technologists risks building concepts that cannot drive capability development because the demand signal is insufficient for the purposes of technologists and acquisition experts.

Yet the challenges and obstacles of service parochialism and stovepiped force development highlighted in this paper work against efforts to more tightly couple concept and capability development for the joint warfight. The DoD needs a forcing function to compel the services to align around a new joint warfighting concept and to make the necessary tradeoffs and hard choices between modernizing current capabilities versus developing new capabilities. One proposal is to establish a “Unified Future Warfare Command” as a replacement for the defunct Joint Forces Command to speed adoption of emerging technologies into capability development and “better prepare the services for seamless, joint force action.”<sup>73</sup> The costs of adding another functional command to the DoD’s already bloated bureaucracy would be considerable. Also, it would compete for manpower and resources, which invariably sparks opposition. The challenge that has hobbled past such efforts, be it former Secretary of Defense Donald Rumsfeld’s small Office of Force Transformation or some larger organization resembling JFCOM, remains the same: These organizations are not provided with any authority, accountability, or responsibility to make changes to the defense program.

**Establish a senior leader-led concept and capability development organization focused on CCMD warfighting challenges.** In examining military innovation before and during World War II, the historians Murray and Watts concluded, “[T]he critical issue is achieving a better ‘fit’ between hardware, concepts, doctrine, and organizations than do one’s prospective adversaries.”<sup>74</sup> The nation that can best harness a set of ideas about new technology and integrate those ideas into new operational concepts will have a marked advantage on any future battlefield. To achieve that better fit, we propose a high-level, senior leader-managed organizational body that more closely integrates warfighting concepts and technology integration. For the reasons cited above, a top-down, senior leader-led organization is needed to move from the current service-focused approach to capability development that places the attention on CCMD warfighting challenges and supporting joint warfighting concepts and capabilities.

The key to the success of such an organization is selecting the right people and focusing them on the most challenging problems. Those individuals must have a deep understanding of the problem set and insight provided by the intelligence community into adversary capabilities. “Concept development is intellectually demanding,” the Defense Science Board said. “Concept developers should be hand-picked and dedicated to the task.” Concept developers not only must know the specific attributes of U.S. military capabilities and ways of operating, but they must also possess a deep understanding of

“red” capabilities and ways of warfighting. That requires

an operationally-minded, intelligence community-informed, professional cadre within the department focused on developing joint warfighting concepts and response options to the military modernization efforts of great-power rivals.

Concept development should not be a one-off event with the resulting product put on the shelf. Until joint concepts are allowed the breathing space and continuity in senior leader support they need to be worked through properly they will always suffer from a lack of institutional respect. Which ties into the point that developing visualizations of future combat should be an iterative and continual process. As is often said, America’s great-power rivals “went to school” on the U. S. military, intently studying its ways of operating to learn the gaps and seams that could be exploited for advantage. The DoD, which must do the same with the Chinese and Russian ways of warfare, needs a standing team that studies and understands their operational and strategic thinking.

To that end, the authors recommend reviving an organization that was begun under Deputy Secretary Work—the ACDP.<sup>75</sup> It focused on solving the toughest operational challenges for which cross-cutting solutions—that is, across service, mission, and title divisions—did not exist. One line of effort comprised a select group of operators, analysts, and technologists who were tasked to examine potential new concepts and response options to counter Chinese and Russian military advantages. Drawn from the CCMDs, the services, and OSD, the members were provided access to the DoD’s “crown jewels,” the most guarded capabilities in the department’s inventory. The group explored new ways of combining existing as well as nascent capabilities in innovative ways to deliver real operational impact. It focused on closing existing joint force capability

gaps while simultaneously creating new operational dilemmas for potential adversaries. The emphasis was on continually developing and iterating new operational concepts—plural, not just one—as the dynamic military competition with China and Russia meant that military advantage generated by new capabilities and new ways of operating, would be transitory as smart rivals will develop counters over time.

Charged with pushing the conceptual envelope, the teams evaluated the art of the possible and made recommendations directly to the Deputy Secretary of

Defense and VCJCS, who work closely together developing the defense program. ACDP intended to

solve for a major problem that stymies innovation inside the DoD: The services typically won’t pursue missions that they can’t individually solve due in large part to the competition among the sister services.<sup>76</sup> And in budget-constrained times, they revert to their traditional role of supporting their own programs and not thinking in joint terms. A byproduct of this reality is that most innovation efforts are typically small-scale endeavors scattered across the Department that lack bureaucratic champions at the highest levels and so have no discernible impact on force development.

ACDP cut out intervening layers of bureaucracy and provided recommendations directly to senior leaders able to channel funding to solve prioritized hard problems representing the most taxing operational challenges facing the joint force. ACDP prioritized and coordinated innovation from analytical idea, to experimentation, to evaluation in field exercises. It served as a clearinghouse for novel ideas and provided focus and integration to the separate organizations across the DoD working various elements of CCMD specific operational problems. ACDP brought those disparate efforts together, conducted viability assessments of proposed capabilities and concepts, and identified those that were potential game changers. The DoD’s hierarchical and entrenched bureaucracy demands such an approach and requires that champions of novel ideas and programs can direct resources to priority areas.<sup>77</sup>

As a study commissioned by the Defense Science Board said, combatant command influence on capability development remains marginal: “A combatant commander, no matter how compelling its need or great its idea, needs to persuade one of the force providers to be the sponsor,” and even then it remains subject to veto at any step of the requirements approval process.<sup>78</sup> The

## Integrating technology opportunities within concept development is critical in periods of disruptive change.

model we propose would be designed specifically to fix this problem by providing the connection between concept development and capability generation at the joint level. As the senior leader-led mechanism for making resourcing decisions driven by the conceptual work, it would serve as a focusing function to drive joint and CCMD capability development priorities organized around a coherent warfighting concept. As experience has shown, absent focused senior leader engagement at the highest levels, the hard choices required to make real changes to the defense program will never happen or will not survive in the face of competing vested interests.

We also believe that the ACDP model would go a long way in solving a major challenge facing the DoD: the Department's routine innovation ecosystem does not solve for the macro-level operational problems that would characterize theater-level warfare against an advanced peer rival. While the DoD has added a number of "innovation" organizations in recent years that often demonstrate impressive small-scale projects, they remain overly stove-piped and do not extend to the rest of the department. Under the peacetime ruleset there is no existential threat to serve as a catalyst to drive innovation and change at the scale needed to counter a peer rival, such as China, that approaches parity in critical capability areas. The organization we propose would define the deterrence credibility stretch problems for the DoD and align joint concept and capability development to generating solutions.

## Conclusion

**M**ilitary organizations—grounded in the past and preoccupied with the present—often find embracing change, particularly new ways of warfighting, exceedingly difficult. As historian David Johnson notes, they prefer to evolve the established service approach or "our way" of fighting, experiment with the familiar, and only address innovation at the margins.<sup>79</sup> The mid-1970s and early 1980s represented a period of intellectual ferment in the military services when they were searching for new ideas and demonstrated an openness to embracing new warfighting concepts. Partly it was due to the realization that the Soviet Union's conventional force modernization during the late 1960s and into the 1970s had significantly altered the military balance on Europe's Central Front.

But a more significant catalyst was the 1973 Arab-Israeli war, commonly known as the "Yom Kippur War." It was a clash between superpower clients armed with advanced weapons and systems the Americans and Soviets had been developing for years. Observers of the conflict were struck by the incredible lethality of the modern battlefield—particularly the lethality of advanced Soviet air defenses against even highly skilled pilots, when Israel lost 109 aircraft in 18 days to Soviet-built radar-guided surface-to-air missiles (SAMs) and anti-aircraft guns fired by Egyptians and Syrians with little training. Pentagon analysts extrapolated Israel's loss ratio and foresaw that in the event of a U.S.-Soviet war, U.S. tactical airpower on Europe's Central Front would be totally destroyed in 17 days.<sup>80</sup> The large number of Israeli tanks lost to Sagger anti-tank guided missiles likewise alarmed U.S. Army planners. "The terrible destruction that US Army investigating teams observed in the Sinai and on the Golan Heights was the first evidence of the precision revolution in warfare applied to ground combat," wrote retired Army Major General Robert Scales.<sup>81</sup>

It is entirely likely that a new catalyst will be needed to spur the services to embrace radical new ways of warfighting. We only hope that catalyst is not the United States losing a military conflict to one of its great-power rivals.

A last comment is warranted on what is emerging as another roles-and-missions clash: Fully realizing effective joint warfighting concepts would mean an increased overlap of the traditional roles and missions of each service. That, in turn, would mean a return to the long-standing tradition of parochial defenders of the status quo retrenching and scuttling efforts to effect

change. This is not new. From debates over strategic or tactical bombing in World War II to arguments over the doctrinal definition of area of operations during the first Persian Gulf War, service parochialism is more about securing budget proportions than creating effective operational concepts.

It is difficult to see a future in which service parochialism will disappear. Yet the potential harm of service separation does not have to outweigh the potential benefits. A high-level task force approach to concept development, empowered by senior civilian and uniformed leadership, could synthesize individual service expertise while maintaining a holistic, domain-agnostic view of discrete operational problems. Cross-domain solutions, no matter how successfully proven through experimentation and wargaming, will only drive programmatic change if in fact they are endorsed and empowered by the department's most senior leaders.

If the department is able to get the structure and process for joint concept development right, the DoD is more likely to develop the innovative warfighting approaches it needs in order to generate military advantages against peer adversaries. The recommendations outlined above are informed in part by individuals involved in past concept development efforts. While recognizing the limitations in past efforts at joint concept development, there is also a recognition that the process of developing operational concepts is essential to the competitive environment in which the DoD is now engaged with great-power rivals China and Russia.

The department must begin thinking about new ways of addressing the problems the joint force would confront in a potential future warfight. A crucial missing piece in preparing the joint force for future warfare is a joint operational concept that provides a visualization of how the services will fight in an integrated fashion against a specific adversary. But without implementing lessons learned from historical joint concept development and DoD leadership empowering innovative development approaches, any such effort may find itself slowly fading away in a nondescript Pentagon office.

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