

**Testimony before the House Armed Services Committee
Subcommittee on Seapower and Projection Forces**

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December 2, 2014

Thank you Chairman Forbes and Ranking Member McIntyre for the opportunity to testify and submit this written statement for the record.¹

Today's headlines are reinforcing the alarms sounded by defense policymakers and analysts warning of the perils of cuts to the defense budget, the blind meat-axe of sequestration, and the risks to America's global position. From the spread of the Islamic State in Iraq and the Levant (ISIL), to Russia's aggression in Crimea and eastern Ukraine, to China's slow but steady push into contested areas of the East and South China Seas, the United States seems to be on its heels.

But there is a deeper competition afoot, one that goes beyond the daily tactical game of foreign policy maneuvering and diplomatic talking points. It is a strategic competition played out over decades, and it's one that the United States could very well lose. It is a competition that most national security figures and the broader mainstream media don't seem to fully grasp. It's a contest over military-technical superiority, and whether the United States can sustain its advantage deep into the 21st century or be overtaken by its competitors.

What does "military-technical superiority" mean and why does that matter? Simply put, America's national security depends on our military being more technically advanced than any other. America's armed forces must project and sustain power across oceans and be able to perform complex offensive and defensive operations in all types of geographic terrain and in all operating domains. No other nation state requires this kind of global power projection capability to adequately protect its national interests—the United States is unique in this regard. This ability is a critical element of U.S. national security strategy and is foundational to the sustainment of U.S. military power and influence. But after over 25 years of U.S. power projection being a source of unique advantage, today it forms the basis for a long-term military competition.

To understand why this competition is so important, one needs to focus on the core context in which military competitions have played out over history. There have only been two basic warfighting paradigms or "regimes" in history: the "unguided weapons regime" and the "guided weapons regime." The unguided weapons regime was the world of stones, arrows, machine guns, artillery, and bombs. The key characteristic of combat using unguided, ballistic munitions—even over relatively short ranges—was that most munitions that were thrown, shot, fired, launched, or dropped *ultimately missed their targets*.

¹ This statement draws extensively from the following article: Shawn Brimley, "Offset Strategies and Warfighting Regimes," *War on the Rocks* (October 15, 2014): <http://warontherocks.com/2014/10/offset-strategies-warfightingregimes/>.

Therefore, in order to maximize success at the point of attack, commanders would often seek to aggregate their forces in order to achieve numerical superiority. As a result, *unguided weapons warfare had an inherent bias toward mass.*

The crucible of World War II and the early Cold War period drove the development of two alternative ways for the United States to compensate or *offset* the numerical advantages our adversaries often enjoyed.

The first offset strategy centered on atomic weapons. The massive destructive power inherent in a nuclear blast obviated the need for much accuracy. One didn't need to use more than one nuclear weapon to be assured of a devastating effect on the target. This was initially attractive to the United States as a means to compensate for insufficient land forces in Europe. But in the early Cold War, the difficulties of actually contemplating how to employ tactical nuclear weapons on the battlefield vexed military planners. And as the Soviets approached basic parity in the nuclear balance, the advantage the United States enjoyed faded quickly. As former Secretary of Defense William Perry has written: "...by the mid-1970s, NATO and the United States were looking at a Soviet Union with parity in nuclear weapons and about a 3-fold advantage in conventional weapons. Many in the United States began to fear that this development threatened deterrence.² This fear drove the search for a new way to offset Soviet military power.

The second offset strategy that reduced the need for mass on the battlefield came in the form of guided conventional weapons that actively corrected their trajectories after being fired, released, or launched. From their introduction late in World War II up through the end of the 20th century, the main driver of U.S. military-technical superiority has been the development and effective employment of guided munitions. Other transformative technologies like stealth, the global positioning system and the broader revolution in computer networking acted as critical means to an end—the employment of guided weapons. Put simply, guided weapons ushered in an entirely new era in warfare, one in which *accuracy became independent of range.*³

This was a key strategic element in answering the challenge posed by the Soviet Union, who enjoyed clear quantitative superiority in Europe. Soviet military leaders understood (sooner than their U.S. counterparts) that their entire operational concept of overwhelming NATO forces with sheer mass would no longer be effective given the American lead in fielding guided weapons.⁴ By the mid-1980s Soviet

² William Perry, "Technology and National Security: Risks and Responsibilities," Speech at France-Stanford Center for Interdisciplinary Studies, April 7-8 2003: <http://stanford.edu/dept/france-stanford/Conferences/Risk/Perry.pdf>

³ The emergence of guided munitions and associated battle networks changed the characteristics of modern warfare. "...when firing munitions blessed with accuracy independent of range, forces could now mass effects by fire from greater distances while operating from a dispersed posture, using far less ammunition... [I]n collisions between conventional forces, a smaller force employing guided weapons might be capable of defeating a much larger force that employed unguided ones." See Robert O. Work and Shawn Brimley, *20YY: Preparing for War in the Robotic Age* (Washington DC: Center for a New American Security, January 2014).

⁴ See Barry Watts, *The Evolution of Precision Strike* (Washington DC: Center for Strategic and Budgetary Assessments, 2013).

military theorists had concluded that the emerging U.S. “reconnaissance-strike complexes” would be able to achieve destructive effects similar to tactical nuclear weapons. Put another way, because the United States leveraged its broader technical prowess to develop a way to *offset* Soviet military advantage, the basic structure of the entire Cold War military competition shifted to U.S. advantage.

The lesson here is clear. When technologies emerge that upend the dominant warfighting paradigm, or “regime,” they can significantly alter the course of history. Eliminate the advent of guided conventional weapons and the history of the 20th century would look very different indeed. This is why defense analysts have such reverence for figures like former Secretary of Defense William Perry: He played a critical role in the late 1970s (as Undersecretary of Defense for Research and Engineering), by driving the Department of Defense toward increased investments in guided munitions and their associated battle networks.⁵ Had Perry and his colleagues not invested in these emerging and sometimes unproven technologies, the last decade of the Cold War might have unfolded in very different (and potentially violent) ways.

Since the end of the Cold War, the United States has continued to benefit from its initial firstmover advantages in what has become the “guided-munitions regime.” The United States made the first and largest investments in these technologies and has continued to reap those rewards to the benefit of America’s national interests and defense strategy. But there is good reason to think that the advantages accrued from the Cold War offset strategy have largely run their course. Deputy Secretary of Defense Robert O. Work outlined in August 2014 why the offset strategy of the late Cold War – the move toward the guided weapons regime – is no longer a sound basis for defense strategy and force development. He explained:

While the United States fought two lengthy wars, the rest of the world did not sit idly by, they saw what our advantages were back in 1991s Desert Storm, they studied them, and they set about devising ways to compete. Today, many of those earlier innovations that were spurred by the intense military-technical competition with the Soviet Union – in missilery, space systems, guided munitions, stealth, and battle networking – have proliferated widely. Unsophisticated militaries and non-state actors are seeking and acquiring destructive technologies and weapons that were once the province of advanced militaries – and the price of acquiring these weapons is dropping.

In a speech to a defense industry audience in September, Secretary Hagel made a similar argument to Work’s, and went further:⁶

...Meanwhile, China and Russia have been trying to close the technology gap by pursuing and funding long-term, comprehensive military modernization programs. They are also developing anti-ship, anti-air, counter-space, cyber, electronic warfare, and special operations capabilities that appear designed to counter traditional U.S. military advantages

⁵ See William J. Perry, “Desert Storm and Deterrence,” *Foreign Affairs* (Fall 1991).

⁶ Robert O. Work, *Speech at National Defense University* (August 5, 2014).

– in particular, our ability to project power to any region across the globe by surging aircraft, ships, troops, and supplies.⁷

“All this suggests,” Hagel concluded, “that we are entering an era where American dominance on the seas, in the skies, and in space – not to mention cyberspace – can no longer be taken for granted.”

Hagel and Work are essentially arguing that our first-mover advantage in the shift to guided weapons has almost fully played itself out. We are approaching a world in which the guided munitions regime is fully mature, with a much broader range of players now fully invested. U.S. defense planners must now assume that future adversaries will employ sophisticated battle networks and advanced guided munitions to both deter and defeat U.S. military forces. We see this dynamic most clearly with respect to the military competition unfolding in Asia.

China's military modernization is entirely focused on moving decisively, and asymmetrically, into the guided weapons regime. So while the United States faces many plausible defense challenges, to the degree that military planners worry about what war looks like in a world of guided munitions, China is most certainly a “pacing threat”—that is, an actor that is making the most progress toward plausibly contesting U.S. defense strategy in a particularly worrisome way. It is true that other actors—Russia, Iran, North Korea, and even non-state groups like Hezbollah—are also fielding guided munitions and could employ them in creative ways to undermine U.S. military operations, but China is leading the pack. Therefore it is reasonable for defense planners to focus on the kinds of operational challenges the People's Liberation Army may pose, as the underlying technologies will rapidly proliferate to other actors.⁸

If the emerging consensus is correct that the Cold War offset strategy—embracing the shift to guided weapons—is no longer a sufficient means to sustain U.S. military-technical advantage, what then can serve as a basis for prudent defense strategy and force development efforts? This is clearly the question Hagel and Work have asked of Pentagon planners. “As we see [U.S. military-technical] advantages begin to erode,” Hagel said in his Newport speech, “I've asked Bob [Work] to move forward with an initiative to develop a third, game-changing offset strategy.” He identified Under Secretary of Defense for Acquisition, Technology, and Logistics, Frank Kendall as the point person for “assuring our technological edge through the next several decades” and announced plans for a new Long-Range Research & Development Planning Program to work towards that goal. The name of this initiative—the Long-Range Research & Development Planning Program (LRRDPP)—is notable, as it is exactly the same as the task force William Perry stood up in the late 1970s that led to the United States moving decidedly into the guided weapons regime.

⁷ Secretary of Defense Chuck Hagel, *Speech to Southeastern New England Defense Industry Alliance* (September 3, 2014).

⁸ See Michael Horowitz, *The Diffusion of Military Power: Causes and Consequences for International Politics* (Princeton University Press, 2010).

But how should the new LRRDPP proceed? In order to properly begin to develop a new offset strategy it is critical that the Pentagon resist the powerful temptation to think first about technologies and then about strategy. Officials must first be very clear about the military problem they are attempting to solve. To me, the basic question is something like the following: How will the U.S. military deter and defeat an adversary that has guided munitions parity? Components of an answer would need to explore many issues, such as how to defend against long-range guided munitions at favorable cost-exchange ratios, ensure U.S. aircraft carriers can project strike power beyond adversary missile ranges, and maintain resilience in our own guided munitions and battle networks as plausible adversaries develop ways to contest and degrade U.S. command-and-control links. Dominance in emerging areas of competition will also be crucial, particularly those powered by information technology. Superiority in cyberspace is likely to be a prerequisite to successful military operations in other domains.

I suspect that a critical component of addressing the challenges our forces will face in an era of guided munitions parity will revolve around fully harnessing the possibilities inherent in unmanned and increasingly autonomous (robotic) systems. From a certain perspective, guided munitions are very simple robotic systems.⁹ Over time, as computing power increases, the “smarts” behind smart weapons will grow. We have only scratched the surface of what unmanned and increasingly autonomous systems will make possible. Robotics is also another area where commercial and industrial investment outpaces military spending, requiring a different model for staying ahead. Unlike microprocessor technology of the 1970s, the underlying technologies behind advanced robotics will be widely available, meaning the Department of Defense must have the ability to rapidly import commercial sector innovations and quickly develop new concepts of operation for employing robotic systems.

There are undoubtedly many issues that Pentagon planners — and the defense community more broadly — ought to tackle as part of developing a new offset strategy. Beyond fully exploiting unmanned and autonomous systems, we need to determine how to employ emerging technologies like directed energy (critical for sustainable defense against salvos of guided missiles) and improved power systems and storage (to harness the potential of robotic systems to stay in the air or under the ocean for long periods of time).

There are also critical strategy and policy questions that must be integrated into Pentagon efforts. As one example, officials must not forget that the offset strategy of the late 1970s had two key components: identifying and investing in emerging game-changing technologies; and ensuring these technologies did not fall in Soviet hands.¹⁰

⁹ I thank my CNAS colleague Paul Scharre for this insight. See also Scharre's recent CNAS reports, *Robotics on the Battlefield: Range Persistence and Daring* (May 2014) and also *Robotics on the Battlefield: The Coming Swarm* (October 2014).

¹⁰ Former DEPSECDEF Ash Carter has written that the Cold War-era offset strategy had two components: “The first was to field superior technology through aggressive pursuit of military R&D, and developing a high-technology defense industrial base. The second was to deny opponents that technology through a system of export controls and protection of technological secrets.” See Ash Carter, “*Keeping the Technological Edge*,” in *Keeping the Edge: Managing Defense for the Future*, Ash Carter and John White (eds), (Cambridge MA: MIT Press, 2000).

Like the Cold War offset strategy, today's effort needs to identify and invest in emerging technologies. But, unlike the offset strategy of the late 1970s, the Pentagon needs to focus on ensuring that more of our capabilities are accessible to key U.S. allies and partners. In a world where advanced technologies are widely available and proliferating rapidly, the United States requires a more liberal approach to exporting defense technologies.

Another strategy question to integrate into the LRRDPP effort is examining how the technologies under consideration might affect what analysts call "crisis stability." For instance, one important implication of the guided weapons regime is that it favors offensive warfare, as defending against long-range precision strikes is extremely difficult. This makes the developing military tensions in the Asia-Pacific all the more concerning. As actors like China approach (or perceive themselves to be approaching) something like guided munitions parity with the United States, it may create a "use or lose" dynamic with respect to each actor's precision munitions and battle networks. This dynamic will get worse as more actors in Asia invest in guided munitions and maintaining crisis stability becomes far more difficult. We must explore and plan for the strategic implications of the force development efforts that a "third offset strategy" will spur.

The challenges associated with developing a new strategy to secure U.S. military-technical superiority are many. Budgets are tight, resources scarce, and defenders of the status quo have strong constituencies. Given the top-cover established by the Pentagon's senior leadership however, I am optimistic that Pentagon planners and the broader defense community are poised to articulate a vision of military-technical supremacy that will guide U.S. defense strategy and force development in the decades ahead.

Biography

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Shawn Brimley is Executive Vice President and Director of Studies at the Center for a New American Security (CNAS). Mr. Brimley served in the Obama Administration from February 2009 to October 2012 most recently as Director for Strategic Planning on the National Security Council staff at the White House. He also served as Special Advisor to the Under Secretary of Defense for Policy at the Pentagon from 2009 to 2011, where he focused on the 2010 Quadrennial Defense Review, overseas basing and posture, and long-range strategy development. He has been awarded the Secretary of Defense Medal for Outstanding Public Service and the Office of the Secretary of Defense Medal for Exceptional Public Service. Mr. Brimley was a founding member of CNAS in 2007 and was the inaugural recipient of the 1Lt. Andrew Bacevich Jr. Memorial Fellowship. He has also worked at the Center for Strategic and International Studies.

Mr. Brimley has published widely, including in *The New York Times*, *Foreign Affairs* and *Foreign Policy*. Educated at Queen's University and George Washington University, Mr. Brimley is a term member of the Council on Foreign Relations. He lives in Washington with his wife and their three children.