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EDITOR's NOTE

Welcome to Issue 3, Volume 3 of National institute's online *Journal of Policy & Strategy*—a quarterly, peer-reviewed publication. In this issue, under the heading "Analysis," readers will find enlightening articles by Jacob Blank, Michaela Dodge, Kathleen Ellis, Gary Geipel, and Keith Payne. These articles focus on diverse topics, including extended deterrence, the reignited debate about U.S. nuclear threats for deterrence, strategic culture and missile defense, China's worldview, and Washington's "post-truth" culture. This issue also includes an informative and thoughtful interview with the J8 Director at U.S. Strategic Command, Robert Taylor. It focuses on a wide range of topics including, China's rise, challenges related to the opacity of China's strategic build up, risks related to Russia's nuclear coercion, growing uncertainties in the strategic environment, and the importance of nuclear weapon modernization.

This issue of the *Journal of Policy & Strategy* also provides proceedings from National Institute's monthly online symposia, "webinars" moderated by David Trachtenberg. These proceedings are drawn from three different symposia that collectively focused on: the 2022 Missile Defense Review, Lessons Learned from Russia's Invasion of Ukraine, and, The "Grand Illusion" of Disarmament. This issue's "Literature Review" feature includes three helpful book reviews: David Trachtenberg's review of Jim Popkin's *Code Name Blue Wren: The True Story of America's Most Dangerous Female Spy*; Michaela Dodge's review of *Putin's Wars: From Chechnya to Ukraine* by Mark Galeotti; and, Matthew Costlow's review of *China's Emergency as a Second Nuclear Peer: Implications for U.S. Nuclear Deterrence Strategy* from the Center for Global Security Research (CGSR) Study Group.

The "Documentation" in this issue includes excerpts from the House and Senate versions of the FY 2024 National Defense Authorization Act, and the 2010 prepared statements by Amb. Robert Joseph and Dr. Keith Payne regarding the New START Treaty before the Senate Foreign Relations and Senate Armed Services Committees, respectively.

Finally, this issue's "From the Archive" feature is a 1983 essay by Herman Kahn on arms control and active defense. This essay, now four decades old, illustrates the continuity of fundamental issues in the U.S. strategic policy and arms control debates.

We continue to strive to make each issue of the *Journal of Policy & Strategy* worthwhile and hope readers will find every article and feature in this issue of the *Journal of Policy& Strategy* valuable.

ANALYSIS

THE REJECTION OF INTENTIONAL POPULATION TARGETING FOR "TRIPOLAR" DETERRENCE

Keith B. Payne

Introduction

The basic principles of deterrence among nations do not change—a threat is declared but withheld for the purpose of persuading an opponent not to take an action for fear of that threat. Deterrence ultimately is intended to affect an opponent's behavior by shaping its decision making in this fashion. This does not imply physical control over the opponent or its territory; deterrence is intended to persuade the opponent to weigh the prospective costs and benefits of its options and to decide against the unwanted action.

The principles of deterrence endure, but how they are applied must adapt to any given situation. For more than six decades, two fundamentally different narratives regarding U.S. nuclear deterrence policy have competed in the public debate for policy primacy.[1] A key difference separating these two narratives is centered on the type of nuclear threat the United States should declare to help deter attacks on the U.S. homeland and on allies. Which narrative might guide U.S. policy is significant because each mandates different U.S. force postures and expressed threats; each establishes different adequacy standards for determining "how much is enough" to deter. Perhaps more importantly, each likely provides different levels of deterrence effectiveness for preventing war.

Those engaged in this debate have been referred to as "The Wizards of Armageddon" and the "Nuclear Priesthood"; their work often is filled with arcane jargon and acronyms. However, when stripped of the specialized language, the basic arguments underlying these competing narratives are not complex and have changed very little over the past six decades.

A basic tenet of one of these narratives is that the targets the United States should intentionally threaten for deterrence effect should be, or include, an opponent's cities and civilian population.[2] This type of threat traditionally has been referred to as a punitive, "countervalue" approach to deterrence. With this approach, the adequacy of U.S. forces for strategic deterrence can be calculated easily by identifying the number and types of weapons needed to threaten retaliation against some selected set of an opponent's cities.

This article is adapted from Keith B. Payne, *The Rejection of Intentional Population Targeting for "Tripolar" Deterrence*, *Occasional Paper*, Vol. 3, No. 9 (Fairfax, VA: National Institute Press, September 2023).

[1] For an explanation of the assumptions and logic of these two different narratives, see Keith Payne, *Shadows on the Wall: Deterrence and Disarmament* (Fairfax, VA: National Institute Press, 2020), Chapter 2.

[2] Most recently, Keir A. Lieber and Daryl G. Press have recommended that targeting population *be added* to U.S. deterrence planning. See, "US Strategy and Force Posture for an Era of Nuclear Tripolarity," *Issue Brief*, Atlantic Council, April 2023.

In contrast, an alternative narrative is that the U.S. deterrent threat should focus on an opponent's military capabilities and tools of power—and avoid intentionally targeting cities. This traditionally has been called a "counterforce" approach to deterrence. It sets up a more demanding standard for the adequacy of U.S. nuclear forces for deterrence because the targets typically are more numerous and less easily held at risk.

There are, of course, variations on these two basic narratives. But, whether an opponent's cities and population should intentionally be *threatened with destruction*, or *intentionally avoided in favor of counterforce-oriented targets*, has been and remains a fundamental divide in the public debate regarding the determination of "how much is enough" for deterrence. This debate is important because it informs the interested public, and much of Congress, on the subject.

A countervalue approach to U.S. deterrence policy perhaps is best illustrated by Secretary of Defense Robert McNamara's 1964 *declared* policy that nuclear deterrence should include a threat to destroy 20 to 25 percent of the Soviet population and 50 percent of the Soviet industrial base.[3] Secretary McNamara dubbed this an "assured destruction" deterrence threat, which he presented as the adequacy standard for U.S. strategic nuclear forces and described as the "very essence of the whole deterrence concept."[4] (It must be noted that while McNamara declared a countervalue deterrence policy before Congress and the public, less openly he also said that the United States had more limited targeting options,[5] and that in the event of war, U.S. nuclear weapons would not necessarily be employed according to his "assured destruction" guidelines.)[6]

The alternative counterforce approach to deterrence policy—and the rejection of intentional population targeting—was perhaps best illustrated two decades later when Secretary of Defense Caspar Weinberger stated that the United States did not plan to "attack deliberately the Soviet population,"[7] and that U.S. deterrence strategy "…consciously does not target population and, in fact, has provisions for reducing civilian casualties."[8] Instead, "…secure deterrence should be based on the threat to destroy *what the Soviet leadership*

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[3] See, Alain C. Enthoven and K. Wayne Smith, *How Much Is Enough?* (New York: Harper & Row Publishers, 1971), p. 175; and, Robert McNamara, *Draft Memorandum for the President, Secretary of Defense to the President [Lyndon B. Johnson],* Subj: Recommended FY 1966-FY 1970 Programs for Strategic Offensive Forces*, Continental Air and Missile Defense Forces, and Civil Defense*, December 3, 1964, p. 4 (Sanitized and declassified on January 5, 1983).

[4] Robert S. McNamara, *The Essence of Security: Reflections in Office* (New York: Harper and Row, 1968), pp. 52-53.

[5] See, Franklin Miller, "Tailoring U.S. Strategic Deterrent Effects on Russia," in Barry Schneider and Patrick Ellis, eds., *Tailored Deterrence* (Maxwell Air Force Base, AL: USAF Counterproliferation Center, 2011), pp. 41-56.

[6] See, *Draft Memorandum for the President, Secretary of Defense [Robert S. McNamara] to the President [Lyndon B. Johnson]*, Subj: Recommended FY 1965-FY 1969 Strategic Retaliatory Forces, December 6, 1963, p. I-12. (Originally classified; sanitized and declassified on January 5, 1983); and, *Draft Memorandum for the President, Secretary of Defense [Robert S. McNamara] to the President [Lyndon B. Johnson]*, Subj: Strategic Offensive and Defensive Forces, January 15, 1968, p. 9. (Originally classified; sanitized and declassified on January 5, 1983).

[7] Caspar Weinberger, "U.S. Defense Strategy," *Foreign Affairs*, Vol. 64, No. 4 (Spring 1986), pp. 680-681.

[8] Caspar Weinberger, *The Potential Effects of Nuclear War on Climate: A Report to the United States Congress* (Washington, D.C.: Government Printing Office, 1985), p. 11.

values most highly: namely, itself, its *military power and political control* capabilities, and its industrial ability to wage war."[9]

The key observation by Secretary Weinberger that U.S. deterrence threats should focus on what the opponent "values most highly," and for Moscow's leadership that meant military power and political control, extended a theme in U.S. deterrence policy initiated by his predecessors in the Department of Defense, James Schlesinger and Harold Brown. This shift in declared deterrence policy has continued to the present under every Republican and Democratic administration.

The reasons for this decades-long, bipartisan evolution in the official descriptions of U.S. deterrence policy—from McNamara's "assured destruction" to counterforce—were explained extensively by the Nixon, Carter and Reagan Administrations. The sound reasons for this evolution away from intentional countervalue targeting should be well-known by now. But, they often seemingly are ignored or dismissed in many academic commentaries that continue to suggest that the U.S. deterrence policy is or should be based—in whole or part—on intentionally threatening opponents' cities and populations.[10]

This study provides an assessment of the arguments presented by advocates for intentionally targeting an opponent's population as an element of U.S. deterrence policy and, by doing so, elaborates the reasons why Washington has, for decades and on a bipartisan basis, *rejected* a countervalue-oriented deterrence.

Threatening an Opponent's Cities and Population

Advocacy for intentionally threatening an opponent's population and cities, i.e., countervalue deterrence, can be seen in many commentaries over the past six decades. The various basic arguments intended to advance this policy position have remained constant and can be summarized concisely.

First is the fundamental contention that threats to cities and population will provide the desired *deterrent effect with relatively modest force requirements*: "…a 'counter-value' strategy that targets population centres and perhaps a few regime-specific strategic targets per opponent is sufficient to deter prospective nuclear opponents."[11] Such comments simply repeat Secretary McNamara's many earlier confident expressions—referencing the Soviet population—that, "I believe that a clear and unmistakable ability to inflict 20-30% Soviet

[9] Weinberger, "U.S. Defense Strategy," op. cit., p. 682. (Emphasis added.) See also, Caspar Weinberger, U.S. Senate, Committee on Foreign Relations, *U.S. Strategic Doctrine*, Hearings, 97th Congress, 2nd Session (Washington, D.C.: Government Printing Office, 1983), pp. 14-22. (Emphasis added.)

[10] See the discussion in, David Trachtenberg, "Mischaracterizing U.S. Nuclear Deterrence Policy," *Information Series*, No. 542 (December 14, 2022), available at https://nipp.org/information_series/david-j-trachtenberg-mischaracterizing-u-s-nuclear-deterrence-policy-the-myth-of-deliberate-civilian-targeting-no-542-december-14-2022/.

[11] Ted Seay, *Minimum Deterrence: Examining the Examination*, British American Security Information Council, September 4, 2013, available at http://www.basicint.org/blogs/2013/09/minimum-deterrence-examining-examination.

fatalities will deter a deliberate Soviet attack on the U.S. or its allies."[12] The underlying presumption is that any rational opponent will be deterred by a countervalue threat that demands a predictably limited number of nuclear forces.

Why does such a deterrent threat entail relatively modest force requirements? Because cities generally are not large in number, and are soft, easily targeted and highly vulnerable to nuclear attack. Advocates differ on the number of an opponent's cities that need to be threatened with destruction. For example, relatively early in the Cold War, a prominent commentator at the time observed: "Would the Soviets be deterred by the prospect of losing ten cities? Or two cities? Or fifty cities? No one knows, although one might intuitively guess that the threshold is closer to ten than to either two or fifty."[13] More recently, a prominent commentary suggested threatening 50 Russian cities with destruction to be the adequacy standard.[14] Correspondingly, it argued that much of the existing and planned U.S. nuclear force posture should be eliminated.[15] In short, the number of U.S. weapons needed for deterrence, according to advocates of countervalue deterrence, typically range from "several second-strike nuclear weapons" to "hundreds."[16]

Whether the nuclear threat is to two or 50 cities, because the number of an opponent's major cities does not increase rapidly or at all, the United States could essentially rest with its arsenal once it acquired the relatively modest capability needed to threaten an opponent's cities. There would be little need to constantly improve/increase U.S. nuclear capabilities. This first contention, understandably, is very attractive: Countervalue deterrence would provide effective U.S. deterrence with modest U.S. nuclear force requirements.

A corresponding argument is that, *unlike* a countervalue-oriented deterrent, a U.S. counterforce threat demands large force numbers and "destabilizes" a mutual deterrence relationship by causing opponents to fear for the pre-emptive destruction of their own deterrent forces—thus giving them an incentive to strike first lest they lose their deterrent in a U.S. "first strike."[17]

A third claimed advantage also is related to the first: A modest nuclear force requirement implies that the cost for U.S. nuclear weapons can be correspondingly modest. Capabilities beyond that needed to threaten cities and population are deemed "overkill" and a waste of scarce defense resources. In short, countervalue deterrence is said to be uniquely undemanding, stabilizing, and inexpensive.

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[12] *Draft Memorandum for the President, Secretary of Defense [Robert S. McNamara] to the President [Lyndon B. Johnson*], Subj: Recommended FY 1968-FY 1972 Strategic Offensive and Defensive Forces, November 9, 1966, p. 9. (Originally classified; sanitized and declassified on January 5, 1983.)

[13] Glenn Snyder, *Deterrence and Defense: Toward a Theory of National Security* (Princeton, NJ: Princeton University Press, 1961), p. 57.

[14] William J. Perry and Tom Z. Collina, *The Button* (Dallas, TX: BenBella Books, 2020), p. 119.

[15] Ibid., pp. 117-123.

[16] For a list of such "counter-city" recommendations over many years see, Keith B. Payne and James R. Schlesinger, *Minimum Deterrence: Examining the Evidence* (Fairfax, VA: National Institute Press, 2013), pp. 4-5.

[17] For an early discussion of this concern see, Thomas Schelling, *The Strategy of Conflict* (Cambridge, MA: Harvard University Press, 1960), pp. 233-234, 236, 239. More recently, see, Lieber and Press, "US Strategy and Force Posture for an Era of Nuclear Tripolarity," op. cit., pp. 3, 9.

Fourth, countervalue advocates also argue that, as a consequence of an "easy" set of targets and corresponding modest force requirements, a countervalue deterrence policy is said to be uniquely compatible with arms control. Because the United States can retain its deterrent force needs at lower force levels, Washington can engage in arms control limits and reductions without jeopardizing its deterrence posture. It can reduce its nuclear forces as an example for others to follow.

Along these lines, a countervalue-oriented deterrent has been described as likely to help prevent a "spiraling arms race."[18] How so? Because the United States can largely avoid further force increases and need not continually expand its arsenal, opponents need *not* feel compelled to increase *their* force levels in response to U.S. increases. This condition is said to create a "stable" arms and deterrence relationship in which there is no "action-reaction" dynamic driving an arms race, i.e., no U.S. moves compel opponents to increase their own arsenals in a "spiraling arms race." As Herbert Scoville, former Deputy Director of the CIA and Assistant Director of the Arms Control and Disarmament Agency, asserted along these lines, "…in such a climate there would be little excuse for the Russians to continue building additional ICBM sites. In a situation of stable, frozen deterrence, they would not be needed."[19]

Finally, in an apparent attempt to defend the morality of intentionally threatening an opponent's cities and population, advocates of doing so assert that the level of civilian death and destruction is not meaningfully different whether cities are targeted intentionally or an opponent's military installations are the targets of U.S. deterrence threats; because military targets and residential concentrations often are co-located, a meaningful number of innocent lives essentially would *not be spared* whether a countervalue or counterforce deterrent is planned.[20]

For six decades, these claimed advantages—effective deterrence, modest force/spending requirements, improved prospects for arms control, a stable arms relationship with opponents, and no greater "collateral damage"—have constituted the arguments for basing U.S. deterrence on threatening cities and populations. Correspondingly, they have been the basis for the largely academic criticisms of the evolution of U.S. policy *away* from McNamara's declared "assured destruction," countervalue targeting.[21] These arguments are simple to understand, which helps to explain their longevity over generations. Indeed, every new generation of commentators repeats them in the apparent belief that they are fresh, new thinking for their time.

A key point to note is that these purported advantages largely follow from the contentions that threatening cities and population would: 1) provide effective deterrence at

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[18] Ibid., pp. 2, 3, 12, 13.

[19] Herbert Scoville, "Next Steps in Limiting Strategic Arms," *Bulletin of the Atomic Scientists*, Vol. 28, No. 3 (March 1972), p. 11.

[20] Lieber and Press, "US Strategy and Force Posture for an Era of Nuclear Tripolarity," op. cit., pp. 3, 6, 11. See also, Federation of American Scientists, Natural Resources Defense Council, and Union of Concerned Scientists, "Toward True Security," Union of Concerned Scientists (Cambridge, MA: February 2008), pp. 17-18, available at http://www.ucsusa.org/assets/documents/nwgs/toward-true-security.pdf; and, Wolfgang Panofsky, "The Mutual Hostage Relationship Between America and Russia," *Foreign Affairs*, Vol. 51, No. 5 (October 1973), pp. 110-113.

[21] See for example, Seymour Melman, "Limits of Military Power," *The New York Times*, October 17, 1980, p. A-31.

relatively lower force requirements; and, 2) allow the United States essentially to refrain from adding further to its nuclear arsenal once that standard is met, and thereby foster arms limitation. Given these projected advantages, it may be asked why the United States, on a fully bipartisan basis, has *moved away* from a countervalue approach to deterrence for more than four decades?

Why Not a Countervalue Deterrence Strategy?

For decades, the evolution of U.S. declarations regarding deterrence policy has emphasized that the nuclear threat intended to deter Moscow is *not* based on an intentional threat to destroy Russian cities and population and, indeed, that U.S. targeting would seek to *avoid* cities. There are strategic, legal and moral reasons for rejecting countervalue deterrence in favor of counterforce. These, too, have been consistent for decades and *continue to apply fully in the contemporary "tripolar" deterrence context in which the United States and allies face aggressive threats from two authoritarian, great powers, Russia and China*.

Inadequate Deterrent Effect

First is the underlying conclusion, noted above, that an effective U.S. deterrent threat must hold at risk what opponents value most. Any threat of lesser consequence could lead the opponent to believe that, under some circumstances, the "cost" of its aggression could be tolerable—and thus would *not be deterred*. As the "Scowcroft Commission" reported in 1983: "Deterrence is the set of beliefs in the minds of the Soviet leaders, given their own values and attitudes… It requires us to determine, as best we can, what would deter them from considering aggression, even in a crisis—not to determine what would deter us."[22] For more than four decades, U.S. policy has been guided by the conclusion that, in this context, what Moscow values most highly includes its military power and political control assets.[23] These must be held at risk for deterrence.

Approximately a decade earlier, in what became known as the Schlesinger Doctrine, Secretary of Defense James Schlesinger revised McNamara's definition of "assured destruction" to include multiple graduated threat options and the threatened "destruction of the political, economic, and military resources" critical to the Soviet Union.[24] This was done, in part, because U.S. national security leaders concluded that Moscow was *highly unlikely to believe* that the United States actually would engage in McNamara's assured destruction

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[22] *Report of the President's Commission on Strategic Forces* (Washington, D.C.: The White House, April 1983), p. 3, available at http://web.mit.edu/chemistry/deutch/policy/1983-ReportPresCommStrategic.pdf.

[23] See for example, Ibid., p. 6.

[24] See for example, National Security Council, *National Security Decision Memorandum-242, Policy for Planning the Employment of Nuclear Weapons*, January 17, 1974, p. 2. (Declassified February 20, 1998.)

threat when the destruction of Russian cities on behalf of allies would likely ensure the destruction of U.S. cities.[25]

That is, nuclear deterrence is dependent on an opponent's belief that, following some extreme provocation, the United States might well respond with nuclear weapons. Yet, deliberate U.S. population targeting *was deemed unlikely to provide credible deterrence in many plausible circumstances, particularly in response to attacks on allies*.[26] This concern has been acknowledged by U.S. and allied leaders for decades as a reason not to rely on countervalue threats for deterrence.[27] As Secretary Schlesinger noted at the time, nuclear deterrence threats on behalf of allies, "demand[s] both more limited responses than destroying cities and advanced planning tailored to such lesser responses."[28]

The now-declassified 1974 Nuclear Weapons Employment Policy (NUWEP), corresponding to the Schlesinger Doctrine, stated explicitly, "It is not the intent of this policy guidance to target civilian population per se. Accordingly, planning directed toward the above objectives will not include residential structures as objective targets…. Every reasonable effort will be made to limit attacks in the vicinity of densely populated areas."[29] Here was a direct repudiation of McNamara's population fatalities metric for determining "how much is enough" for deterrence. The Schlesinger Doctrine redefined the adequacy of the earlier U.S. "assured destruction" threat to focus instead on Moscow's military capabilities, internal political control, and post-war recovery.[30]

Shortly thereafter, President Carter's Secretary of Defense, Harold Brown, and other U.S. senior leaders directly addressed the question, "What does it take to deter?" and emphasized that, "…we are trying to deter the Soviet leaders from aggressive actions and specifically from nuclear war. We therefore need to form a judgment on what it is that is so valuable to them that they would be left in no doubt that, whatever kind of nuclear attack they might launch, the U.S. response would leave them worse off in terms of those assets that they consider valuable…it is important for U.S. forces to be able to threaten retaliation against the assets

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[25] In 1979, Henry Kissinger pointed publicly to the incredibility of a massive U.S. nuclear deterrence threat on behalf of allies. See for example, "The Future of NATO," in, *NATO, The Next Thirty Years*, Kenneth Myers, ed. (Boulder, CO: Westview Press, 1981), p. 8.

[26] See *NSSM-169*, (1973 "Foster Committee"; Declassified 1997). At, *Foreign Relations of the United States: 1969-1976*, Vol XXXV, *National Security Policy 1973-1976*, Department of State (Washington, D.C.: USGPO, 2014), pp. 19-20, 49-82, available at https://static.history.state.gov/frus/frus1969-76v35/pdf/frus1969-76v35.pdf.

[27] The corresponding case for "discriminate" U.S. deterrence options has been voiced for decades. See for example, The Commission on Integrated Long-Term Strategy (Chaired by Fred Iklé and Albert Wohlstetter), *Discriminate Deterrence* (Washington, D.C.: USGPO, 1988), p. 2.

[28] See James Schlesinger, *Annual Defense Department Report, FY 1975* (Washington, D.C.: Government Printing Office, March 4, 1974), p. 38.

[29] Department of Defense, Office of the Secretary of Defense, *Policy For The Employment Of Nuclear Weapons*, April 3, 1974, pp. 5, 7.

[30] See the discussion in, Donald Rumsfeld, *Annual Defense Department Report FY 1978* (Washington, D.C.: Government Printing Office, January 17, 1977), p. 68. See also, William R. Van Cleave and Roger Barnett, "Strategic Adaptability," *Orbis*, Vol. 28, No. 3 (Fall 1974), p. 666.

that the Soviet leaders appear to prize…"[31] and, "…what the Soviets consider most important to them."[32] As already noted, this was determined to include most prominently, "their nuclear and conventional forces and the hardened shelters that protect their political and military control centers, as well as their own lives."[33] The Carter Administration's pertinent 1978 *Nuclear Targeting Policy Review* also expressed skepticism about the deterrence effectiveness of threatening to destroy "large amounts of Soviet population and industry" especially in scenarios of less than full-scale nuclear war. [34]

The Carter Administration's related nuclear policy direction was contained in the now-declassified Presidential Directive-59.[35] It extended and expanded the policy evolution, advanced earlier by the Schlesinger Doctrine, to increase the flexibility of U.S. nuclear employment planning and provide U.S. deterrence options specifically geared to the priorities and values of the Soviet leadership. In short, based on a series of then-classified studies on the subject,[36] likely the first of their kind, the Carter Administration concluded that targeting flexibility and threatening Soviet military capabilities and tools of power were keys to effective, credible deterrence.[37]

Secretary of Defense Weinberger, expanding further on this theme (and in direct rejection of countervalue deterrence) observed: "We disagree with those who hold that deterrence should be based on nuclear weapons designed to destroy cities rather than military targets. Deliberately designing weapons aimed at populations *is neither necessary nor sufficient for deterrence*."[38] He went on to affirm that a countervalue threat would not likely provide credible deterrence, especially for the protection of U.S. allies, and that the United States sought *not* to maximize the threat to cities, *but to avoid such targeting*.[39]

This aligning of U.S. deterrence strategies to an opponent's values and circumstances so as to best support the deterrence of war is the meaning of "tailored deterrence."[40] The 2018

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[31] See, the prepared statement by Harold Brown in, United States Senate, Committee On Armed Services, Hearing, *MX Missile Basing System And Related Issues*, 98th Congress, 1st Session (Washington, D.C.: USGPO, 1983), pp. 6-7. See also, R. James Woolsey, "US Strategic Force Decisions for the 1990s," *Washington Quarterly*, Vol. 12, No. 1 (Winter 1989), p. 82.

[32] See, the testimony by Harold Brown in, U.S. Senate, Committee on Foreign Relations, *Nuclear War Strategy*, Hearings, 96th Congress, 2nd Session (Top Secret hearing held on September 16, 1980; sanitized and printed on February 18, 1981). (Washington, D.C.: USGPO, 1981), p. 10.

[33] Brown, *MX Missile Basing System And Related Issues*, op. cit., p. 7.

[34] See, the declassified summary of the 1978 Department of Defense, *Nuclear Targeting Policy Review,* led by Leon Sloss, p. 3, available at https://nsarchive.gwu.edu/sites/default/files/documents/6144730/National-Security-Archive-Doc-28-U-S-Department.pdf.

[35] Presidential Directive/NSC-59, *Nuclear Weapons Employment Policy*, July 25, 1980, available at https://fas.org/irp/offdocs/pd/pd59.pdf.

[36] See, Harold Brown's summary in, ***Nuclear War Strategy***, op. cit., pp. 8–11. See also, Leon Sloss and Marc Dean Millot, "U.S. Nuclear Strategy in Evolution," *Strategic Review*, Vol. 12, No, 1 (Winter 1984), p. 24.

[37]See the testimony by Secretary Brown and the "Administration's Responses to Questions Submitted Before the Hearing," in, *Nuclear War Strategy,* op. cit., pp. 10, 16, 25, 29-30.

[38] Caspar Weinberger, *Department of Defense Annual Report to Congress, Fiscal Year 1985* (Washington, D.C.: Government Printing Office, February 1, 1983), p. 55. (Emphasis added.)

[39] Ibid. (Emphasis added.)

[40] For the earliest post-Cold War elaboration on the need to "tailor deterrence" see, Keith Payne, *Deterrence in the Second Nuclear Age* (Lexington, KY: University Press of Kentucky, 1996), pp. 125-129.

Nuclear Posture Review continued to apply this deterrence policy principle. For example, it concluded regarding North Korea, "For North Korea, the survival of the Kim regime is paramount. Our deterrence strategy for North Korea makes clear that any North Korean nuclear attack against the United States or its allies and partners is unacceptable and will result *in the end of that regime*."[41]

Here, then, is the first reason every Republican and Democratic administration for more than four decades has rejected a countervalue approach to deterrence in favor of counterforce-oriented approaches: Threatening population is unlikely to hold at risk what America's authoritarian opponents value most, i.e., their military power, political control and, possibly, their own lives. Their general populations consist of instruments of the state. In such cases, intentionally threatening the general civil population is unlikely to be as effective a deterrence strategy. This point appears to warrant the rejection of such threats as the basis for deterrence in those cases most pertinent to U.S. deterrence goals.

The countervalue advocates' corresponding, long-standing argument—that a counterforce-oriented deterrent could fatally "destabilize" deterrence—misses two points. First, such an approach *does not demand* the level of capabilities that would be required to threaten the survivability of the Soviet (now Russian) or Chinese deterrent. On those many occasions when U.S. leaders have explained the shift away from a countervalue deterrent, they have emphasized that the capability to destroy the opponent's deterrent is not a U.S. goal and is not possible, and have proactively limited U.S. forces to make those points manifest for any opponent to see.[42] Secretary Schlesinger, for example, was clear in this regard: "…we do not have and cannot acquire a disarming first-strike capability against the Soviet Union. In fact, it is our decided preference that neither side attempt to acquire such a capability."[43]

A second point in this regard is that the United States has emphasized publicly for more than four decades that its approach to deterrence includes counterforce options and rejects the intentional targeting of cities. While it is not possible to claim full knowledge of the effect this had, and now has on Russian or Chinese incentives to launch nuclear weapons, there has been little or no indication for nearly a half century that this evolution of U.S. policy has destabilized deterrence; nuclear deterrence appears to have held through crises and regional conflicts. This history over decades does not "prove" that a U.S. counterforce-oriented deterrent holds no potential to destabilize deterrence, but the burden of proof now surely is on those countervalue advocates who claim with such certainty that it does so.

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[41] Department of Defense, Office of the Secretary of Defense, *Nuclear Posture Review*, February 2018, pp. 31, 33, available at https://media.defense.gov/2018/Feb/02/2001872877/-1/-1/1/EXECUTIVE-SUMMARY.PDF. (Emphasis added.)

[42] See, for example, statements by Harold Brown and Gen. Brent Scowcroft in, *MX Missile Basing System And Related Issues*, op. cit., pp. 17-18. See also, *Report of the President's Commission on Strategic Forces*, op. cit., p. 18. These self-limits continue to the present.

[43] James Schlesinger, *Annual Defense Department Report FY 1976 and FY 197T* (Washington, D.C.: Government Printing Office, February 5, 1975), pp. I-15-I-16.

Cost

When in office, Henry Kissinger said that advocates of countervalue targeting cared not about deterrence effectiveness, but only about the approach to deterrence that "guarantees the smallest expenditure," and that he considered the intentional targeting of population to be "the height of immorality."[44] A countervalue deterrence strategy may entail more modest nuclear force requirements and costs, as its advocates claim, and the United States must, of course, be cost-conscious in all its defense spending. But the priority goal is to deter nuclear war to the extent possible, not finding a rationale for the smallest U.S. force posture.

The ultimate price of a countervalue deterrence strategy may well be the fatal degradation of the deterrent effect upon which the United States and its allies rely. And, as Chairman of the Joint Chiefs of Staff Gen. Mark Milley has rightly observed, "The only thing more expensive than deterrence is fighting a war…"[45] Indeed, in the contemporary threat environment, an approach to deterrence at the nuclear level that is less effective in preventing regional wars would likely entail a much *greater need for U.S. and allied capabilities for war at the conventional level*. If so, the non-nuclear force requirements that would attend a countervalue approach to nuclear deterrence would likely overwhelm any prospective savings at the nuclear level.

Legal and Moral Considerations

Democratic and Republican administrations also have emphasized legal and moral reasons for rejecting a countervalue approach to deterrence—with legal reasons for rejecting countervalue deterrence paralleling moral reasons.[46] The intentional destruction of an opponent's cities and population would violate most prominently the principles of distinction and proportionality codified in the Law of Armed Conflict (LOAC) and the Department of Defense's *Law of War Manual*.[47] These legal principles are drawn directly from the Just War Doctrine that has dominated Catholic and Protestant requirements for the just use of force for centuries.[48]

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[44] National Archives, *Nixon Presidential Materials*, NSC Institution Files (H-Files), Box H-108, Minutes of Meetings Verification Panel Minutes, Originals 3-15-72 to 6-4-74. Declassified and available in the Department of State, *Foreign Relations of the United States*, 1969-1976, Vol. XXXV, National Security Policy, 1973-1976 (Washington, D.C.: USGPO, 2014), p. 105.

[45] Quoted in, Joe Gould, *Defense News*, September 15, 2016, available at http://www.defenssenews.com/articles/us-service-chiefs-lament-budget-squeeze.

[46] For an insightful discussion see, Brad Roberts, "Nuclear Ethics and the Ban Treaty," in, Bard Nikolas Vik Steen and Olav Njolstad, *Nuclear Disarmament: A Critical Assessment* (New York: Routledge, 2018), available at https://cgsr.llnl.gov/content/assets/docs/Nuclear-Disarmament-A-Critical-Assessment.pdf.

[47] Office of General Counsel, Department of Defense, *Law of War Manual*, June 2015 (updated July 2023), available at https://media.defense.gov/2023/Jul/31/2003271432/-1/-1/0/DOD-LAW-OF-WAR-MANUAL-JUNE-2015-UPDATED-JULY%202023.PDF.

[48] For a review of the Just War Doctrine and its principles, see, William O'Brien, *The Conduct of Just and Limited War* (New York: Praeger, 1983), pp. 1-70.

The legal and moral principle of distinction mandates that the employment of force distinguish between combatant and non-combatants for the purpose of avoiding intentionally harming the latter. The principle of proportionality requires that any potential unintended civilian harm be justified by the critical need and just reason to strike a target, i.e., proportional to the need to employ force for a just reason. In short, the execution of a countervalue deterrent would purposely violate the legal and moral principle of distinction, and almost certainly the principle of proportionality.

Some advocates of countervalue targeting mistakenly suggest that only "doves" are committed to these legal/moral principles.[49] Whether "hawks" or "doves," within DoD avoiding the targeting of civilian populations and objects has long been taken very seriously and given great credence in planning (including by the author of this article)—it is *not* window dressing or pretense.

Senior U.S. military and civilian officials deeply involved in U.S. deterrence policy and efforts, in both Republican and Democratic administrations, have confirmed the goal of avoiding the targeting of cities.[50] Following the now decades-old targeting reviews, Air Force Maj. Gen. Jasper Welch observed that the United States, "took residential areas off the target list explicitly—and provided even for residential avoidance under certain circumstances, where one would reduce the effectiveness of the strike in order to avoid residential areas."[51] Gen. Bernard Rogers, then Commander in Chief of NATO forces, made precisely the same point regarding U.S. regional nuclear targeting: "I place certain restraints on myself in regard to collateral damage. *I will not fire a nuclear weapon into a city*. I am concerned about those targets that are militarily significant, that we need to strike because it will have an impact on the battlefield, but which are close to cities. I will not strike those targets if a large percentage of civilians are going to be killed."[52]

Extending this fundamental point, the Obama Administration specifically rejected reliance on a countervalue threat for deterrence and said instead that all U.S. plans will "seek to minimize collateral damage to civilian populations and civilian objects. The United States will not intentionally target civilian populations or civilian objects."[53] The Trump Administration's 2020 *Nuclear Employment Strategy of the United States* included the same policy,[54] as did the Biden Administration's 2022 *Nuclear Posture Review*, stating, "…long standing U.S. policy is to not purposefully threaten civilian populations or objects, and the

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[49] Lieber and Press, "US Strategy and Force Posture for an Era of Nuclear Tripolarity," op. cit., p. 11.

[50] See for example, John Harvey, Frank Miller, Keith Payne, Brad Roberts, "Are Belligerent Reprisals Against Civilians Legal?" *International Security*, Vol. 46, Issue 2 (Fall 2021), pp. 166-172.

[51] Quoted in Gregg Herken, *Counsels of War* (New York: Alfred Knopf, 1985), pp. 261-262.

[52] Quoted in, Bob Furlong and Macha Levinson, "SACEUR Calls for Research on a European ABM System," *International Defense Review* (February 1986), p. 151. (Emphasis added.)

[53] See, Department of Defense, *Report on Nuclear Employment Strategy of the United States Specified in Section 491 of 10 U.S.C.*, RefID: 6-9963D19, June 12, 2013, pp. 4-5, available at https://fas.org/blogs/security/2013/06/nukeguidanc/.

[54] See, Department of Defense, *Report on the Nuclear Employment Strategy of the United States-2020* (Specified in Section 491 (a) of Title 10 U.S.C.), available at https://www.nipp.org/wp-content/uploads/2021/10/Final-Documentation-1.1.pdf. For an excellent exposition of this report see, Robert Soofer and Matthew Costlow, "An Introduction to the 2020 Report on the Nuclear Employment Strategy of the United States," *Journal of Policy & Strategy*, Vol. 1, No. 1 (2021), pp. 2-8.

United States will not intentionally target civilian populations or objects in violation of the LOAC." [55]

It is important to note that the frequent assertion by countervalue targeting advocates that there is no meaningful difference in civilian casualty levels entailed by intentional countervalue vs. counterforce targeting strategies almost certainly is wrong. Various studies over decades, including by authors seemingly *opposed to a counterforce-oriented deterrent*, conclude that the intentional targeting of cities and population would likely inflict much higher casualty levels than would counterforce/city avoidance targeting options.[56] The prospect of nuclear war is horrific by any count, but there is a clear potential distinction between intentional countervalue and counterforce targeting in this regard.

A 2001 study by the Natural Resources Defense Council showed that a "countervalue" strike with up to 192 weapons could "approach" 60 million casualties in an exchange with Russia, while a large "counterforce" strike employing approximately 1,300 weapons could inflict 11-17 million casualties.[57] Other studies find the potential for *much higher* casualty levels (including approximately 100 million) from intentional population targeting and *far fewer* casualties in potential counterforce targeting scenarios (possibly including fewer than one million).[58] As Secretary Schlesinger observed, "…one can reduce those collateral mortalities significantly, if that is one of the attacker's objectives."[59]

The consequences of nuclear employment are shaped by many factors, including weather patterns, and how, where, and what types of nuclear weapons are involved, particularly including the elevation of nuclear detonations. But there clearly can be "selective" deterrent options designed to distinguish combatants and non-combatants,[60] particularly including intentionally avoiding residential centers as a critical step. The distinction likely could avoid literally scores of millions of potential casualties. In short, there is a legal/moral difference in this regard that points toward the need for continued U.S. rejection of intentional countervalue targeting—particularly when a counterforce-oriented threat is likely to be more effective as a deterrent.

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[55] Department of Defense, *2022 Nuclear Posture Review* (Washington, D.C.: Department of Defense, 2022), p. 8, available at https://media.defense.gov/2022/Oct/27/2003103845/-1/-1/1/2022-NATIONAL-DEFENSE-STRATEGY-NPR-MDR.PDF.

[56] See for example, Matthew McKinzie, et al., *The U.S. Nuclear War Plan: A Time for a Change* (New York: National Resources Defense Council, June 2001), pp. ix-xi, 125-126; United States Senate, Subcommittee on Arms Control, International Law and Organization of the Committee on Foreign Relations, Hearing, *Briefing* [by Secretary of Defense Schlesinger] *on Counterforce Attacks*, 93rd Congress, 2nd Session, September 11, 1974, pp. 12-22; Congress of the United States, Office of Technology Assessment, *The Effects of Nuclear War*, OTA-NS-89 (Washington, D.C.: USGPO, May 1979), pp. 94-95; and, William Daugherty, Barbara Levi, and Frank von Hippel, "The Consequences of 'Limited' Nuclear Attacks on the United States," *International Security*, Vol. 10, No. 4 (Spring 1986), pp. 3-35. Prominent Yale professor Bruce Russett recommended a "countercombatant" nuclear threat as a deterrence approach that could meet distinction and proportionality principles in practice. See Bruce Russett, "Assured Destruction of What? A Countercombatant Alternative to Nuclear MADness," *Public Policy*, Vol. 22 (Spring 1974), pp. 121-138.

[57] See, McKinzie, et al., *The U.S. Nuclear War Plan: A Time for a Change*, op. cit., pp. x, 125.

[58] United States Senate, *Briefing* [by Secretary of Defense Schlesinger] *on Counterforce Attacks*, op. cit., p. 33.

[59] Ibid., p. 26.

[60] "Selective" counterforce targeting is a term used by Secretary Schlesinger. See, *Briefing on Counterforce Attacks*, op. cit. p. 3.

The potential for escalation to intolerable levels of civilian casualties cannot be removed as a possibility from nuclear or non-nuclear war. But Washington's deterrence policy surely must not lead the way to, and increase the likelihood of, indiscriminate civilian death and destruction—which countervalue targeting surely would do.[61]

Arms Race/Arms Limitation

Finally, the claim that a U.S. countervalue deterrent's more modest force requirements would help stop a prospective action-reaction cycle, and thereby advance arms limitation, is logically plausible. But the evidence of history reveals conclusively that the underlying expectation of an action-reaction dynamic, led by excessive U.S. arms and driving the opponent to similarly excessive arms, misses decades of contrary behavior by Washington and Moscow. This action-reaction thesis, commonly referred to as an objective truth,[62] has been discredited by rigorous studies.[63] The Soviet Union's nuclear expansion, for example, generally was not driven by precursor U.S. nuclear programs.

Independent experts conducted a then-classified, comprehensive study for the Office of the Secretary of Defense entitled, *History of the Strategic Arms Competition: 1945-1972*. The study highlighted the inadequacy of the supposed action-reaction dynamic to explain the history of U.S. and Soviet strategic buildups during the Cold War: "No consistent pattern can be found….*No sweeping generalizations about action-reaction cycles* or inexorable Soviet designs or the momentum of science and technology can survive detailed examination of the sequence of events..."[64] Another rigorous study similarly rejected the action-reaction thesis and instead concluded that Moscow's nuclear arms buildup was largely the result of "self-stimulation."[65]

These studies confirm James Schlesinger's comment that, "The Soviets have proceeded with development of many strategic programs *ahead of rather than in reaction to what the United States has done*,"[66] Donald Rumsfeld's similar observation that, "…it should now be obvious that the Soviets have taken the initiative in a wide range of programs, that restraint on our part (whatever its reason) has not been reciprocated—and is not likely to be,"[67] and

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[61] This is the key point presented in, Albert Wohlstetter, "Bishops, Statemen, and Other Strategists on the Bombing of Innocents," *Commentary* (June 1983), p. 17.

[62] See for example, Walter Pincus, "The First Law of Nuclear Politics: Every Action Brings Reaction," *The Washington Post*, November 28, 1999, p. B-2.

[63] See for example, Albert Wohlstetter, *Legends of the Strategic Arms Race*, USSI Report 75-1 (Washington, D.C.: United States Strategic Institute, September 1974); Colin S. Gray, *The Soviet-American Arms Race* (Farnborough Hants, England: Saxon House, 1976), pp. 12-57; and, *History of the Strategic Arms Competition: 1945-1972*, Part II, Alfred Goldberg, ed., with contributions by Ernest R. May, John D. Steinbruner, and Thomas W. Wolfe (Washington, D.C.: Historical Office, Office of the Secretary of Defense, March 1981), p. 811.

[64] Ibid., pp. 810-811. (Emphasis added.)

[65] Jean-Christian Lambelet, Urs Luterbacher, and Pierre Allan, "Dynamics of Arms. Races: Mutual Stimulation vs. Self-Stimulation," *Journal of Peace Science*, Vol. 4, No. 1 (1979), p. 64.

[66] See Schlesinger, *Annual Defense Department Report, FY 1975*, op. cit., p. 29. (Emphasis added).

[67] Donald Rumsfeld, *Annual Defense Department Report FY 1978* (Washington, D.C: Government Printing Office, January 17, 1977), p. 64.

Harold Brown's famous remark that, "When we build, they build; when we stop building, they nevertheless continue to build"[68]

More recently, critics of U.S. nuclear policy have replayed the familiar action-reaction criticism against the nuclear arms plans initiated by the Obama Administration and continued by the Trump Administration: "…our actions motivate further weapons building on their side, as the action-reaction cycle of nuclear arming spins onward in a replay of the Cold War."[69] Yet, again, the actual history of U.S. and Russian nuclear programs—as numerous Obama Administration officials have emphasized—demonstrates conclusively that Russia's expansive and continuing nuclear buildup was *not preceded* by U.S. causal actions; rather, it was ongoing years prior to the relatively gradual U.S. nuclear modernization program—a program that the Commander of U.S. Strategic Command, Gen. Anthony Cotton, describes as still in its "beginnings."[70] Dr. John Harvey, Principal Deputy to the Assistant Secretary of Defense for Nuclear and Chemical and Biological Defense Programs in the Obama Administration, observed in this regard that the United States "is not a stimulator of the arms race," and called assertions to the contrary "blatant fabrications." He noted that the U.S.-led, action-reaction narrative is a "mantra" that has "not one ounce of credibility."[71]

What is clear now is that Moscow and China arm themselves to support their aggressive, expansionist agendas that are intended to subordinate the West and reorder the international system, not according to a mechanistic "action-reaction" dynamic led by the United States.[72] The U.S. adoption of a countervalue deterrent is hardly likely to moderate their expansionist goals or inspire their interest in reversing their associated arms buildups intended to advance those goals.

In the current nuclear threat environment, Moscow violates arms control agreements with seeming impunity; Russia and China engage in explicit and implicit nuclear threats against the United States and allies, pursue unprecedented nuclear arms buildups, and mock or ignore U.S. pleas for arms control. In this context, the notion that the United States, for

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[68] Quoted in, U.S. Arms Control and Disarmament Agency, *The Soviet Propaganda Campaign Against the US Strategic Defense Initiative* (Washington, D.C.: Arms Control and Disarmament Agency, 1986), p. 8.

[69] David Cortright, "Pope Francis and the U.S. bishops are correct: We cannot engage in a new nuclear arms race," *America: The Jesuit Review*, April 16, 2020, available at https://www.americamagazine.org/politics-society/2020/04/16/pope-francis-and-us-bishops-are-correct-we-cannot-engage-new-nuclear. See also, Michael T. Klare, "Now Is Not the Time to Start an Arms Race," *The Nation*, March 31, 2020, available at https://www.thenation.com/article/world/coronavirus-cold-war-race/.

[70] Quoted in Chris Gordon, "Still 'In the Beginnings' of Nuclear Modernization, STRATCOM Has Low Margin for Delay," *Air & Space Forces Magazine,* September 8, 2023, available at https://www.airandspaceforces.com/strategic-command-modernization-nuclear-forces-delay/.

[71] Dr. John Harvey, quoted in, David Trachtenberg, Michaela Dodge, and Keith Payne, *The "Action-Reaction" Arms Race Narrative vs. Historical Realities*, *Occasional Paper*, Vol. 1, No. 6 (Fairfax, VA: National Institute Press, June 2021), p. 9. See also, Peter Rough and Frank A. Rose, "Why Germany's nuclear mission matters," *Frankfurter Allgemeine Zeitung*, translated by Brookings Institution, June 9, 2020, available at https://www.brookings.edu/blog/order-from-chaos/2020/06/09/why-germanys-nuclear-mission-matters/.

[72] See the lengthy historical study in this regard in, Trachtenberg, Dodge, and Payne, *The "Action-Reaction" Arms Race Narrative vs. Historical Realities,* op. cit.

the sake of an imagined arms control agreement, should now go back to an approach to deterrence that likely does not threaten what these authoritarian opponents value most, and lacks credibility for extended deterrence, is obtuse in the extreme.

In addition, a U.S. counterforce-oriented deterrent may well prove both more credible and effective in precluding opponents' use of nuclear weapons to further their expansionist goals, and also provide a greater incentive for opponents to negotiate at some point. This potential incentive is illustrated well by the response of then Kremlin Chief of Staff and former Defense Minister Sergei Ivanov to Washington's pleas for arms control: "When I hear our American partners say: 'let's reduce something else,' I would like to say to them; excuse me, but what we have is relatively new. They [the United States] have not conducted any upgrades for a long time. They still use Trident [submarine-launched ballistic missiles]."[73] More recently, Russian President Putin emphasized, "that we have more such nuclear weapons than NATO countries. They know about it and never stop trying to persuade us to start nuclear reduction talks. Like hell we will... Because, putting it in the dry language of economic essays, it is our competitive advantage."[74] The United States resting at a countervalue deterrence force posture is hardly likely to inspire such an opponent's interest in negotiations.

This discussion certainly is not to suggest that Washington abandon diplomacy and negotiations, but the priority goal at this point in history is to deter nuclear war. The U.S. priority is meeting the requirements for credible deterrence—not adopting a definition of deterrence force adequacy that instead prioritizes the least U.S. capability for the sake of arms limitations that almost certainly are illusory. As famed American diplomat George Kennan observed of the arms control illusions of the 1930s: "The evil of these utopian enthusiasms was not only, or even primarily, the wasted time, the misplaced emphasis, the encouragement of false hopes. The evil lay primarily in the fact that these enthusiasms distracted our gaze from the real things that were happening."[75]

Tailoring

A recent article repeats the aged contention that the United States should include population targeting in its deterrence policy—essentially for the sake of arms limitation.[76] The authors claim that doing so would reflect the tailoring of deterrence to contemporary "circumstances."[77] In fact, as recommended, doing so would reflect the goal of tailoring U.S. deterrence policy for the purpose of facilitating arms limitation—not to provide the most effective deterrent possible in an increasingly dangerous threat environment. The call for

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[73] "Russia today is not interested in U.S.-proposed arms reduction -Sergei Ivanov (Part 2)" *Interfax*, March 5, 2013, available at https://wnceastview-com.mutex.gmu.edu/wnc/article?id=30010953.

[74] Vladimir Putin's remarks*, Plenary session of the St Petersburg International Economic Forum*, June 16, 2023, available at http://en.kremlin.ru/events/president/news/71445.

[75] George F. Kennan, *Realities of American Foreign Policy* (London: Oxford University Press, 1954), pp. 22-23.

[76] Lieber and Press, "US Strategy and Force Posture for an Era of Nuclear Tripolarity," op. cit., pp. 2, 8, 9, 12, 13.

[77] Ibid., p. 3.

tailoring deterrence in a manner that would likely degrade deterrent effect in order to advance an arms limitation agenda turns the goal of tailoring deterrence—a goal endorsed on a fully bipartisan basis—on its head. The new threat environment, with two hostile, authoritarian great powers issuing nuclear threats, is significantly different from the Cold War bipolar context.[78] It increases the need for tailoring U.S. strategies for optimum deterrent effect but does not change the fundamental differences distinguishing countervalue- and counterforce-oriented approaches to deterrence.

Conclusion

Countervalue advocates continue to repeat aged arguments in favor of targeting population, but generally do not address in any depth the likely disadvantages and regrets of their favored policy. It is not difficult to comprehend the basic reasons why, for decades and on a fully bipartisan basis, the United States has rejected intentional countervalue targeting in favor of a counterforce-oriented deterrent. Those reasons essentially are the inverse of the manifest flaws of intentional countervalue targeting.

While there are uncertainties associated with deterrence and nuclear weapons, the counterforce/city avoidance-oriented policy with graduated options set into motion in the mid-1970s is likely far better suited to the contemporary, "tripolar" deterrence context. It provides an approach to deterrence that: 1) is likely to be more effective and credible vis-a-vis America's authoritarian opponents, including for extending deterrence to allies; 2) has the potential to be aligned with legal and moral principles; 3) is highly unlikely to prevent arms control agreements that contemporary opponents otherwise would embrace and follow—indeed, unlike a countervalue force posture, it might provide them with a motivation to negotiate; and, 4) may cost less overall than a countervalue alternative given the latter's likely associated demand for greater U.S. conventional capabilities—and/or the price of deterrence failure. Ultimately, the functioning of deterrence is of existential importance for the United States and allies; its value is literally priceless.

In conclusion, Washington's policy goal must be to minimize the risk of nuclear war via the most effective deterrence approach possible—an approach that is affordable and compatible with moral/legal strictures. That appears to be a counterforce/city avoidance-oriented deterrent. In contrast, a countervalue approach may entail less U.S. effort at the nuclear level, but likely would: 1) degrade the needed deterrence effect in key scenarios; 2) intentionally plan for the gross violation of legal/moral strictures; 3) increase overall defense costs; and, 4) not facilitate otherwise available arms limitation agreements at this point in history. Secretary Weinberger summarized both its inadequate credibility for

[78] See the discussion in, Keith B. Payne and David J. Trachtenberg, *Deterrence in the Emerging Threat Environment: What is Different and Why it Matters, Occasional Paper,* Vol. 2, No. 8. (Fairfax, VA: National Institute Press, August 2022), available at https://nipp.org/papers/deterrence-in-the-emerging-threat-environment-what-is-different-and-why-it-matters/.

deterrence and moral failings by noting concisely that "to attack deliberately the Soviet population…would be neither moral nor prudent."[79]

Many commentators continue to believe that intentional countervalue attack planning either is, or should be, U.S. deterrence policy; but it has not been U.S. policy for decades. The reasons for the bipartisan U.S. rejection of countervalue deterrence were clear and persuasive in the past. The new "tripolar" threat environment is significantly different from the Cold War bipolar context, but the critical advantages of a counterforce/city avoidance-oriented deterrent *remain,* as do the severe failings of a countervalue approach.

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[79] Weinberger, "U.S. Defense Strategy," op. cit., pp. 680-681.

ANALYSIS

POST-TRUTH: IMPENDING TESTS AND POSSIBLE RESPONSES

Gary L. Geipel

Introduction

The United States is entering an acute period in its experience of post-truth, with growing implications for national security. Described extensively in earlier work by this author and others,[1] post-truth is a condition in which millions of people across all segments of society lack shared notions of truth, the ability to distinguish opinions from facts, and even a common base of accurate information. During the next 18 months at least—through the inauguration of a U.S. president in January 2025 and perhaps well beyond—post-truth may test the country's constitutional order, its ability to respond to external challenges, and its very cohesion as they rarely have been tested before in the nation's history.

Large numbers of Americans appear unlikely to accept the outcome of an election pitting the incumbent president, Joe Biden, against his predecessor, Donald Trump—the most likely matchup barring the death or serious debilitation of one of the two men. This is true regardless of which candidate wins:

- In one scenario, an individual with a decades-long history of fabulism and visibly diminished cognitive capacity is re-elected President of the United States. Millions of Americans believe that he and his party used the full force of federal and state law enforcement in an attempt to convict his opponent on charges never pursued against other former presidents or presidential contenders. Millions of other Americans discount or remain unaware of evidence that the president-elect and his family may have enriched themselves through overseas influence-peddling crimes still under investigation.
- In another scenario, an individual with a decades-long history of fabulism and evident personality disorders is re-elected President of the United States. Millions of American believe that he and his party undermined the constitutional order to pursue false claims of election fraud after the 2020 presidential contest. Millions of other Americans discount or remain unaware of evidence that the president-elect in fact may have taken part in crimes still being tried or investigated.

The likely legal and political machinations surrounding these scenarios point to an extended period of instability. Hurdles may include the certification of election results, presidential pardons (including self-pardons), the formation of a cabinet, and the conduct of

[1] For example, Gary L. Geipel, *Reality Matters: National Security in a Post-Truth World*, *Occasional Paper*, Vol. 3, No. 6 (Fairfax, VA: National Institute for Public Policy, 2023), and Jennifer Kavanagh and Michael D. Rich, "Truth Decay: An Initial Exploration of the Diminishing Rose of Facts and Analysis in American Public Life," RAND Corporate Research Report RR-2314-RC (2018).

basic executive and legislative business.[2] America's adversaries may be sorely tempted to take advantage of these internal distractions. This is particularly true of China, which faces a narrowing window of opportunity to act on its claim to Taiwan.[3] Amid constitutional chaos, the United States also could find itself increasingly unable to achieve meaningful consensus on U.S. national security—let alone to fund and implement coherent defense policies.

To anticipate these serious internal challenges and to demonstrate that the United States is serious about grappling with post-truth, at least four responses deserve consideration:

- Written bipartisan commitment by willing U.S. Representatives and Senators to accept the state-certified results of the election barring substantial evidence of actual fraud or manipulation.
- Establishment by Congress of a bipartisan commission to examine, document, and disclose evidence surrounding America's post-truth traumas of the last decade.
- Endorsement by private organizations involved in information dissemination of a set of principles on the processes and standards of truth-seeking.
- Release by the Biden Administration with the bipartisan endorsement of congressional armed services committees (and ideally the endorsement of the opposing presidential campaign) of a robust statement on the continuity of command and military readiness.

In the longer term, concerted efforts involving widespread public education, institutional reforms, and the bipartisan establishment of norms are long overdue if the United States is to manage the post-truth environment and avoid its serious threats to national security.

Post-Truth: A Refresher

This paper adheres to a simple, three-part description of the post-truth condition, its general implications for national security, and the most troubling scenarios of the post-truth environment—building on previous work. These are summarized in Figure 1.

Figure 1: National Security, Post-Truth—A Matrix

Definition	General Threats	National Security Scenarios
Narratives	Information Accuracy	Designed Crises / Ignorance
Tribalism	Decision Quality	Epistemic Coups
Entrenchment	National Resilience	Fatal Distractions

[2] Nick Catoggio, "We're Not Coming All The Way Back From This," *The Dispatch* (August 2, 2023).

[3] Hal Brands and Michael Beckley, *Danger Zone: The Coming Conflict with China* (New York: W.W. Norton, 2022).

Three conditions gave rise to post-truth and sustain it:

- **Narratives** now dominate public discourse and take precedence over Enlightenment notions of truth-seeking. Narratives establish dogma (and condemn heretics) with disregard for, and at the expense of, verifiable data, robust analysis, learning, and revision.
- Intense **tribalism**—roughly determined by cultural affinity and partisan alignment—describes how more and more Americans locate themselves in the competition between alternative realities.
- The **entrenchment** of post-truth continues apace, against and even inside the institutions that should be expected to resist it. Earlier guardians of truth-seeking behavior—including academics, professional journalists, elite members of the legal profession, and business leaders—now conform or cower more than resist in the face of imposed "truth."

Digital technology acts as an accelerant of post-truth, actively encouraging poorly supported beliefs and outright fabrications.[4] As a result, post-truth is a nearly universal condition—contrary to the comforting belief that the problem only affects our tribal opponents. The embrace of conspiracy theories, acceptance of unproven narratives, and one-sided engagement with information are distributed evenly across the ideological spectrum.

A post-truth environment creates risks for national security in three general ways:

- **Post-Truth and Information**. Reliable and widely trusted information is the cornerstone of analysis and policy recommendations in national security. As notions of truth and the institutional guardians of objective information wobble in our larger society, however, distinguishing between facts and opinions or between truth and emotions in U.S. national security affairs may become as difficult as it is in other arenas.
- **Post-Truth and Decision**. National security decision-making will be less effective and decision execution will be less reliable when post-truth mindsets and behavior gain ground anywhere along the chain of command—or even if they are perceived to exist by Americans, our allies, or our adversaries.
- **Post-Truth and Resilience**. The United States in years ahead will test whether a nation divided into competing "realities" can maintain its resilience and ultimately its unity, the foundational requirement of national security.

Three types of national security scenarios flow from these general threats. "Designed crises" or their counterparts of "designed ignorance" are scenarios associated with the problem of inaccurate or incomplete information in post-truth. "Epistemic coups," or their attempt, reflect and exacerbate threats to the quality of decision-making. And "fatal

[4] This is described comprehensively in Shoshana Zuboff, "The Coup We Are Not Talking About," *The New York Times* (29 January 2021).

distractions" include scenarios that could flow from the previous types and place national resilience in question.

Designed Crises. As a prominent essayist argued recently: "The Age of Information is the era of hysterical storylines. Twenty-first-century technology supercharges feelings, not thoughts, and registers them instantaneously on hundreds of millions of screens and minds."[5] The opposite outcome also can occur, in which a story is ignored or obscured under the influence of the same technology. Whether exaggerated or ignored, reality and the pursuit of truth give way to something intensely curated, at best, if not altogether false. Unfortunately, U.S. foreign and security policies no longer are free from such designed crises or deliberate ignorance.

A previous study examined several examples, including the 2021 "Climate Adaptation Plan" (CAP) released by the U.S. Department of Defense (DoD) in response to what the Secretary of Defense called the "existential threat" of climate change.[6] The CAP is an archetypal manifestation of a designed crisis. Laden with hyperbole, the dense, 30-page document offers only one piece of actual data on expected climate change, repeating an oft-cited range of possible sea level rises. It provides two trivial examples of how weather phenomena might have influenced military equipment while offering no examples of how U.S. armed forces have contended or might contend in the future with actual climate change. It fails to mention climate-related challenges that observers can agree on—such as resource and maritime boundary disputes heightened by the warming of the Arctic, or the unimpeded passage of Chinese and Russian naval vessels into waters near Canada and the United States. In place of such consensus observations or efforts at persuasion, the document describes various "assessment tools," "performance metrics," and interagency structures to which DoD pledges itself, and coins risible jargon such as a commitment to building "climate-ready installations," as if previous military facilities were unprotected against the elements.[7]

The CAP joins the long list of narrative-based oaths published by corporations, universities, and other powerful institutions not to educate but to signal fealty to dogma. The so-called "fog of war"—describing the lack of definitive information that often exists on a live battlefield—could become a much more pervasive "fog of reality" if national security professionals continue to succumb in this way to the designed crises and deliberate ignorance prevailing in wider U.S. discourse.

Epistemic Coups. Like most human beings, Americans have tended to disagree with each other on big and small matters alike. Enlivened by a longstanding culture of pluralism and "live-and-let-live" independence, however, the United States generally managed to encourage debate among diverse perspectives and avoid coerced conformity. Only once

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[5] Lance Morrow, "Can Freedom Survive the Narratives?" *The Wall Street Journal* (May 17, 2021).

[6] See Department of Defense, *Press Release on the Climate Adaptation Plan* (October 7, 2021), available at www.defense.gov/News/Releases.

[7] U.S. Department of Defense, *Climate Adaptation Plan* (September 1, 2021), available at https://media.defense.gov/2021/Oct/07/2002869699/-1/-1/0/DEPARTMENT-OF-DEFENSE-CLIMATE-ADAPTATION-PLAN-2.PDF.

were the stakes so large and the viewpoints so irreconcilable as to spark a full civil war and rarely—the brief reign of "McCarthyism" in the early 1950s is an example—have powerful interests move to muzzle certain information or viewpoints on a society-wide scale. That situation has changed.

In our current post-truth environment, the United States in just a few years experienced a series of remarkably successful efforts to place wholly legitimate information and viewpoints beyond the reach of public discussion. Generally, these efforts required consensus among prominent public officials and opinion leaders in academia and journalism—and the cooperation or at least the acquiescence of social media companies and traditional news sources. Once almost unimaginable, such consensus and media acquiescence today emerge readily from the general conditions of post-truth—with its ubiquitous narratives, powerful tribes, and entrenched frames of reference. Epistemic coups now can be pulled off in America on a regular basis and to considerable effect. A recent study offered detailed examples covering public health policies during the recent COVID-19 pandemic, discussion of COVID-19's origin, and coverage of incriminating emails belonging to the son of President Biden.[8] The third example featured the large-scale involvement of current and former U.S. intelligence officials, compounding a crisis of confidence in both the veracity and the political impartiality of that community.[9] No accountability has been forthcoming for America's recent epistemic coups and so they can be expected to continue.

Fatal Distractions. The pattern of designed crises or designed ignorance and the growing ease of epistemic coups soon may combine in one or more "fatal distractions" from the actual business of national security. This is a broad grouping of scenarios that fall roughly into two categories: (1) the possibility of a cold or even hot civil war in the United States, which could destabilize the country from within and make consensus on national security matters nearly impossible, and (2) the possibility that exaggerated or manufactured threats consistent with tribal narratives will distract attention from actual threats.

Already, the virulent "culture wars" arising from the post-truth condition serve to poison civic discourse and distract almost constantly from the business of funding governments, maintaining public health and public order, and ultimately defining and protecting national security. Predictions of civil disturbances verging on civil war have been staples of the last two election cycles and are particularly ominous where 2024 is concerned.[10] A large University of Virginia survey carried out in late 2021 found that "[s]ignificant numbers of both Trump and Biden voters show a willingness to consider violating democratic tendencies and norms if needed to serve their priorities." More specifically, "[r]oughly two in 10 Trump and Biden voters strongly agree it would be better if a 'President could take needed actions without being constrained by Congress or courts,' and roughly four in 10

[8] Geipel, op cit., pp. 41-47.

[9] See John A. Gentry, *Neutering the CIA* (Estes Park, CO: Armin Lear Press, 2023).

[10] See for example, Robert Kagan, "Our constitutional crisis is already here," *Washington Post* (September 23, 2021).

(41%) of Biden and half (52%) of Trump voters at least somewhat agree that it's time to split the country, favoring blue/red states seceding from the union."[11]

When 20% of the nation's voters across the political spectrum declare themselves open to unconstitutional power grabs and nearly half "at least somewhat agree" that it should split apart, then the nation's very resilience is at risk. Consumed by its own feuds, the United States will remain distracted from external threats, with potentially disastrous consequences. As described above, the next 18-24 months present an especially acute challenge.

Responses

The post-truth condition did not arise quickly and cannot be stabilized or reversed in a short period of time. A distinction between near-term and longer-term responses is important, therefore.

Near-Term Responses (2023-25)

In the near term—in the context of the 2024 presidential election and subsequent transition of power—at least four responses may be helpful. First, America's elected representatives could signal their awareness of the impending challenges and intention to avoid the worst of them. This should include a written commitment by a large, bipartisan group of current U.S. Representatives and Senators—well before the actual election—to accept the state-certified results of the election barring substantial evidence of actual fraud or manipulation. Signatures on a common statement would be the most straightforward means to achieve this commitment.

Second, to demonstrate its awareness that broader conflicts over information and truth divide the nation, Congress should consider the establishment of a bipartisan commission to examine, document, and disclose evidence surrounding America's post-truth traumas of the last decade. To have any credibility, such a commission would require a scrupulous balance of perspectives among its members and a charter that covers America's recent epistemic coups and other conflicts over information *regardless* of their partisan or tribal origins. Public-health discussion during the COVID-19 pandemic and investigations of the pandemic's origins; the conduct of federal law enforcement, the Intelligence Community, and Members of Congress around recent, politically sensitive investigations; and the spread of election-fraud claims in the 2016 and 2020 elections all should be covered—in balanced and serious ways.

Third, private organizations involved in information dissemination (including social and traditional media companies) should consider developing and promising adherence to a

[11] "New Initiative Explores Deep, Persistent Divides Between Biden and Trump Voters," *UVA Center for Politics* (September 30, 2021), available at https://centerforpolitics.org/crystalball/articles/new-initiative-explores-deep-persistent-divides-between-biden-and-trump-voters/.

statement of basic principles covering the nature and importance of "truth" as well as the processes and standards of effective truth seeking. Such a statement of principles—anchored in norms that strengthened the United States and other liberal societies in the past[12]—could provide a much-needed ethical "north star" that transcends the manifestly partisan agendas of individual editors, reporters, writers, executives, and others who influence media content in the United States. Instead of threatening the freedom of speech, as legally mandated "disinformation" controls usually do, a voluntary, norms-based approach could help to reinvigorate professional integrity and promote constructive dialogue.

Finally, as a near-term measure, the Biden Administration should seek the endorsement of congressional armed services committees and the opposing presidential campaign of a detailed, robust statement on the continuity of command and military readiness during the U.S. presidential transition. Even if this repeats detailed information already in the public domain (as it surely would), the visible agreement of key players with the U.S. Government's processes, contingency plans, and ongoing vigilance during a transition—even a disputed one—could give adversaries sufficient pause.

Longer-Term Responses

Recent analyses examined a range of proposed technology-based responses as well as the track record of private and public "anti-disinformation" organizations in challenging post-truth. The technology-based approaches appear largely unrealistic—requiring the substantial dismantling of a business (and social) model that is almost universally entrenched. For their part and almost without exception, "anti-disinformation" organizations in recent years have been enablers of post-truth more often than they have resisted it.[13] Other approaches, therefore, must be considered—guided above all by a common set of principles.

Guiding Principles. Longer-term responses to the post-truth condition should begin with the consideration of at least four principles. First and foremost is the acceptance that post-truth is a universal challenge. While most people tend to believe that they are impervious to narratives, unpersuaded by their tribes, and clear-eyed about the entrenchment of illusions, few really are. Those who approach post-truth and its associated problems of disinformation and misinformation, tribalism, cancellation, conformity, and conspiracy theories from a heavily partisan-political perspective are not only wrong but also will make the underlying problems worse. Second, *fighting post-truth means challenging a claim rather than banning a claim*. Where post-truth is concerned, the banning of a dubious claim or its claimant often leads to something even worse than misinformation: the valorization of the supposed falsehood. Challenging a claim rather than attempting to ban it

[12] A powerful recent description of these norms and their impact is Jonathan Rauch, *The Constitution of Knowledge: A Defense of Truth* (Washington: Brookings Institution Press, 2021).

[13] Geipel, op cit., pp. 56-64.

avoids the obvious risks to freedom of speech while keeping open the possibility of learning on both sides of an exchange.

Third, *overcoming post-truth means rejecting oracles and instead strengthening personal and national abilities to evaluate and act on information*. To break the fever of post-truth, we do not need self-anointed wise men to "represent the science" and would be much better served by contending wise people who debate and practice science openly. Checks and balances are important not just in science but in all competitions over truth—as any civil litigant, criminal defendant, minority-party legislator, or remaining news editor can attest. And the rest of us must learn again to be effective patients, juries, citizens, and news readers. Finally, *keeping post-truth at bay requires the elevation of skepticism and its companion: transparency.* America's coming to grips with post-truth may depend on our understanding that what we hear or read is not always true—and that we must look inside a claim before accepting it.

Awareness and Education. America's "duck and cover" drills of the 1950s and early 1960s are subject to ridicule now, to the extent that they are remembered at all. Covering one's head under a writing desk at school offered no meaningful protection against a nuclear explosion. Nevertheless, such drills and the many other public awareness and public safety efforts of the early nuclear age served a vital purpose: they left little doubt even among the young that nuclear-armed conflict posed serious dangers and that public officials and private citizens alike could reduce the risks of such conflict. In a similar way, open acknowledgment of the post-truth environment and the encouragement of basic defenses could be helpful today.

Online information sources and social media in particular are akin to chemistry sets or medicine chests. Used in certain ways, their contents can produce benign or even beneficial outcomes. Used in other ways, their contents can produce dangerous or even disastrous outcomes. As a society, we should equip each other—beginning with our children—to evaluate the contents and understand the dangers of the online environment in which we spend so much of our lives. Such "digital literacy" is as vital as traditional literacy and yet is badly neglected in U.S. education systems at all levels, and in public health. Effective curricula do not need to be complex and can be tailored readily to age groups based on their likely exposure to online information. Tribal neutrality is essential. Done well, the creation and deployment of digital literacy programs could serve as a modest antidote to America's culture wars rather than as a component of them.

In the national security professions, and especially in the armed forces, such training should be ubiquitous. And it must be scrupulously objective. One-off training drills that highlight acute or trendy concerns, such as the "stand-downs" that occurred in the armed forces following the January 2021 riot at the U.S. Capitol, may do more harm than good. They suggest that epistemic threats to national security are unusual and specific when in fact they are constant and wide-ranging. Recurring training programs should engage analysts, planners, soldiers, and other national-security operators alike as intelligent watchdogs in

understanding and avoiding post-truth threats—rather than as naïve victims who need to be cured.

Institutional Responses. Post-truth can be mitigated by the work of institutions writ large—the professions of journalism, law, and education in particular—on which Enlightenment notions of truth-seeking hinge. Post-truth also can be mitigated by individual institutions, working by themselves and together. At least three kinds of responses remain possible. First, large-scale institutions should *hold fast to professional integrity and core principles*. It is not clear that a majority of influential academics, attorneys, and journalists still aspire to (let alone insist upon) such classically liberal notions as intellectual heterodoxy, tolerance of dissent, and the pursuit of objective truth. Some do, however, and now is the time to affiliate with them openly, and shore them up. The Foundation for Individual Rights and Expression (FIRE) and the Heterodox Academy, for example, focus in particular on the preservation of open inquiry and free expression in academia. The latter publishes its large faculty membership roster online, thus identifying scholars who still support "viewpoint diversity, open inquiry, and constructive disagreement" and allowing informal support networks to emerge.[14] The Foundation Against Intolerance and Racism (FAIR) and Counterweight provide Americans with intellectual escapes from the conformity of entrenched narratives. Not surprisingly, the former includes a belief that "objective truth exists" in its five core principles while the latter promotes "reason" and "freedom from unjustified coercion," focusing in particular on corporate environments in the United States.

Second, *we still can learn from our mistakes*. In recent years, objective news reporting, constructive discussion, and even scientific discourse have failed the United States in real-time, allowing potent national fables to emerge. Occasional *post hoc* acknowledgments of truth appear to be the best that we still can do, and such efforts should not be discounted. Through its legal discovery process, for example, the lawsuit of Dominion Voting Systems against Fox News brought sobering transparency to the egregious blurring of fact and opinion at the cable news network in its coverage of President Trump's 2020 claims of election fraud.[15] Similarly, a massive and scrupulous investigative report by the *Columbia Journalism Review* laid bare the extent to which credulousness and partisan activism on the part of most mainstream journalists created and spread the false notion that the Trump campaign "colluded" with Russia.[16] If (and only if) founding legislation could devise a legal framework that forces objective deliberations, involves a wide range of public- and private-sector expertise, and accommodates dissent, then the establishment of an ongoing, commission-style body to evaluate fraught issues in American life could be a helpful response to post-truth. Its membership should rotate based on the issues and would require

[14] The Heterodox Academy membership roster is available at https://heterodoxacademy.org/members/.

[15] Jim Geraghty, "Three Hard Lessons from the Dominion Defamation Lawsuit against Fox," *National Review* (April 19, 2023), available at https://www.nationalreview.com/the-morning-jolt/three-hard-lessons-from-the-dominion-defamation-lawsuit-against-fox/.

[16] Jeff Gerth, "The press versus the president," *CJR* (January 30, 2023), available at https://www.cjr.org/special_report/trumped-up-press-versus-president-part-1.php.

an explicit "A- versus B-Team" approach that demands serious examination of competing conclusions.

Third, *we must work together, or at least seek to interact with each other*. At a basic level, for example, competing research organizations in national security and other fields should consider partnerships when evaluating issues caught up in the post-truth fog of reality. The media attention that think tanks and academic organizations crave would be no less forthcoming in a partnership. In the worst case, tribalized news platforms simply would emphasize one set of conclusions over another. Ideally, however, efforts to challenge each other and move closer to the truth in a partnership would produce more robust and useful findings than the work of individual groups. Inside the government itself, the approach finally taken by the Office of the Director of National Intelligence to assessments of COVID-19's origins should be emulated more broadly.[17] Component agencies reached their own conclusions at varying levels of confidence, and an unclassified summary of the resulting analysis became public information. A similar combination of agency independence, cross-comparison, and transparency should prevail on a growing range of issues as a response to post-truth. Administrations may dislike their lack of complete "message control" under this approach. However, the avoidance of a single narrative where contested facts are concerned is of deeper importance than political enforcement—especially on matters of national security.

Norms. Building on the statement of principles for private information organizations discussed earlier as a near-term measure, the challenges of post-truth to awareness, decision-making, and resilience in national security are serious enough to warrant widespread acknowledgment and a set of *public* commitments as well. Comparisons to threats from chemical weapons and other weapons of mass destruction (WMD) are apt, in which the time for countries to recognize risks and pledge themselves to responsible behaviors was before any further large-scale damage occurred. By way of example, an earlier study in this series outlined a possible "Reality Convention" that could be widely accepted.[18] See Figure 2. This statement could benefit from improvement, but it is intended at this stage simply to model the sort of norms to which corporations, governments, research organizations, universities—and of course, government agencies in the national security field and otherwise—could commit themselves without regard to ideological or partisan orientation.

[17] Office of the Director of National Intelligence, *Updated Assessment on COVID-19 Origins* (October 29, 2021), available at https://www.dni.gov/files/ODNI/documents/assessments/Declassified-Assessment-on-COVID-19-Origins.pdf.

[18] Geipel, op cit., p. 74.

Figure 2: A Reality Convention

We agree:

1. A shared, objective reality exists and, when understood, is the most reliable basis for action.
2. Reality consists of discrete elements of truth.
3. Truth can be approached and sometimes known but cannot simply be declared.
4. Truth must be subject to revision if new information (fact or insight) becomes available.
5. Fact and insight (opinion) are not the same and must not pose as one other.
6. Transparency about sources of information and other aspects of truth-seeking is essential.
7. Perceived deceptions or mistakes by others must be challenged rather than silenced.
8. Humility, openness, and skepticism about truth increase the likelihood of peace.
9. Deception, lies, and uncontested truth increase the likelihood of conflict.
10. These beliefs and commitments do not conflict with any culture or religion.

In a post-truth environment, a set of norms such as this could have a range of useful effects. First, norms signal basic awareness of a problem, which is overdue where the current fog of reality is concerned. Second, norms create an objective measuring stick, apart from the passions and temptations of the moment—of which there are many in post-truth. Third, norms make it easier for adversaries to find common ground and change their behaviors without appearing to concede to the other side. This is as true in domestic-political conflict as it is globally, allowing tribes and competing powers alike to "play by the rules" that all have accepted rather than appearing to give in to criticism or pressure. As standards for analysis, communication, and especially policymaking, the norms embodied in a Reality Convention or something similar could help to ameliorate the most serious manifestations of post-truth on the part of individuals and organizations involved in national security. Such norms could be taught and discussed, consistently applied to existing work, and adopted as common commitments by academic programs, research organizations, advocacy groups, and government agencies—establishing a shared bulwark against the ongoing rise of post-truth.

Conclusion

The post-truth flood is indeed rising, which adds to the urgency of confronting it. The sheer proliferation of information via digital platforms, the collapse of mediating institutions that sought objective truth, and the ubiquity of algorithms that determine what information most of us even lay eyes on, already may have combined to transform notions of "truth" and "truth-seeking" in ways that cannot be stopped. A recent analysis by a Canadian media expert concluded that today's social media tools change "the way propositions are verified, challenging our very epistemology of truth. … Confirmation bias is implanted in the design: we trust what we 'like.' "[19] The already extensive effects of post-truth described in this paper occurred before the widespread application of artificial intelligence, the large-scale use of so-called "deep-fake" audio and video technology, and the expected embrace of a wholly online "metaverse." The additional post-truth implications of these developments will be examined in a forthcoming paper by this analyst.

It no longer requires much imagination to describe an approaching time in which many people will lead their lives, earn their livings, and form their "views" of "the world" almost entirely under the hoods and attached to the interfaces of a separate digital universe. It will still be us humans under the hoods, of course. Will conflicts arise within the metaverse, or between its factions and those remaining in the "real" world? Could whatever remains of U.S. national security be at stake? These questions are no more fantastical or premature than questions about the impact of nuclear weapons would have been in 1930.

Understanding and responding in a principled way to today's post-truth environment is essential to preserve high-quality analysis and decision-making in U.S. national security. It is essential to preserve our readiness and signal our vigilance to adversaries. And it is essential to preserve our very resilience as a nation.

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[19] Andrey Mir, "The Viral Inquisitor," *City Journal* (Spring 2023), available at https://www.city-journal.org/article/the-viral-inquisitor.

ANALYSIS

SUBORDINATING EXTENDED DETERRENCE TO ANTIQUATED ARMS CONTROL INITIATIVES

Keith B. Payne and Michaela Dodge

Russia's war in Europe and China's expansionist, militarist foreign policy, and the quasi-alliance of these two predators seeking to re-order the globe,[1] have put the long-standing U.S. goals of extended deterrence and allied assurance under considerable strain. A complicating factor in this challenging context is the continuing U.S. propensity to pursue initiatives that appear to show relative disregard for allied concerns regarding extended deterrence—occasionally, it appears, in an effort to reduce U.S. reliance on nuclear weapons; this at a time when opponents are placing ever greater prominence on their nuclear capabilities for coercive and war-fighting purposes.

Illustrative of this propensity are the cases of Washington's retirement of the 1980s vintage sea-based nuclear cruise missile, the Tomahawk Land Attack missile (TLAM-N), contemporary opposition to a new sea-based cruise missile, and repeated cycles of expressed interest in the adoption of "sole purpose" or "No-First-Use" (NFU) policies. In these cases, U.S. moves and expressions of policy goals conflict with repeatedly-expressed allied concerns that these U.S. initiatives threaten to degrade the credibility of the U.S. extended deterrent—a key to their security positions. These cases illustrate well allied perceptions and expectations regarding extended deterrence and Washington's apparent willingness to subordinate allies' concerns to American domestic political pressures. They underscore the need to improve two-way understanding and communication about the realities of extended deterrence and assurance requirements as Western security measures must adapt to a dynamic threat environment. Without such an understanding, smoothing out the "rollercoaster" of U.S. and allies' relations will be a matter of luck rather than a deliberate effort.

Washington faces ongoing, unprecedented challenges in understanding, shaping and meeting extended deterrence and assurance requirements in its bid to sustain its alliance system—which is critical for U.S. security. The United States must adapt its approach to extended deterrence and assurance and effectively communicate the credibility of that deterrent to allies who are in diverse threat contexts and hold equally diverse threat

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[1] See for example, Robyn Dixon, "Visions of a new order as Xi pays state visit to Russia," *Washington Post*, March 20, 2023, p. A1, available at https://www.washingtonpost.com/world/2023/03/19/putin-xi-russia-china-world-order/; Jonathan Tirone, "US Sees New Era of Nuclear Risk Through China-Russia Cooperation," *Bloomberg News*, May 5, 2023, available at https://www.bloomberg.com/news/articles/2023-05-05/us-sees-a-new-era-of-nuclear-risk-dawning-in-china-russia-cooperation; and, Dmitry Trenin, "Here's why Xi's Moscow visit is a key moment in the struggle to end US hegemony," *RT*, March 20, 2023, available at https://www.rt.com/news/573273-xis-moscow-visit/.

perceptions. Failing to do so could easily lead to the unraveling of the alliance system that Washington has sustained at great cost over generations. And, if some allies increasingly feel compelled to consider independent means of deterrence, it could also drive a cascade of nuclear proliferation that overturns the decades-long U.S. non-proliferation goal.

The following presents two post-Cold War case studies that illustrate well allied interpretations of the requirements for extended deterrence—and Washington's apparent occasional willingness to subordinate allied extended deterrence concerns to its pursuit of an "anti-nuclear" agenda that is, at best, dubious in the contemporary threat context.

Eliminating TLAM-N Despite Allied Concerns

Key allies highly valued the U.S. TLAM-N system for its contribution to extended deterrence and assurance—two enduring U.S. goals. Nevertheless, it was taken off Navy ships, attack submarines, and land-based naval aircraft after George H. W. Bush announced the first *Presidential Nuclear Initiative* in 1991.[2] While the Navy withdrew TLAM-N by mid-1992 and eliminated the nuclear mission for surface ships, it retained the ability to return TLAM-N to deployment on attack submarines,[3] reportedly within 30 days, as a hedge against the potential deterioration in the security environment.[4]

The 2009 bipartisan Congressional Commission on the Strategic Posture of the United States (the Perry-Schlesinger Commission) concluded that "extended deterrence relies heavily on the deployment of nuclear cruise missiles on some Los Angeles class attack submarines" and that "some U.S. allies in Asia would be very concerned by TLAM-N retirement."[5] Japanese then-Foreign Minister Katsuya Okada wrote to then-Secretary of State Hillary Clinton that, "…it is necessary that trust in this deterrence be backed up by sufficient capability" and expressed a desire "to receive ongoing explanations of your government's extended deterrence policy, including any impact this might have on extended deterrence for Japan and *how this could be supplemented*" should TLAM-N be retired.[6] Okada's statement is indicative of the importance the Japanese Government attributed to TLAM-N for extended deterrence, even as it would not come out in its direct support, for understandable reasons.

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[2] Susan Koch, "The Presidential Nuclear Initiatives of 1991-1992," Policy Brief No. 23, *Toda Peace Institute*, p. 3, available at https://toda.org/assets/files/resources/policy-briefs/t-pb-23_susan-koch_presidential-nuclear-initiatives-1991-92.pdf.

[3] Paul Kerr and Mary Beth Nikitin, "Nuclear-Armed Sea-Launched Cruise Missile (SLCM-N)," In Focus, *Congressional Research Service*, Updated December 16, 2022, p. 1, available at https://crsreports.congress.gov/product/pdf/IF/IF12084.

[4] John Harvey and Robert Soofer, "Strengthening Deterrence with SLCM-N," Atlantic Council *Issue Brief*, November 5, 2022, p. 4, available at https://www.atlanticcouncil.org/wp-content/uploads/2022/11/Strengthening-Deterrence-with-SLCM-N.pdf.

[5] William J. Perry and James R. Schlesinger, *The Final Report of the Congressional Commission on the Strategic Posture of the United States* (Washington, D.C.: United States Institute of Peace Press, 2009), p. 26, available at http://www.usip.org/sites/default/files/America%27s_Strategic_Posture_Auth_Ed_0.pdf.

[6] Katsuya Okada, "Letter to the US State Secretary Hillary Clinton," December 24, 2009, available at https://icnndngojapan.files.wordpress.com/2010/01/20091224_okada_letter_en.pdf. (Emphasis added).

TLAM-N remained in storage and potentially deployable until the Obama Administration announced a decision to retire and eliminate the missile altogether in its 2010 *Nuclear Posture Review Report* (NPR).[7] That report stated, "this system serves a redundant purpose in the U.S. nuclear stockpile" and that "the deterrence and assurance roles of TLAM/N can be adequately substituted by these other means."[8] The elimination of TLAM-N was a subject of "controversy" in Japan and in Washington, with some arguing that the retirement of the system would undermine allied assurance and extended deterrence, and others praising President Obama for taking a unilateral step toward nuclear disarmament.[9] Some allies were unprecedently open, and on occasion quite direct, in expressing concern both with the elimination of TLAM-N and the subsequent absence of any apparent new U.S. capabilities to replace the deterrent effect they attributed to TLAM-N.

The fact that TLAM-N was in storage rather than on surface ships reportedly came as an unwelcome surprise to U.S. allies in Asia, particularly in South Korea and Japan.[10] Both countries reportedly "objected strenuously" to the announcement of a decision to retire TLAM-N because, in their eyes and in their assessments of Russia and China, alternative U.S. strategic systems with high yields, e.g., intercontinental-range ballistic missiles, were not sufficiently credible to provide extended deterrence reliably in the case of a regional conflict.[11] In short, some U.S. allies judged that TLAM-N provided a more credible deterrent capability, thus making it a valuable contributor to their assurance.[12] Despite allied concerns and the Obama Administration's commitment to allied consultations prior to changes in U.S. nuclear posture, it moved forward with the decision to retire the TLAM-N, which the Navy finished executing in 2013.[13]

Only five years later, the Trump Administration's 2018 NPR effectively reversed the decision to forego TLAM-N capabilities by calling for the development of a new low-yield, nuclear-armed sea-launched cruise missile (SLCM-N).[14] The NPR identified "the increasing need for flexible and low-yield options to strengthen deterrence and assurance" for allies among reasons for the reversal.[15] Even before the 2018 NPR was made public, former senior officials, including from the Obama Administration, had called for the reintroduction of the

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[7] Department of Defense, *Nuclear Posture Review Report*, April 2010, pp. 28, 46, available at https://dod.defense.gov/Portals/1/features/defenseReviews/NPR/2010_Nuclear_Posture_Review_Report.pdf.

[8] Ibid., p. 28.

[9] Yukio Satoh, *U.S. Extended Deterrence and Japan's Security*, Livermore Papers on Global Security, No. 2, October 2017, p. 38, available at https://cgsr.llnl.gov/content/assets/docs/satoh-report-final.pdf.

[10] Kevin Chilton, "On US Nuclear Deterrence," *Strategic Studies Quarterly*, Vol. 11, No. 4 (Winter 2017), p. 9, available at https://www.jstor.org/stable/pdf/26271631.pdf?refreqid=excelsior%3A669bccdfe65c13b65f9589cec42c45b7&ab_segments=&origin=&initiator=&acceptTC=1.

[11] Ibid., pp. 9-10.

[12] Ibid., p. 10.

[13] Kerr and Nikitin, p. 1, op. cit.

[14] Department of Defense, *Nuclear Posture Review Report*, 2018, p. 54, available at https://media.defense.gov/2018/Feb/02/2001872886/-1/-1/1/2018-NUCLEAR-POSTURE-REVIEW-FINAL-REPORT.PDF.

[15] Ibid., p. 55.

TLAM-N capability as a response to Russia's Intermediate-Range Nuclear Forces Treaty violations.[16] The Trump Administration reportedly valued a prospective new SLCM-N for strengthening assurance and extended deterrence.[17]

Some allies similarly value this type of extended deterrence capability for understandable reasons**.** They appear to have some doubt that the United States—in response to a Russian or Chinese regional nuclear attack—would risk escalation to a potentially suicidal strategic nuclear war via the use of intercontinental strategic nuclear weapons. Skepticism among some allies along these lines is not new, but appears to be growing,[18] and is not a far-fetched concern, In 1979, Henry Kissinger remarked publicly that, "Our European allies should not keep asking us to multiply strategic assurances that we cannot possibly mean, or if we do mean, we should not want to execute, because if we execute, we risk the destruction of civilization."[19] The large asymmetries in local theater nuclear capabilities in favor of Russia, China and even North Korea now contribute to these allied doubts.

Should Moscow or Beijing calculate that the United States lacks either the will or the capability to respond in a proportional, limited and discriminant way to their regional nuclear first use, extended deterrence likely will be undermined, and the risks of regional aggression will grow. To hedge against this deterrence "gap," reconsideration of the size, characteristics, and deployment of U.S. theater nuclear forces needed for extended deterrence is warranted. The prospective SLCM-N is an obvious positive step in redressing that deterrence gap. But it may not survive the U.S. political process based on the argument that SCLM-N would cause an arms race and represent a rejection of deterrence in favor of "war-fighting." These vapid arguments against SLCM-N have been resurrected from the 1980s and miss the likely increasing deterrence and assurance requirement for such U.S. forces in the emerging threat environment.

Nevertheless, the Biden Administration has sought strenuously to cancel the contemporary SLCM-N program, both in fiscal year (FY) 2023 and FY2024 budget requests, but Department of Defense and congressional support for the missile saved it in FY2023.[20] The just-passed House version of the FY2024 National Defense Authorization Act mandates the Secretary of Defense to establish SLCM-N as a program of record, giving it a more

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[16] Sandy Winnefeld and James Miller, "Bring Back the Nuclear Tomahawks," *Proceedings*, Vol. 143, No. 4 (May 2017), available at https://www.usni.org/magazines/proceedings/2017/may/bring-back-nuclear-tomahawks.

[17] U.S. Department of Defense, *Strengthening Deterrence and Reducing Nuclear Risks, Part II: The Sea-Launched Cruise Missile-Nuclear (SLCM-N)*, Arms Control and International Security Papers, Vol. I, No. 11, July 23, 2020, pp. 1, 4, available at https://www.state.gov/wp-content/uploads/2020/07/T-Paper_SCLM-N-CLEARED_T-Final.pdf.

[18] See for example, CDR Paul S. Giarra (ret.), "Allies Question Credibility of U.S. Umbrella," *Proceedings*, (July 2023), available at https://www.usni.org/magazines/proceedings/2023/july/time-recalibrate-navy-needs-tactical-nuclear-weapons-again.

[19] Henry Kissinger, "The Future of NATO," in, *NATO*, *The Next Thirty Years*, Kenneth Myers, ed. (Boulder, CO: Westview Press, 1981), p. 8.

[20] Valerie Isinna, "Biden administration kills Trump-era nuclear cruise missile program," *Breaking Defense*, March 28, 2022, available at https://breakingdefense.com/2022/03/biden-administration-kills-trump-era-nuclear-cruise-missile-program/; and, Bryant Harris, "GOP moves to instate sea-launched cruise missile nuclear program," *Defense News*, June 21, 2023, available at https://www.defensenews.com/congress/budget/2023/06/22/gop-moves-to-instate-sea-launched-cruise-missile-nuclear-program/.

permanent place in the Department of Defense acquisition cycle.[21] Whether this will proceed as such remains unclear at this point.

The TLAM-N and SLCM-N case is illustrative of Washington's occasional, apparent subordination of allied views regarding extended deterrence and assurance—seemingly in favor of satisfying a domestic political constituency generally opposed to U.S. nuclear capabilities. This case also illustrates the inconsistency with which the United States pursues capabilities that allies deem important—with Washington declaring them redundant at one time, necessary shortly thereafter, only to become the object of contemporary intra-governmental dispute. Such inconsistency "is a problem. It undermines extended deterrence, and it could undermine assurance too," pointed out Sugio Takahashi, Head of the Defense Policy Division of the Policy Studies Department at the National Institute for Defense Studies in Tokyo, Japan.[22] It diminishes U.S. credibility and creates avoidable challenges to assuring allies and extending deterrence.

NFU, "Sole Purpose," and the 2010 *Nuclear Posture Review Report*

An NFU policy, as the name implies, generally is understood to be a commitment never to employ nuclear weapons first.[23] U.S. nuclear employment could only be in response to an opponent's first use of nuclear weapons. The commonly accepted understanding of a "sole purpose" policy means that the role of a nuclear arsenal is restricted "to deter—and if needed, respond to—a nuclear attack."[24] In other words, the U.S. nuclear arsenal would have no role in deterring large-scale conventional, biological, or chemical weapon attacks, including against U.S. allies. While subtle differences between NFU and "sole purpose" are possible depending on the wording of the actual policy,[25] the two are essentially the same and the commonly expressed goal is to reduce reliance on nuclear weapons.[26]

For over a decade, allies have consistently expressed sharp, substantive opposition to U.S. proposals for a NFU or "sole purpose" nuclear policy—two different titles for essentially

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[21] Robert Peters, "Nuclear Forces and Missile Defense in the 2024 HASC NDAA: On the Right Path—But More Needed," *The Heritage Foundation* Issue *Brief*, No. 5324, July 18, 2023, p. 3, available at https://www.heritage.org/sites/default/files/2023-07/IB5324.pdf.

[22] Zoom interview conducted on August 9, 2022; quoted in Michaela Dodge, *Alliance Politics in a Multipolar World*, *Occasional Paper*, Vol. 2, No. 10 (Fairfax, VA: National Institute Press, October 2022), p. 73, available at https://nipp.org/wp-content/uploads/2022/10/OP-Vol.-2-No.-10.pdf.

[23] Matthew Costlow, *A Net Assessment of "No First Use" and "Sole Purpose" Nuclear Policies, Occasional Paper*, Vol. 1, No. 7 (Fairfax, VA: National Institute Press, July 2021), pp. 7-8, available at, https://nipp.org/papers/a-net-assessment-of-no-first-use-and-sole-purpose-nuclear-policies/.

[24] Joseph R. Biden Jr., "Why America Must Lead Again," Foreign Affairs, March/April 2020, available at https://www.foreignaffairs.com/articles/united-states/2020-01-23/why-america-must-lead-again.

[25] Ankit Panda and Vipin Narang, "Sole Purpose Is Not No First Use: Nuclear Weapons and Declaratory Policy," *War On the Rocks*, February 22, 2021, available at https://warontherocks.com/2021/02/sole-purpose-is-not-no-first-use-nuclear-weapons-and-declaratory-policy/.

[26] Costlow, *A Net Assessment of "No First Use" and "Sole Purpose" Nuclear Policies*, p. 8, op. cit.

the same policy constraint on U.S. deterrent strategies.[27] This allied opposition appears to be based largely on understandable fears that the adoption of such policies would weaken extended deterrence[28]—a fear almost certain to be accurate in plausible circumstances.[29] Why so? The adoption of an NFU or "sole purpose" policy is likely to degrade extended deterrence and assurance because either would significantly narrow the range of scenarios under which Russia, China, or North Korea would have to consider the deterring possibility U.S. nuclear retaliation. The U.S. extended nuclear deterrent would, by design, be withdrawn from serving to prevent conventional, chemical and/or biological attacks. These policies are particularly worrisome to U.S. allies that border adversaries with significant conventional force advantages, and/or biological and chemical weapons programs.[30] They fear that such policies would degrade deterrence—a fear that will continue unless the United States develops an alternative, credible means of deterring th range of threats allies face, including biological and chemical threats.

Nevertheless, some U.S. administrations have repeatedly expressed interest in NFU or "sole purpose"—raising questions among allies about U.S. intentions and the continuing credibility of the U.S. extended deterrent. In 2009, President Obama famously emphasized America's commitment to nuclear disarmament,[31] stating that Washington would take "concrete steps towards a world without nuclear weapons" and reduce "the role of nuclear weapons in our national security strategy."[32] As one of these steps, the Obama Administration reportedly considered adopting an NFU or "sole purpose" declaratory policy during the lead-up to the 2010 NPR, and again toward the end of the administration.

Ultimately, the 2010 NPR itself rejected "a universal policy that deterring nuclear attack is the sole purpose of nuclear weapons" but stated that the administration "will work to establish conditions under which such a policy could be safely adopted."[33] This approach included strengthening conventional forces and reducing the role of nuclear weapons in the U.S. national security strategy, strengthening regional security architectures, and eliminating

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[27] See the discussion in, Matthew Costlow, *A Net Assessment of "No First Use" and "Sole Purpose" Nuclear Policies, Occasional Paper*, Vol. 1, No. 7 (Fairfax, VA: National Institute Press, July 2021), available at, https://nipp.org/papers/a-net-assessment-of-no-first-use-and-sole-purpose-nuclear-policies/.

[28] Sayuri Romei, "Japan and the Nuclear Challenge in a New Era of Rising Tensions," *Journal of Indo-Pacific Affairs*, Vol. 2, Issue 3 (Fall 2019), pp. 70-71, available at https://www.airuniversity.af.edu/Portals/10/JIPA/journals/Volume-02_Issue-3/04-Romei.pdf.

[29] See Franklin C. Miller and Keith B. Payne, "The dangers of no-first-use," *The Bulletin of Atomic Scientists*, August 22, 2016, available at https://thebulletin.org/2016/08/the-dangers-of-no-first-use/; and, Keith Payne, "Once Again: Why 'No-First-Use' is a Bad Idea," *Information Series*, National Institute for Public Policy, No. 408, July 5, 2016, available at https://nipp.org/information_series/payne-keith-b-once-again-why-a-no-first-use-policy-is-a-bad-very-bad-idea-information-series-no-408/.

[30] Franklin C. Miller, Keith B. Payne, "The dangers of no-first-use," *The Bulletin of Atomic Scientists*, August 22, 2016, available at https://thebulletin.org/2016/08/the-dangers-of-no-first-use/.

[31] Office of the White House, "Remarks By President Barack Obama In Prague As Delivered," April 5, 2009, available at https://obamawhitehouse.archives.gov/the-press-office/remarks-president-barack-obama-prague-delivered.

[32] Ibid.

[33] Department of Defense, *Nuclear Posture Review Report*, April 2010, pp. viii, 16, available at https://dod.defense.gov/Portals/1/features/defenseReviews/NPR/2010_Nuclear_Posture_Review_Report.pdf.

chemical and biological weapons.[34] The 2010 NPR explicitly recognized the importance the administration attributed to allies in these decisions when it stated it would "consult with allies and partners regarding the conditions under which it would be prudent to shift to a policy under which deterring nuclear attack is the sole purpose of U.S. nuclear weapons."[35] Allied concerns appear to have played a significant role in the administration's rejection of the policy for the time.[36] Robert Einhorn, Special Advisor for Nonproliferation and Arms Control at the Department of State, said at a rollout event for the 2010 NPR, "In our discussions with allies and friends around the world—and we had many frequent contacts with those friends—they indicated to us that such a radical shift [sole purpose] in [sic] U.S. approach could be unsettling to them."[37]

Despite changes in governments, allied opposition to "sole purpose" and NFU policies remains remarkably consistent, even amid occasional rhetorical expressions in support of nuclear disarmament. In a 2009 letter, then-Foreign Minister Okada lauded President Obama's calls for a world without nuclear weapons and expressed interest in commencing discussions about a "sole purpose" nuclear weapons policy.[38] Yet, Japan has aggressive opponents and relies on the U.S. extended deterrent, "with nuclear deterrence at its core."[39] Tokyo describes current threats as "an era of crisis" not seen since the Second World War.[40] Given the dangerous trends in Japan's neighborhood, particularly including the Russian, Chinese, and North Korean promotion of nuclear capabilities and threats, successive Japanese governments *have rejected calls* for the United States to adopt an NFU or "sole purpose" declaratory policy, and occasionally expressed an interest in discussing the policy.[41]

The Second Obama Administration

Toward the end of President Obama's second term, his administration reportedly again considered implementing an NFU declaratory policy. A group of Democratic Senators urged President Obama to adopt an NFU declaratory policy "to bolster U.S. national security and

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[34] Ibid., pp. 17, 47.

[35] Ibid., p. 48.

[36] Brad Roberts, "Debating Nuclear No-first-use, Again," *Survival*, Vol. 61, No. 3 (June-July 2019), p. 43, available at https://cgsr.llnl.gov/content/assets/docs/Debating-Nuclear-No-first-use-Again.pdf.

[37] Robert J. Einhorn, as quoted in, "DoD's Nuclear Posture Review Rollout Briefing," *Defense.gov*, April 7, 2010, available at https://dod.defense.gov/Portals/1/features/defenseReviews/NPR/FPC_4-7-10_Nuclear_Posture_Review.pdf.

[38] Okada, *Letter to the U.S. State Secretary Hillary Clinton*, December 24, 2009, unofficial translation, op. cit.

[39] Ministry of Defense, *National Defense Program Guidelines for FY 2019 and Beyond*, December 18, 2018, Provisional Translation, p. 8, available at https://www.mod.go.jp/j/approach/agenda/guideline/2019/pdf/20181218_e.pdf.

[40] As stated in Japan's 2023 defense white paper, quoted in, Bill Gertz, "Threat from China prompts major military buildup by Japan, including long-range strike weapons," *The Washington Times*, July 28, 2023, available at https://www.washingtontimes.com/news/2023/jul/28/threat-china-prompts-major-military-buildup-japan-/#:~:text=A%20security%20%E2%80%9Ccrisis%E2%80%9D%20mainly%20posed,strategy%20report%20made%20public%20Friday.

[41] Nobuyasu Abe, "No First Use: How to Overcome Japan's Great Divide," *Journal for Peace and Nuclear Disarmament*, Vol. 1, No. 1 (2018), p. 137, available at https://www.tandfonline.com/doi/epdf/10.1080/25751654.2018.1456042?needAccess=true&role=button.

advance the commitment" the President made in Prague in 2009.[42] The idea again had significant support within the disarmament community, disappointed by President Obama's rejection of NFU and "sole purpose" in his first term.[43] By then, however, it was blatantly clear that the "restart" the Obama Administration attempted with Russia had come to naught as Moscow invaded yet another country, this time Ukraine, in 2014. The invasion was Russia's second in six years (Russia invaded Georgia in 2008) and reflected the worsening security environment that made "sole purpose" or NFU policies less likely to gain traction.

It is, therefore, unsurprising that the administration's reconsideration ran into opposition from U.S. allies and reportedly prompted several of them, including Japan, South Korea, France and the United Kingdom, to lobby the Obama Administration against the change.[44] While nuclear disarmament advocate Joe Cirincione mocked these allies as "nervous nellies," as if they did not understand their own security requirements,[45] the Obama Administration's continued rejection of a "sole purpose" or NFU declaration had extensive support among experts and policy-makers in allied countries and the United States.

For example, the administration's proposal reportedly was opposed by several high-level cabinet officials, including the then-Secretaries of Defense, Energy, and State.[46] Then-Secretary of the Air Force Deborah Lee James also publicly expressed concerns about the policy, and several other high-level military officials rejected it.[47] Allies reportedly learned about the administration's discussion of potentially implementing an NFU declaratory policy from the news, which, if true, indicates poor communication on the U.S. side despite the 2010 NPR's explicit commitment to improving communications about these matters with allies.[48] Japan, under a different government than during President Obama's first term, and South Korea, remained opposed to the NFU nuclear weapons declaratory policy and, according to experts, "would likely have deep concerns about a sole purpose commitment."[49]

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[42] *Letter to President Barack Obama*, U.S. Senate, July 20, 2016, available at https://www.feinstein.senate.gov/public/_cache/files/9/6/96cf16f8-2e75-4a6d-a71d-b7ebd7404296/39888086CF8EC760E72A410351FE05C6.letter-to-president-obama-on-nuclear-weapons.pdf.

[43] Roberts, "Debating Nuclear No-first-use, Again," op. cit., p. 45.

[44] Josh Rogin, "U.S. allies unite to block Obama's nuclear 'legacy'," *The Washington Post*, August 14, 2016, available at https://www.washingtonpost.com/opinions/global-opinions/allies-unite-to-block-an-obama-legacy/2016/08/14/cdb8d8e4-60b9-11e6-8e45-477372e89d78_story.html?utm_term=.c0e0d6c4d694.

[45] Ibid.

[46] Paul Sonne, Gordon Lubold, and Carol Lee, "'No First Use' Nuclear Policy Proposal Assailed by U.S. Cabinet Officials, Allies," *The Washington Post*, August 12, 2016, available at https://www.wsj.com/articles/no-first-use-nuclear-policyproposal-assailed-by-u-s-cabinet-officials-allies-1471042014.

[47] Aaron Mehta, "US Air Force Secretary Skeptical of No-First-Use Nuclear Policy," *Defense News*, August 3, 2016, available at https://www.defensenews.com/pentagon/2016/08/03/us-air-force-secretary-skeptical-of-no-first-use-nuclear-policy/; and, Bill Gertz, "Military Warns Against Nuclear Policy Change," *The Washington Free Beacon*, July 15, 2016, available at https://freebeacon.com/national-security/military-warns-nuclear-policy-change/.

[48] Rogin, "U.S. allies unite to block Obama's nuclear 'legacy'," op. cit.

[49] Richard C. Bush and Jonathan D. Pollack, "Before moving to 'no first use,' think about Northeast Asia," *The Brookings Institution*, July 20, 2016, available at https://www.brookings.edu/blog/order-from-chaos/2016/07/20/before-moving-to-no-first-use-think-about-northeast-asia/.

In January 2017, then-Vice President Joseph Biden stated he believed the administration had "made enough progress that deterring—and if necessary, retaliating against—a nuclear attack should be the *sole purpose* of the U.S. nuclear arsenal."[50] While the outgoing Obama Administration ultimately again decided against significant changes in the U.S. declaratory policy, the Biden Administration returned to the cause four years later.

NFU, "Sole Purpose," and the Biden Administration

Candidate Biden continued to support an NFU nuclear declaratory policy during his presidential campaign for the 2020 elections. In 2019, two prominent Democrats, the House Armed Services Committee Chairman, Adam Smith and Senator Elizabeth Warren, a Senate Armed Services Committee member, introduced a "No First Use Act," which would have legally prohibited the United States from using nuclear weapons first in a conflict.[51] The bill did not make it into law but it was an indication that a "sole purpose" policy would become a prominent part of the 2020 Democratic Party platform.

President Biden's team members spoke in favor of an NFU or "sole purpose" declaratory policy prior to joining the administration, including then-nominated (and later confirmed) Ambassador Bonnie Jenkins, Undersecretary of State for Arms Control and International Security.[52] President Biden himself reiterated his belief that "*the sole purpose* of the U.S. nuclear arsenal should be deterring—and, if necessary, retaliating against—a nuclear attack."[53] He said he would "work to put that belief into practice, in consultation with the U.S. military and U.S. allies."

During the preparation of the 2022 NPR, the Biden Administration reportedly sent a questionnaire to allies asking them about their views regarding U.S. adoption of "sole purpose" and "NFU" policies.[54] Allied responses apparently were overwhelmingly negative, including from the United Kingdom, France, Germany, Japan, and Australia.[55] As noted, successive Japanese governments have opposed U.S. initiatives to adopt such declaratory policies.[56] Discussing the issue, an Australian expert noted that when "doubts have arisen about US commitments in the past, Taiwan, Japan, South Korea, and even Australia have toyed with their own nuclear weapons programs," and that there "is no reason to assume

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[50] Office of the White House, "Remarks by the Vice President on Nuclear Security," January 12, 2017, available at Remarks by the Vice President on Nuclear Security | whitehouse.gov (archives.gov). (Emphasis added).

[51] Joe Gould, "Warren, Smith introduce bill to bar US from using nuclear weapons first," *Defense News*, January 30, 2019, available at https://www.defensenews.com/congress/2019/01/30/warren-smith-introduce-bill-to-bar-us-from-using-nuclear-weapons-first/.

[52] Bryan Bender, "'This is going to be quite a show': Biden's arms control team eyes nuclear policy overhaul," *Politico*, January 27, 2021, available at https://www.politico.com/news/2021/01/27/biden-nuclear-weapons-policy-463335.

[53] Joseph Biden, "Why America Must Lead Again," *Foreign Affairs*, Vol. 99, No. 2 (March/April 2020), available at https://www.foreignaffairs.com/articles/united-states/2020-01-23/why-america-must-lead-again. (Emphasis added).

[54] Demetri Sevastopulo and Henry Foy, "Allies lobby Biden to prevent shift to 'no first use' of nuclear arms," *Financial Times*, October 29, 2021, available at https://www.ft.com/content/8b96a60a-759b-4972-ae89-c8ffbb36878e.

[55] Ibid.

[56] Abe, "No First Use: How to Overcome Japan's Great Divide," op. cit., p. 137.

they will not do so again."[57] Jüri Luik, Estonia's permanent representative to NATO, publicly commented that in Estonia's opinion, the present nuclear posture should be maintained, i.e., the United States should continue to reject NFU or "sole purpose."[58] Ben Wallace, British Secretary of State for Defence, spoke out specifically against changes in U.S. declaratory nuclear policy toward NFU and "sole purpose."[59]

To its great credit, the Biden Administration did not adopt NFU or "sole purpose" in its 2022 NPR, despite apparent domestic pressure to do so and endorsement in the 2020 party platform. Negative allied and public responses appear to have contributed to the administration's foregoing NFU or "sole purpose." Nevertheless, and undoubtedly to some allies' distress, the 2022 NPR identified a "sole purpose" policy as a continuing U.S. goal[60]—signaling an enduring aspiration that seems wholly obtuse to repeatedly-expressed allied concerns—and to the need to *reinforce* credible extended deterrence in the contemporary threat context.

From a U.S. perspective, the apparent fact that over years Washington has seriously considered the adoption of NFU or "sole purpose," but on each occasion ultimately did not do so, may be seen as exemplary U.S. deference to allied concerns. From an allied perspective, however, it can only be disturbing that the same policy battle with Washington must be fought again and again to stem an initiative that so obviously is contrary to the need for credible extended deterrence and allied assurance—an initiative that continues to be a stated U.S. policy aspiration. Allies must consider their options if they are unsuccessful the next time this familiar cycle reemerges.

The rise of revisionist nuclear-armed states, Russia's February 2022 invasion of Ukraine and the prominent, coercive role Russia's nuclear weapons play in this conflict (including shaping U.S. and allied choices with respect to the kinds of weapons they provide to Ukraine and when), hopefully will finally bring to an end consideration of NFU and "sole purpose" policies. The conflict makes obvious Russia's coercive nuclear threats intended to provide cover for an expansionist war on a scale not seen in Europe since World War II—and Moscow's potential willingness to employ nuclear weapons. Significant asymmetries in U.S. and Russia's nuclear forces, particularly in short-range nuclear weapons, and China's own nuclear threats and effort to reach parity or more on the strategic level, call into question whether the current and planned U.S. nuclear force posture is sufficient to sustain credible

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[57] Andrew O'Neil, "A 'No-First-Use' doctrine would undermine American nuclear deterrence," *The Interpreter*, January 21, 2021, available at https://www.lowyinstitute.org/the-interpreter/no-first-use-doctrine-would-undermine-american-nuclear-deterrence.

[58] Joe Gould, "Estonia's envoy to NATO talks Russia, Afghanistan and US nuclear policy," *Defense News*, November 24, 2021, available at https://www.defensenews.com/global/2021/11/24/estonias-envoy-to-nato-on-the-russia-crisis-us-nuclear-policy-and-afghanistan-pullout/.

[59] Ben Wallace, *Web Event at the American Enterprise Institute*, July 13, 2021, available at https://www.aei.org/wp-content/uploads/2021/07/210713-UK-Secretary-of-State-for-Defence-Ben-Wallace-discusses-strategic-priorities.pdf?x91208.

[60] U.S. Department of Defense, *2022 Nuclear Posture Review* (Washington, D.C.: Department of Defense, 2022), p. 9, available at https://media.defense.gov/2022/Oct/27/2003103845/-1/-1/1/2022- NATIONAL-DEFENSE-STRATEGY-NPR-MDR.PDF.

deterrence of adversaries and assure allies in the coming years. Amid these developments, the perennial political pressure for "sole purpose" or NFU in the United States can only be described as an archaic vestige of a time when a benign "new world order" and great power amity were fully expected.[61] Suffice to say that the actual world order now contrasts sharply with Washington's past sanguine expectations.

Conclusion

The TLAM-N/SLCM-N case study illustrates well the frequent differences in U.S. and allied perspectives regarding the requirements for extended deterrence and assurance, and Washington's occasional apparent willingness to subordinate allies' views—seemingly in deference to domestic political constituencies. Further illustrative of this tendency is the fact that some presidential administrations continue to show interest in NFU or "sole purpose" nuclear policies—despite the fact that U.S. allies and partners strongly oppose them as being detrimental to extended deterrence. Continued U.S. attraction to antiquated "anti-nuclear" initiatives likely to degrade extended deterrence clearly is not the only source of the U.S-Allied incongruence, but it surely is an avoidable cause.

The different U.S. and allied perceptions and expectations regarding assurance and extended deterrence require an improved two-way understanding of the contemporary realities of deterrence and assurance. Mutual recognition of those realities and their requirements would contribute both to the continued viability of the U.S. alliance structure and to the goal of nuclear non-proliferation. The alternative contributes to unforced errors and alliance strains.

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[61] See, for example, President George H. W. Bush's remarks to a joint session of Congress, quoted in, "Bush 'Out of These Troubled Times…A New World Order,'" *The Washington Post*, September 12, 1990, available at https://www.washingtonpost.com/archive/politics/1990/09/12/bush-out-of-these-troubled-times-a-new-world-order/b93b5cf1-e389-4e6a-84b0-85f71bf4c946/.

BEIDOU: CHINA'S CONSTELLATION OF VASSALAGE

Kathleen Ellis

Introduction

Satellite navigation systems provide the positioning, navigation, and timing (PNT) services now ubiquitous in modern life. Such systems have three major segments. The satellite segment consists of a network, or constellation, of satellites circling the globe in medium earth orbit (about 22,000 kilometers above the earth).[1] A second segment includes a ground-based network of manned and unmanned control systems that track and monitor the satellites.[2] A third segment consists of user receivers that are built into a wide variety of modern devices from smartwatches to aircraft and are designed to locate and receive signals from at least four satellites.[3] By timing how long it takes for each satellite signal to reach earth and calculating the distance between the satellite and the device, the receiver can calculate its precise position, including latitude, longitude, altitude, and velocity with high accuracy.[4]

The United States was the pioneer of satellite-based PNT capabilities through its development of the Global Positioning System (GPS). GPS was originally developed for military purposes and today still underpins American military power by enabling target location, missile guidance, naval and aircraft navigation, and self-location of land-based troops, all critical capabilities for facilitating joint operations in modern warfare.[5] GPS has since found numerous civilian applications as well. It is crucial to providing safe and coordinated navigation for commercial and civil transportation, including air, maritime, rail,

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Much of the research and analysis on which this paper draws was originally conducted by the author for an unpublished research project of the same title prepared for faculty of the Department of Defense and Strategic Studies, Missouri State University, completed in June 2021.

[1] Steve Lambakis, *Foreign Space Capabilities: Implications for U.S. National Security*, Fairfax, VA: National Institute for Public Policy, September 2017, 8, available at https://nipp.org/monographs_cpt/in-foreign-space-capabilities-implications-for-u-s-national-security/.

[2] Irving Lachow, "The GPS Dilemma: Balancing Military Risks and Economic Benefits," *International Security* 20, no. 1 (1995): 126–48, available at https://www.jstor.org/stable/2539220, 128; U.S. Space Force, "Control Segment," GPS.gov, January 6, 2021, available at https://www.gps.gov/systems/gps/control/.

[3] Lachow, "The GPS Dilemma," 128; U.S. Congress, U.S.-China Economic and Security Review Commission, "China's Alternative to GPS and Its Implications for the United States," staff research report by Jordan Wilson, 115th Cong., 1st sess., January 5, 2017, available at https://www.uscc.gov/sites/default/files/Research/Staff%20Report_China%27s%20Alternative%20to%20GPS%20and%20Implications%20for%20the%20United%20States.pdf, 3.

[4] Lachow, "The GPS Dilemma," 128; U.S. Congress, U.S.-China Economic and Security Review Commission, "China's Alternative to GPS," 3; Constantine, Roftiel, *GPS and Galileo: Friendly Foes?* Air University Press, 2008, 3–20, available at http://www.jstor.org/stable/resrep13860.9, 4.

[5] Lachow, "The GPS Dilemma," 134–5, 137; Constantine, *GPS and Galileo: Friendly Foes?* 4–5.

and road traffic.[6] It greatly facilitates mapping and surveying capabilities and enables efficient emergency management and disaster response, as well as public security functions such as monitoring and surveillance.[7] GPS facilitates precision agriculture, enabling greater crop yields by allowing farmers to monitor and manage site-specific variabilities across vast acreage.[8] GPS also makes possible the tracking and control of other types of satellites.[9] In addition, GPS's timing services are essential to ensuring time synchronization of financial transactions, communications networks, and computer systems globally.[10] GPS technology has also become pervasive in consumer smartphone applications and is playing an increasingly pivotal role in the growing e-commerce market.[11] Today, GPS application to this array of scientific, commercial, government, and consumer needs is now so seamlessly integrated into daily life that most users take such capabilities for granted. PNT use continues to expand: as of 2019, there were over 6 billion PNT receivers in use globally; by 2031, there are expected to be more than 10 billion.[12] Of note, the Asia-Pacific region is currently the largest market for PNT receivers and is expected to remain so through at least 2031.[13]

Through GPS, the United States is currently the global leader in providing satellite-based PNT capabilities.[14] Although the U.S. Government initially conceived, developed, and managed GPS as a military capability, it later offered GPS services free of charge globally to anyone with an appropriate receiver, and U.S. policy evolved accordingly to support the view of GPS as a "global utility."[15] GPS was the first system to achieve global coverage but has since

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[6] U.S. Space Force, "GPS Applications," GPS.gov, November 25, 2014, available at https://www.gps.gov/applications/.

[7] U.S. Space Force, "Public Safety and Disaster Relief," June 14, 2019, available at https://www.gps.gov/applications/safety/; European Union Agency for the Space Programme, *GNSS Market Report, Issue 6, 2019*, European Global Navigation Satellite Systems Agency, October 6, 2019, available at https://www.euspa.europa.eu/system/files/reports/market_report_issue_6_v2.pdf, 50.

[8] U.S. Space Force, "Agriculture," GPS.gov, March 6, 2018, available at https://www.gps.gov/applications/agriculture/; European Global Navigation Satellite Systems Agency, *Report on Agriculture User Needs and Requirements: Outcome of the European GNSS' User Consultation Platform*, July 1, 2019, available at https://www.gsc-europa.eu/sites/default/files/sites/all/files/Report_on_User_Needs_and_Requirements_Agriculture.pdf, 8.

[9] U.S. Space Force, "Space," January 6, 2021, available at https://www.gps.gov/applications/space/.

[10] U.S. Space Force, "Timing," November 5, 2019, available at https://www.gps.gov/applications/timing/; Kohn, Ulrich, "Are multi-band GNSS receivers the key to 5G timing?" *Technically Speaking* (blog), ADVA, June 22, 2020, available at https://www.blog.adva.com/en/are-multi-band-gnss-receivers-the-key-to-5g-timing.

[11] European Union Agency for the Space Programme, *GNSS Market Report, Issue 6, 2019*, 50; Tracy Cozzens, "China adds to BeiDou as satnav service helps fight coronavirus," *GPS World*, March 10, 2020, available at https://www.gpsworld.com/china-adds-to-beidou-as-satnav-service-helps-fight-coronavirus/.

[12] European Union Agency for the Space Programme, *GNSS Market Report, Issue 6, 2019*, 6, 9, 10; European Union Agency for the Space Programme, *EUSPA EO and GNSS Market Report, Issue 1, 2022*, available at https://www.gsc-europa.eu/sites/default/files/sites/all/files/EUSPA_Market_report_2022.pdf, 8, 20.

[13] European Union Agency for the Space Programme, *EUSPA EO and GNSS Market Report, Issue 1, 2022*, 20.

[14] Scott W. Beidleman, *GPS versus Galileo: Balancing for Position in Space*, Air University Press, 2006, 51–68, available at http://www.jstor.org/stable/resrep13861.10, 65–6; Clayton Cheney, "China's Digital Silk Road: Strategic Technological Competition and Exporting Political Illiberalism," Issues and Insights Working Paper, Vol. 19, WP8, Pacific Forum, July 2019, available at https://pacforum.org/wp-content/uploads/2019/08/issuesinsights_Vol19-WP8FINAL.pdf, 6.

[15] "U.S. Space-Based Positioning, Navigation, and Timing Policy: Fact Sheet," U.S. Space Force (GPS Major Policy Documents), December 15, 2004, available at https://www.gps.gov/policy/docs/2004/; Kasku-Jackson, Jonty, "Prohibiting

been joined by three other global navigation satellite systems (GNSS): the European Union's Galileo, Russia's Global Orbital Navigation Satellite System (GLONASS), and, most recently, China's BeiDou System. The United States at first regarded such systems as competitive with GPS but eventually chose a cooperative approach, seeking interoperability and compatibility between GPS and foreign GNSS.[16] Other GNSS operators have largely followed the U.S. example by making their own civilian signals available globally free of charge and by supporting interoperability and compatibility between systems.[17] Accordingly, receiver devices are now increasingly designed to receive signals not only from GPS but also from other GNSS in integrated fashion, with the aim of improving overall PNT availability and accuracy for users.[18]

However, as China enters the global PNT field with BeiDou, its own independent global system, a foreboding manifestation of geopolitical competition has begun to emerge. China has made BeiDou a key element of a larger, ambitious strategy to cultivate foreign dependencies and to project power throughout the Asia-Pacific region, and progressively around the globe, at the expense of the United States. As China pursues this course, a U.S. policy focused primarily on international cooperation appears increasingly outdated. If the United States seeks to retain the advantages afforded by its global PNT leadership, it must be willing to regard and to leverage GPS as a tool of national power.

The Evolution of GPS Policy

In the 1960s, the U.S. Department of Defense (DOD) developed the world's first satellite navigation system, a five-satellite constellation called Transit, for the purpose of guiding Polaris submarines and ballistic missiles.[19] The project was so successful that DOD established a joint program office to develop a global positioning system (GPS) that could be used by all military services.[20] DOD launched the first test satellite in 1978 and continued to test and improve the system throughout the 1970s and 1980s.[21] The U.S. Government initially reserved GPS signals primarily for the U.S. military, but a tragedy prompted a change in policy. In August 1983, a Korean Airlines Flight on its way from Anchorage, Alaska, to

Interference with Space-Based Position, Navigation, and Timing," *Strategic Studies Quarterly* 10, no. 4 (2016): 90–122, available at http://www.jstor.org/stable/26271531, 99.

[16] In historical GPS policy, compatibility refers to the ability of PNT signals and services "to be used separately or together without interfering with each individual service or signal, and without adversely affecting navigation warfare," whereas interoperability refers to the ability of PNT signals and services "to be used together to provide better capabilities at the user level than would be achieved by relying solely on one service or signal" (U.S. Space-Based Positioning, Navigation, and Timing Policy: Fact Sheet," available at https://www.gps.gov/policy/docs/2004/).

[17] Lambakis, *Foreign Space Capabilities*," 15.

[18] U.S. Congress, U.S.-China Economic and Security Review Commission, "China's Alternative to GPS," 4.

[19] Constantine, *GPS and Galileo: Friendly Foes?* 3–4.

[20] Lachow, "The GPS Dilemma," 127.

[21] U.S. Congress, U.S.-China Economic and Security Review Commission, "China's Alternative to GPS," 3.

Seoul, South Korea, unknowingly strayed off course into Soviet airspace.[22] The Soviets mistook the plane for an enemy spy plane and shot it down, killing all 269 people onboard.[23] To help ensure that such a calamity would never again occur, President Ronald Reagan announced that GPS signals would be made available for international civilian use once the system was fully operational in 1988.[24] President Reagan's decision set a precedent of treating GPS as a "global utility," a policy that the U.S. Government continues to observe to the current day and which has helped create an expectation that satellite navigation capabilities will be consistently available at little to no cost to all interested users.[25]

True to President Reagan's promise, DOD opened a GPS signal for global civilian use, and by 1995 GPS had achieved global coverage and was available free of charge to anyone with a receiver.[26] This led to a worldwide surge in demand for GPS-compatible receivers, and the commercial satellite navigation industry grew rapidly to meet the new demands of civil and recreational users.[27] However, fearing that foreign adversaries and terrorists might exploit the newly opened signal for nefarious purposes, DOD intentionally degraded the signal precision from about 20 meters to 100 meters.[28] This intentional degradation feature, called Selective Availability (SA), was an enduring feature of GPS for several years and proved to be a source of continual frustration to the growing civilian and commercial GPS user community.[29]

The United States demonstrated the revolutionary "war winner" advantages of PNT during Operation Desert Storm in 1991.[30] Soon thereafter, the U.S. military pioneered Navigation Warfare (NAVWAR), leveraging GPS for its own and its allies' military operations while denying enemy use of GPS during conflicts.[31] All the while, the United States'

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[22] Asaf Degani, "The Crash of Korean Air Lines Flight 007," in *Taming HAL*, New York: Palgrave Macmillan, 2004, available at https://ti.arc.nasa.gov/m/profile/adegani/Crash%20of%20Korean%20Air%20Lines%20Flight%20007.pdf, 50, 52.

[23] Sarah Laskow, "The Plane Crash That Gave Americans GPS," *The Atlantic*, November 3, 2014, available at https://www.theatlantic.com/technology/archive/2014/11/the-plane-crash-that-gave-americans-gps/382204/.

[24] Lachow, "The GPS Dilemma," 127; Larry M. Speakes, "Statement by Deputy Press Secretary Speakes on the Soviet Attack on a Korean Civilian Airliner," Ronald Reagan Presidential Library and Museum Archives, September 16, 1983, available at https://www.reaganlibrary.gov/archives/speech/statement-deputy-press-secretary-speakes-soviet-attack-korean-civilian-airliner-1.

[25] "U.S. Space-Based Positioning, Navigation, and Timing Policy: Fact Sheet," December 15, 2004; Kasku-Jackson, "Prohibiting Interference with Space-Based Position, Navigation, and Timing," 99.

[26] Constantine, *GPS and Galileo: Friendly Foes?* 4; U.S. Congress, U.S.-China Economic and Security Review Commission, "China's Alternative to GPS," 3; Mariel Borowitz, "An Interoperable Information Umbrella: Sharing Space Information Technology," *Strategic Studies Quarterly* 15, no. 1 (2021): 116–32, available at https://www.jstor.org/stable/26984770, 121; Lachow, "The GPS Dilemma," 127, 130.

[27] Scott Pace, Gerald P. Frost, Irving Lachow, David R. Frelinger, Donna Fossum, Don Wassem, and Monica M. Pinto, *The Global Positioning System: Assessing National Policies*, Santa Monica, CA: RAND Corporation, 1995, available at https://www.rand.org/pubs/monograph_reports/MR614.html, 2; Lachow, "The GPS Dilemma," 127, 130.

[28] Lachow, "The GPS Dilemma," 126, 128–9.

[29] Lachow, "The GPS Dilemma," 128; Constantine, *GPS and Galileo: Friendly Foes?* 6–7.

[30] Constantine, *GPS and Galileo: Friendly Foes?* 5–6; Lachow, "The GPS Dilemma," 133.

[31] Beidleman, *GPS versus Galileo: Balancing for Position in Space*, 52.

technological leadership enabled it to promote GPS as the global PNT standard.[32] Other countries took note of the military and political advantages as well as the growing economic benefits afforded to the United States through GPS.[33]

Civilian demand for GPS quickly began to surpass military demand, and U.S. policy accordingly grew more oriented to its new civilian "customer" base.[34] With the end of the Cold War in the early 1990s, the Administration of President Bill Clinton was eager to move the U.S. Government beyond its predominating focus on military and defense spending.[35] As he sought to shift federal spending away from defense programs, President Clinton also aimed to reinvigorate the American economy by leveraging the burgeoning "Information Technology Revolution."[36] He therefore pursued policies promoting broad access to the Internet and other computer-related technology.[37] President Clinton also negotiated a number of global trade agreements supporting the globalization of information technology with the goal of integrating the United States more deeply into the global economy.[38] Within this policy context, the Clinton Administration adopted a distinct view of GPS, like the Internet, as a global commodity in the service of the international community. In 1998, Vice President Al Gore announced the addition of a second worldwide civil signal to GPS, hailing it as "a major step in the evolution of GPS as a *global information utility*."[39] He explained that "GPS is becoming increasingly indispensable for navigation, positioning, and timing by users around the world. Also like the Internet, GPS has become an engine of economic growth and efficiency as businesses and consumers continue to develop new and creative applications of this technology."[40] He then reiterated the United States' commitment to providing GPS globally, "free of charge to consumers, businesses, and scientists around the world. We will continue to do everything we can to protect these GPS signals and to promote GPS applications for commercial, public safety, and national security purposes."[41]

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[32] Beidleman, *GPS versus Galileo: Balancing for Position in Space*, 55; Lachow, "The GPS Dilemma," 141–2; Office of Science and Technology Policy, National Security Council, "Fact Sheet: U.S. Global Positioning System Policy," Clinton White House Archives, March 29, 1996, available at https://clintonwhitehouse2.archives.gov/WH/EOP/OSTP/html/gps-factsheet.html.

[33] Constantine, *GPS and Galileo: Friendly Foes?* 14; Beidleman, *GPS versus Galileo: Balancing for Position in Space*, 54–5.

[34] Constantine, *GPS and Galileo: Friendly Foes?* 7.

[35] Clinton White House Archives, "The Clinton Presidency: Unleashing the New Economy — Expanding Access to Technology," *The Clinton-Gore Administration: A Record of Progress*, available at https://clintonwhitehouse5.archives.gov/WH/Accomplishments/eightyears-09.html; Clinton White House Archives, "The Clinton Presidency: Historic Economic Growth," *The Clinton-Gore Administration: A Record of Progress*, available at https://clintonwhitehouse5.archives.gov/WH/Accomplishments/eightyears-03.html.

[36] Ibid.

[37] Ibid.

[38] Ibid.

[39] Office of the Vice President, "Vice President Gore Announces Enhancements to the Global Positioning System that Will Benefit Civilian Users Worldwide," Clinton White House Archives, March 30, 1998, available at https://clintonwhitehouse6.archives.gov/1998/03/1998-03-30-vp-announces-second-civilian-signal.html, emphasis added.

[40] Ibid.

[41] Ibid.

The balance in U.S. policy continued to shift in favor of civilian and global demands throughout the Clinton Administration. The chorus of complaints about the SA degradation feature continued to swell and soon included the U.S. Government's own civilian agencies, such as the Department of Transportation and the Federal Aviation Administration, which demanded increasingly precise GPS capabilities for their operations.[42] In recognition of the growing importance of GPS for civil, commercial, and scientific purposes, President Clinton announced that the SA feature would be discontinued by 2006 in order to "[e]ncourage acceptance and integration of GPS into peaceful civil, commercial and scientific applications worldwide" and to "[p]romote international cooperation in using GPS for peaceful purposes."[43] In keeping with a global utility perspective, President Clinton's announcement also emphasized that the United States would continue to offer GPS services worldwide without charge.[44]

The Rise of Competing Global Navigation Satellite Systems

Despite the purported global benefits of the U.S. commitment to underwriting satellite navigation for the rest of the world, some countries felt at a strategic disadvantage in depending on GPS for their own military and civil uses.[45] In the 1980s, the Soviet Union pursued the development of an alternative GNSS, called GLONASS, for military use.[46] (GLONASS was made available for civilian use in 2007 and did not include a degradation feature like the GPS SA, making it attractive to some civilian users as an alternative to GPS.[47]) Then in 1999, the European Union (EU) announced plans to develop its own global PNT system, Galileo.[48] The EU's primary objective was to safeguard European sovereignty by avoiding dependence on the "non-civilian" GPS and GLONASS systems.[49] Galileo also promised greater accuracy and better coverage at higher latitudes than GPS and boasted the distinction of being the only satellite navigation system designed specifically for civilian application and controlled by civil authorities.[50]

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[42] Constantine, *GPS and Galileo: Friendly Foes?* 6.

[43] Office of Science and Technology Policy, "Fact Sheet: U.S. Global Positioning System Policy."

[44] Office of Science and Technology Policy, "Fact Sheet: U.S. Global Positioning System Policy"; Constantine, *GPS and Galileo: Friendly Foes?* 6.

[45] Lachow, "The GPS Dilemma," 141–2.

[46] European Space Agency, "GLONASS General Introduction," 2011, available at https://gssc.esa.int/navipedia/index.php/GLONASS_General_Introduction.

[47] Lachow, "The GPS Dilemma," 139; European Union Agency for the Space Programme, "What is Galileo?" YouTube video, 1:36, December 11, 2017, available at https://www.euspa.europa.eu/european-space/galileo/faq#GAL; European Space Agency, "GLONASS General Introduction."

[48] Beidleman, *GPS versus Galileo: Balancing for Position in Space*, 60.

[49] European Union Agency for the Space Programme, "What is Galileo?"

[50] European Union Agency for the Space Programme, "Is Galileo the Same as GPS?" YouTube video, 0:39, June 18, 2019, available at https://www.youtube.com/watch?v=4mrV-aEurY8&list=PLoW55g8cihhJH9Gu-CSBMZSKYl4sSD7Ly&index=7; European Union Agency for the Space Programme, "What is the added value of Galileo

The United States was initially skeptical that Galileo would survive EU bureaucratic hurdles, but once the program secured authorization and funding in 2002, U.S. policymakers quickly realized that Galileo was poised to become a peer competitor of GPS.[51] Galileo planned to use the same frequency range as GPS, complicating U.S. options for controlling and jamming GPS signals in potential conflicts.[52] U.S. leaders also fretted that the European Union would establish standards that were incompatible with GPS and successfully draw away GPS customers, threatening to end the U.S. monopoly over both the satellite navigation market and international PNT standards.[53] The EU's program quickly attracted investment interest from several countries, including China, India, South Korea, Israel, and Canada, portending a huge user market for Galileo beyond the EU and threatening to undermine the multi-billion dollar investment the United States had already made in GPS.[54] U.S. policymakers also worried that the European Union would one day require, by law, the use of Galileo in certain regions.[55]

Reacting to this development, the Clinton Administration turned off the GPS SA degradation feature in 2000, six years ahead of schedule, to demonstrate responsiveness to GPS's non-military users and to diminish the incentives driving the EU and Russian GNSS projects.[56] DOD also accelerated its GPS modernization schedule in order to improve accuracy.[57] On the diplomatic front, American officials openly resisted the development of Galileo. Once President George W. Bush entered office, Bush Administration officials complained to European leaders about the potential interference Galileo posed to GPS signals.[58] But European officials, wary of the potential "vassal status" (in the words of French President Jacques Chirac) of depending on the U.S. military for satellite navigation, continued to pursue the program.[59]

Once it was clear that Galileo would proceed despite objections from Washington, U.S. policymakers determined that the best course of action was to focus not on competing with Galileo but rather on making GPS compatible and interoperable with Galileo and other foreign PNT systems.[60] The head of the U.S. delegation charged with negotiating the future relationship between GPS and Galileo compared satellite navigation, as Vice President Gore

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with respect to other GNSS?" updated May 21, 2021, available at https://www.euspa.europa.eu/european-space/galileo/faq#value.

[51] Beidleman, *GPS versus Galileo: Balancing for Position in Space*, 59, 60.

[52] Ibid., 54.

[53] Ibid., 55–56.

[54] Ibid., 54–55, 58–59.

[55] Beidleman, *GPS versus Galileo: Balancing for Position in Space*, 56; Erwin, Sandra I., "Europe's Galileo Plans to Challenge U.S. GPS Dominance," *National Defense*, June 1, 2000, available at https://www.nationaldefensemagazine.org/articles/2000/6/1/2000june-europes-galileo-plans-to-challenge-us-gps-dominance.

[56] Constantine, *GPS and Galileo: Friendly Foes?* 7.

[57] Beidleman, *GPS versus Galileo: Balancing for Position in Space*, 59.

[58] Borowitz, "An Interoperable Information Umbrella," 122.

[59] Ibid.

[60] Beidleman, *GPS versus Galileo: Balancing for Position in Space*, 60.

had done in 1998, to the Internet, arguing that it "would make no more sense to have two disconnected, non-interoperable and exclusionary global navigation systems … than it would to have two Internets."[61]

Therefore, the United States and EU signed a "historic agreement" in June 2004 to establish a "framework of cooperation … in the promotion, provision and use of civil GPS and GALILEO navigation and timing signals and services, value-added services, augmentations, and global navigation and timing goods," and "to work together, both bilaterally and in multilateral fora … to promote and facilitate the use of these signals, services, and equipment for peaceful civil, commercial, and scientific uses, consistent with and in furtherance of mutual security interests."[62] In December of the same year, the United States and Russia formally committed to cooperate in PNT matters and announced their intent to establish joint working groups for this purpose.[63] Only a few days later, President Bush issued a new policy specifically to provide guidance to the U.S. Government in navigating the new multi-GNSS environment. This 2004 policy re-emphasized the view of GPS as a "global utility" and a critical element of the globalized economy, and affirmed the intent to keep it so.[64] It acknowledged the advent of new foreign PNT systems and acknowledged that U.S. policy would need to adapt to this reality.[65] Therefore, it stated as an explicit goal to "encourage foreign development of positioning, navigation, and timing services and systems based on the Global Positioning System," and to seek interoperability and compatibility between GPS and foreign systems.[66] Thus, President Bush fully enshrined in GPS policy the principle of international cooperation and the primacy of cooperation over competition, further establishing the U.S. view of satellite navigation as a global utility.

China's BeiDou System

The U.S. emphasis on foreign PNT cooperation created a friendly and timely international GNSS environment for China, which had initiated its own PNT program, called Compass, in 1994.[67] The Compass program became a higher priority for Beijing after the Taiwan Strait Crisis of 1995–1996, when China's GPS-dependent missile guidance system temporarily lost

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[61] Ibid., 61.

[62] "Agreement on the Promotion, Provision and Use of Galileo and GPS Satellite-Based Navigation Systems and Related Applications," conclusion date: June 26, 2004, GPS.gov, available at https://www.gps.gov/policy/cooperation/europe/2004/gps-galileo-agreement.pdf, 6; U.S. Space-Based Positioning, Navigation, and Timing National Executive Committee, "GPS and Galileo…Progress Through Partnership," fact sheet, 2007, available at https://www.gps.gov/policy/cooperation/europe/2007/gps-galileo-fact-sheet.pdf.

[63] "Joint Statement on the U.S. Global Positioning System (GPS) and the Russian Global Navigation Satellite System (GLONASS)," GPS.gov, December 10, 2004, available at https://www.gps.gov/policy/cooperation/russia/2004-joint-statement/.

[64] "U.S. Space-Based Positioning, Navigation, and Timing Policy: Fact Sheet," December 15, 2004.

[65] Ibid.

[66] Ibid.

[67] U.S. Congress, House of Representatives, Foreign Affairs Committee, Republicans, "China Regional Snapshot: Space," 117th Cong., 1st sess., last updated March 16, 2021, available at https://gop-foreignaffairs.house.gov/china-regional-snapshot-space/.

the ability to track and direct its own missiles.[68] This "unforgettable humiliation," purportedly caused by a U.S. NAVWAR operation, strengthened Beijing's resolve to develop its own satellite navigation system so that it would never have to depend again on a foreign system.[69] China went on to launch its first experimental navigation satellites in 2000.[70] Foreign observers initially assumed that China was developing Compass only to enhance military capabilities, but in 2006 China announced that it would make Compass available for commercial use starting in 2008.[71] In 2012, after several additional satellite launches, China completed the regional version of what it renamed the BeiDou (Big Dipper) Navigation Satellite System (BDS), providing PNT coverage to all of China and much of the Asia-Pacific region.[72] China quickly proceeded to next-generation development of the system and in August 2020 placed its final satellite into orbit to complete its global coverage.[73] BDS's current constellation of more than 40 satellites is larger than GPS's 31, and offers greater accuracy than GPS in many regions of the world.[74] As of the launching of the final satellite in 2020, BDS already claimed 400 million users across 120 countries.[75]

In 2006, soon after President Bush chose to emphasize foreign cooperation in GPS policy, the United States entered into discussions with China on potential cooperation between GPS and BDS.[76] This was followed in 2014 by a joint statement between Washington and Beijing

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[68] Lambakis, *Foreign Space Capabilities*," 20; Anthony H. Cordesman and Joseph Kendall, *Chinese Strategy and Military Modernization in 2016: A Comparative Analysis*, Center for Strategic and International Studies, 2016, available at https://csis-website-prod.s3.amazonaws.com/s3fs-public/publication/161208_Chinese_Strategy_Military_Modernization_2016.pdf, 502–3.

[69] Lambakis, *Foreign Space Capabilities*," 20; Cordesman and Kendall, *Chinese Strategy and Military Modernization in 2016*, 502–3.

[70] Andrew Jones, "China Launches Beidou, Its Own Version of GPS," *IEEE Spectrum*, August 12, 2020, available at https://spectrum.ieee.org/tech-talk/aerospace/satellites/final-piece-of-chinas-beidou-navigation-satellite-system-comes-online; United Nations Office for Outer Space Affairs, "International Committee on Global Navigation Satellite Systems: The Way Forward: 10 Years of Achievement, 2005–2015," New York: United Nations, 2016, available at http://www.unoosa.org/res/oosadoc/data/documents/2016/stspace/stspace67_0_html/st_space_67E.pdf, 39.

[71] Constantine, *GPS and Galileo: Friendly Foes?* 18.

[72] United Nations Office for Outer Space Affairs, "International Committee on Global Navigation Satellite Systems," 39; Jones, "China Launches Beidou, Its Own Version of GPS."

[73] Jones, "China Launches Beidou, Its Own Version of GPS"; Ghiasy, Richard and Rajeshwari Krishnamurthy, *China's Digital Silk Road: Strategic Implications for the EU and India*, Institute of Peace and Conflict Studies and Leiden Asia Centre, August 2020, available at http://ipcs.org/issue_briefs/issue_brief_pdf/sr208_august2020_china's%20digital%20silk%20road-strategic%20implications%20for%20the%20eu%20and%20india_final.pdf, 6.

[74] Ryan Woo, "China set to complete Beidou network rivalling GPS in global navigation," *Reuters*, June 11, 2020, available at https://www.reuters.com/article/us-space-exploration-china-satellite-idUSKBN23J0I9; U.S. Space Force, "Space Segment," GPS.gov, March 16, 2021, available at https://www.gps.gov/systems/gps/space/; Sabena Siddiqui, "BRI, BeiDou and the Digital Silk Road," *Asia Times*, April 10, 2019, available at https://asiatimes.com/2019/04/bri-beidou-and-the-digital-silk-road/; C. Raja Mohan, "Raja Mandala: A Silk Road for the Heavens," Carnegie India, April 23, 2019, available at https://carnegieindia.org/2019/04/23/raja-mandala-silk-road-for-heavens-pub-78966.

[75] Jonathan E. Hillman, "China and Russia: Economic Unequals," Center for Strategic and International Studies, July 15, 2020, available at https://www.csis.org/analysis/china-and-russia-economic-unequals.

[76] "Joint Statement: U.S.-China Civil Global Navigation Satellite Systems (GNSS) Cooperation," GPS.gov, May 19, 2014, available at https://www.gps.gov/policy/cooperation/china/2014-joint-statement/.

committing to cooperation in PNT.[77] For its part, since opening BDS to civilian use, China has adopted a public posture of foreign cooperation, highlighting its bilateral and multilateral engagements on satellite navigation and espousing the principles of interoperability and compatibility.[78] Following the U.S. example, China has also sought to publicly depict satellite navigation as a global utility, describing BDS as "developed by China, dedicated to the world."[79] In late 2019, the chief BDS architect portrayed BDS as a special Chinese gift to other nations, saying, "China's BDS will contribute Chinese solutions to the world, and give full play of its role, with a renewed attitude, stronger capabilities and better services, to serve the world and benefit humankind."[80]

BeiDou and Beijing's Quest for Global Influence

While China appears to be following the same globally minded path that the United States blazed, the underlying political philosophies of the Chinese Communist Party drive a very different approach to foreign policy than America's.[81] Michael Mazarr and Ali Wyne describe such distinctive foreign policy approaches as "theories of influence" and capably highlight the contrast between the respective theories of influence that animate U.S. Government and Chinese Communist Party behavior.[82] On the one hand, the United States generally seeks to exercise power in foreign affairs in a way that also allows other nations to advance their own interests, thereby incentivizing support for the United States' leadership.[83] This approach helped give rise to the U.S.-led liberal international order characterized by free market practices and multilateral governing institutions, an order that has permitted participating states to more or less pursue their own interests.[84] On the other hand, China's Communist

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[77] Ibid.

[78] People's Republic of China, BeiDou Navigation Satellite System, "System," available at http://en.beidou.gov.cn/SYSTEMS/System/; U.S. Congress, U.S.-China Economic and Security Review Commission, "China's Alternative to GPS," 4–5; Jana Robinson, Patrik Martínek, Jakub Prazák, and Kristína Sikoraiová, "China Deploys Beidou to Project Power and Influence," *PSSI Perspectives—8, Space Security Program*, Prague Security Studies Institute, March 2021, available at https://www.pssi.cz/download/docs/8505_08-pssi-perspectives-china-deploys-beidou-to-project-power-and-influence-3.pdf, 2; Lu, Xiaochun, "Update on BeiDou Navigation Satellite System and PNT System," lecture, Stanford 2019 PNT Symposium, National Time Service Center, Chinese Academy of Sciences, October 30, 2019, available at http://web.stanford.edu/group/scpnt/pnt/PNT19/presentation_files/I10-Lu-Beidou_PNT_Update.pdf, 36–7.

[79] Changfeng Yang, "Directions 2020: BeiDou in the new era of globalization," *GPS World*, December 13, 2019, available at https://www.gpsworld.com/directions-2020-beidou-in-the-new-era-of-globalization/; People's Republic of China, BeiDou Navigation Satellite System, "System."

[80] Yang, "Directions 2020: BeiDou in the new era of globalization."

[81] Ibid.

[82] Michael J. Mazarr and Ali Wyne, "The Real U.S.-China Competition: Theories of Influence," *The RAND Blog*, Santa Monica, CA: Rand Corporation, January 29, 2020, available at https://www.rand.org/blog/2020/01/the-real-us-china-competition-theories-of-influence.html.

[83] Mazarr and Wyne, "The Real U.S.-China Competition: Theories of Influence"; U.S. Congress, U.S.-China Economic and Security Review Commission, "The Chinese Communist Party's Economic Challenge to the Free World," testimony by Miles Yu, 117th Cong., 1st sess., April 15, 2021, available at https://www.uscc.gov/sites/default/files/2021-04/Miles_Yu_Testimony.pdf, 3.

[84] Mazarr and Wyne, "The Real U.S.-China Competition: Theories of Influence."

government follows a strongly authoritarian agenda that ultimately seeks deeply hierarchical and transactional relationships with the aim of constraining the choices of other countries for its own advantage.[85] At one time, the United States had high hopes that China would adopt a more liberal political model as it integrated into the global economy. Since the 1970s when Deng Xiaoping pursued economic reforms and greater Chinese participation in the international community, China has become one of the world's top economic and technological powers; yet, contrary to U.S. optimism, China's integration into the global economy has not been accompanied by domestic political liberalization.[86] Rather, China kept its authoritarian system and, as its power grew, developed its own global ambitions.[87] The 2008 global financial crisis, which China survived comparatively unscathed, accelerated its rise as a great power relative to the United States and other Western countries.[88] China's current leader, Xi Jinping, is now pursuing a heavily nationalist policy aimed at securing China's global preeminence by 2049.[89] Ultimately, this policy seeks the "Chinese Dream" of recovering the historical territories and national prestige that China lost to foreign powers during the period from the mid-19th to mid-20th centuries, which the Chinese refer to as the "Century of Humiliation."[90] As China pursues its vision for global preeminence, its distinct model of foreign influence has led it to pursue a strategy of "offensive decoupling" in which China aggressively eschews any type of foreign dependency for itself while cultivating relationships with other countries in a way that ensures susceptibility to Chinese tools of power.[91] Hence, as explained by Dr. Miles Yu, an expert in Chinese diplomatic and military

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[85] Ibid.

[86] Henry Kissinger, *World Order*, New York: Penguin Books, 2014, 225; Malik, Mohan, "Xi's Reforms and the U.S.-China Relationship," Ilan Berman and Rich Harrison, eds., *Defense Dossier, Issue 17*, American Foreign Policy Council, August 2016, available at https://www.afpc.org/publications/e-journals/understanding-implications-of-xis-new-policies, 20; U.S. Congress, U.S.-China Economic and Security Review Commission, "The Chinese Communist Party's Economic Challenge to the Free World," testimony by Miles Yu, 3; Michael Mandelbaum, *The Rise and Fall of Peace on Earth*, New York: Oxford University Press, 2019, 55.

[87] U.S. Congress, U.S.-China Economic and Security Review Commission, "The Chinese Communist Party's Economic Challenge to the Free World," testimony by Miles Yu, 3.

[88] Mandelbaum, *The Rise and Fall of Peace on Earth*, 70; U.S. Congress, U.S.-China Economic and Security Review Commission, hearing on "The Chinese View of Strategic Competition with the United States," testimony by John Pomfret, 116th Cong., 2nd sess., June 24, 2020, available at https://www.uscc.gov/sites/default/files/2020-06/Pomfret_Testimony.pdf, 2.

[89] Patricia Kim, "Understanding China's Military Expansion," Pacific Council on International Policy, September 19, 2019, available at https://www.pacificcouncil.org/newsroom/understanding-china's-military-expansion; Mandelbaum, *The Rise and Fall of Peace on Earth*, 71.

[90] Jeff M. Smith, "The Region Seeks Balance," Ilan Berman and Rich Harrison, eds., *Defense Dossier, Issue 17*, American Foreign Policy Council, August 2016, available at https://www.afpc.org/publications/e-journals/understanding-implications-of-xis-new-policies, 15; Mandelbaum, *The Rise and Fall of Peace on Earth*, 56, 62, 71.

[91] Mazarr and Wyne, "The Real U.S.-China Competition: Theories of Influence"; U.S. Congress, U.S.-China Economic and Security Review Commission, hearing on "An Assessment of the CCP's Economic Ambitions, Plans, and Metrics of Success," testimony by Matt Pottinger, 117th Cong., 1st sess., April 15, 2021, available at https://www.uscc.gov/sites/default/files/2021-04/Matt_Pottinger_Testimony.pdf, 1; U.S. Congress, U.S.-China Economic and Security Review Commission, "The Chinese Communist Party's Economic Challenge to the Free World," testimony by Miles Yu, 1.

history and strategic culture, the guiding principle of Chinese Communist leaders in foreign affairs remains that of a zero-sum game: "You die, I live."[92]

This abiding principle is especially true of China's relationship with the United States. China's imitating of the cooperative model and message that the United States pioneered belies Beijing's view that China is in fierce competition with the United States.[93] One way Beijing competes with Washington is by pursuing an "opportunistic" foreign policy, "finding and filling in voids where other countries have failed to step forward."[94] Hence, Beijing seeks to expand its foreign influence at the expense of the United States by offering needed financing, technology, and expertise to vulnerable countries throughout Asia, Africa, the Middle East, and Latin America—countries where resources are limited but populations are growing and economic demand is great.[95]

This approach to foreign policy makes the rise of BDS a cause for concern rather than a reason for celebration. Beijing views space-based assets and other advanced technologies as key tools of competition in the modern technological age and, accordingly, has given tools such as the newly global BDS a central place in its strategy to decouple itself from U.S. technologies and influence.[96] Furthermore, China is leveraging BDS and other digital tools to create distance between other countries and the United States and, in doing so, to position

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[92] Translation of oft-repeated Chinese principle *nisiwohuo*, translated by Dr. Miles Yu in U.S. Congress, U.S.-China Economic and Security Review Commission, "The Chinese Communist Party's Economic Challenge to the Free World," testimony by Miles Yu, 4; Hudson Institute, "Miles Yu, Senior Fellow," available at https://www.hudson.org/experts/1356-miles-yu.

[93] U.S. Congress, U.S.-China Economic and Security Review Commission, hearing on "The Chinese View of Strategic Competition with the United States," testimony by Alison A. Kaufman, 116th Cong., 2nd sess., June 24, 2020, available at https://www.uscc.gov/sites/default/files/2020-06/Kaufman_Testimony.pdf, 7.

[94] U.S. Congress, U.S.-China Economic and Security Review Commission, hearing on "The Chinese View of Strategic Competition with the United States," testimony by Alison A. Kaufman, 7–8.

[95] U.S. Congress, U.S.-China Economic and Security Review Commission, hearing on "The Chinese View of Strategic Competition with the United States," testimony by Alison A. Kaufman, 7–8; U.S. Congress, U.S.-China Economic and Security Review Commission, "China's Smart Cities Development," research report by Katherine Atha, Jason Callahan, John Chen, Jessica Drun, Ed Francis, Kieran Green, Dr. Brian Lafferty, Joe McReynolds, Dr. James Mulvenon, Benjamin Rosen, and Emily Walz, 116th Cong., 2nd sess., January 2020, available at https://www.uscc.gov/sites/default/files/China_Smart_Cities_Development.pdf, 3; Hillman, Jonathan E., "Competing with China's Digital Silk Road," February 9, 2021, available at https://www.csis.org/analysis/competing-chinas-digital-silk-road; Goswami, Namrata, "The Economic and Military Impact of China's BeiDou Navigation System," *The Diplomat*, July 1, 2020, available at https://thediplomat.com/2020/07/the-economic-and-military-impact-of-chinas-beidou-navigation-system/.

[96] Elsa B. Kania, "China Has a 'Space Force.' What Are Its Lessons for the Pentagon?" *Defense One*, September 29, 2018, available at https://www.defenseone.com/ideas/2018/09/china-has-space-force-what-are-its-lessons-pentagon/151665/; Robinson et al., "China Deploys Beidou to Project Power and Influence," 2; U.S. Congress, U.S.-China Economic and Security Review Commission, "China's Pursuit of Space Power Status and Implications for the United States," staff research report by Alexander Bowe, 116th Cong., 1st sess., April 11, 2019, available at https://www.uscc.gov/sites/default/files/Research/USCC_China's%20Space%20Power%20Goals.pdf, 3; U.S. Congress, U.S.-China Economic and Security Review Commission, hearing on "A Net Assessment of CCP's Economic Ambitions, Plans and Metrics of Success," Panel I: "The Chinese Communist Party's Economic Ambitions: Is the Past Prologue?" statement by Loren Brandt, 117th Cong., 1st sess., April 15, 2021, available at https://www.uscc.gov/sites/default/files/2021-04/Loren_Brandt_Testimony.pdf, 1–2; Cheney, "China's Digital Silk Road: Strategic Technological Competition and Exporting Political Illiberalism," 6.

them for "recoupling" to Beijing on its own terms.[97] BDS, therefore, is poised to be a key tool in China's quest to displace U.S. influence and to cultivate a network of digital vassal states through which the Chinese Communist Party can more freely advance its authoritarian agenda.

BeiDou's Place in the Belt and Road Initiative

One of the key strategies for achieving Xi's "Chinese Dream" is China's ambitious "Belt and Road Initiative" (BRI), an expansive, technology-powered version of China's ancient "Silk Road."[98] The BRI aims to create economic and political connections and partnerships around the world through Chinese investment in massive infrastructure projects such as ports, roads, and railways.[99] Since the BRI's launch in 2013, China has attracted interest in the BRI from over 140 countries, representing over 60% of the world's population and 40% of global gross domestic product, securing strategic footholds in Asia, Africa, and South America.[100] The BRI has exhibited a troubling pattern of cultivating foreign dependency on China. China tends to offer enormous loans to developing countries to finance BRI construction projects, but the projects are not always completed, and those that are completed do not always produce the revenue needed to pay the debt.[101] Several BRI countries across Asia, Africa, and the Middle East are therefore now at risk of debt distress.[102] In some cases, China uses its position as creditor to acquire greater direct control over strategic infrastructure, as it did in Sri Lanka by securing a 99-year lease to Hambantota Port in exchange for debt relief.[103] Some analysts now suspect that the BRI is really a wide-reaching attempt by Beijing to cultivate coercive leverage over much of the developing world, to secure access to strategic

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[97] Robinson et al., "China Deploys Beidou to Project Power and Influence," 2; Ghiasy and Krishnamurthy, *China's Digital Silk Road: Strategic Implications*, 5; U.S. Congress, U.S.-China Economic and Security Review Commission, hearing on "A Net Assessment of CCP's Economic Ambitions, Plans and Metrics of Success," statement by Loren Brandt, 1–2.

[98] U.S. Library of Congress, Congressional Research Service, "China's 'One Belt, One Road' Initiative: Economic Issues," by Karen Sutter, Andres B. Schwarzenberg, and Michael D. Sutherland, January 22, 2021, available at https://crsreports.congress.gov/product/pdf/IF/IF11735, 1.

[99] Ibid.

[100] James McBride, Noah Berman, and Andrew Chatzky, "China's Massive Belt and Road Initiative," Council on Foreign Relations, last updated February 2, 2023, available at https://www.cfr.org/backgrounder/chinas-massive-belt-and-road-initiative.

[101] Jeff M. Smith, "China's Belt and Road Initiative: Strategic Implications and International Opposition," *Backgrounder No. 3331*, Heritage Foundation, August 9, 2018, available at https://www.heritage.org/sites/default/files/2018-08/BG3331_2.pdf, 13–15; Patrick Mendis and Joey Wang, "Unveiling China's Grand Plan," *Harvard International Review*, Vol. 40, No. 3, *Mind the Gap: The Interplay of Transportation and Inequality* (Summer 2019), pp. 36–39, available at https://www.jstor.org/stable/10.2307/26917253, 38.

[102] Smith, "China's Belt and Road Initiative," 13–15; John Hurley, Scott Morris, and Gailyn Portelance, "Examining the Debt Implications of the Belt and Road Initiative from a Policy Perspective," Center for Global Development, March 2018, available at https://www.cgdev.org/sites/default/files/examining-debt-implications-belt-and-road-initiative-policy-perspective.pdf, 1–2, 8.

[103] Smith, "China's Belt and Road Initiative," 13–15; Mendis and Wang, "Unveiling China's Grand Plan," 38. Note: Sri Lanka defaulted on its debt in May 2022. See Hoskins, Peter, "Sri Lanka defaults on debt for first time in its history," May 20, 2022, *BBC*, available at https://www.bbc.com/news/business-61505842.

locations for its own economic and military interests, and to compromise the sovereignty of the host countries and their political institutions.[104]

Although much of the early public attention on BRI was on terrestrial infrastructure, the BRI is increasingly focused on digital infrastructure as a means of fostering interconnectedness between air, land, and maritime transportation routes, energy infrastructure, and international communications infrastructure.[105] More broadly, digital infrastructure advances the BRI vision to strengthen links between BRI member countries, to, in Beijing's words, "promote the connectivity of Asian, European and African continents and their adjacent seas, … set up all-dimensional, multi-tiered and composite connectivity networks," and, ultimately, "enable them to understand, trust and respect each other and live in harmony, peace and prosperity."[106] Accordingly, the BRI construct encapsulates a number of ancillary information technology-oriented efforts, known by various "silk road" monikers including the Space Silk Road and the Digital Silk Road.[107] While these nebulous efforts have not been neatly defined by Chinese officials, they appear to represent expansive and overlapping initiatives aimed at encompassing BRI countries under a vast network of Chinese digital infrastructure, underpinned not only by satellite navigation infrastructure but also by 5G cellular networks, terrestrial and submarine data cables, and data storage centers.[108]

In the Space Silk Road element of the BRI, China promotes expanded coverage and use of BeiDou by emplacing BDS-related infrastructure, technology, and expertise in foreign countries.[109] Thailand signed on as the first BDS "client" in 2013 and now hosts a BDS ground station, several reference stations, and an industrial park for producing BDS receivers.[110] China subsequently constructed BDS ground stations and reference stations in several other

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[104] U.S. Library of Congress, Congressional Research Service, "China's 'One Belt, One Road' Initiative: Economic Issues," 2; David O. Shullman, "Protect the Party: China's growing influence in the developing world," Brookings, January 22, 2019, available at https://www.brookings.edu/articles/protect-the-party-chinas-growing-influence-in-the-developing-world/.

[105] People's Republic of China, National Development and Reform Commission, Ministry of Foreign Affairs, and Ministry of Commerce, "Vision and Actions on Jointly Building Silk Road Economic Belt and 21st-Century Maritime Silk Road," March 28, 2015, Embassy of the People's Republic of China in the United Kingdom of Great Britain and Northern Ireland, available at http://www.chinese-embassy.org.uk/eng/zywl/t1251719.htm.

[106] People's Republic of China, National Development and Reform Commission, Ministry of Foreign Affairs, and Ministry of Commerce, "Vision and Actions"; Smith, "China's Belt and Road Initiative," 3–4.

[107] Preethi Amaresh, "All Weather Friends: China and Pakistan Space Cooperation," *The Diplomat*, January 30, 2020, available at https://thediplomat.com/2020/01/all-weather-friends-china-and-pakistan-space-cooperation/.

[108] Smith, "China's Belt and Road Initiative," 1; Hillman, "Competing with China's Digital Silk Road"; Ghiasy, Richard and Rajeshwari Krishnamurthy, "China's Digital Silk Road and the Global Digital Order," *The Diplomat*, April 13, 2021, available at https://thediplomat.com/2021/04/chinas-digital-silk-road-and-the-global-digital-order/; Goswami, "The Economic and Military Impact of China's BeiDou Navigation System"; Cozzens, Tracy, "China and Arab states promote BeiDou via Space Silk Road," *GPS World*, April 9, 2019, available at https://www.gpsworld.com/china-and-arab-states-promote-beidou-via-space-silk-road/.

[109] Cozzens, "China and Arab states promote BeiDou via Space Silk Road"; Jones, Andrew, "China to complete its answer to GPS with Beidou navigation satellite launches in March, May," *Space News*, February 28, 2020, available at https://spacenews.com/china-to-complete-its-answer-to-gps-with-beidou-navigation-satellite-launches-in-march-may/; Mohan, "Raja Mandala: A Silk Road for the Heavens."

[110] Robinson et al., "China Deploys Beidou to Project Power and Influence," 4.

countries, including Pakistan, Australia, Cambodia, Laos, Brunei, and Iran.[111] BDS has been adopted by Pakistan, Thailand, Laos, and Brunei as their primary PNT system and is attracting a growing following in Asia, Eurasia, the Middle East, and Africa.[112] Furthermore, China now claims to have exported BDS-related assets and products of various sorts to 120 countries, expanding the Space Silk Road's global reach.[113] China is also experimenting with space diplomacy to promote foreign use of BDS.[114] For example, in 2017 China launched the China-Arab States BDS Cooperation Forum to facilitate cooperation on promoting and integrating BDS applications in the Middle East and North Africa.[115] In 2018, this initiative established a China-Arab States BDS/GNSS Center in Tunis, Tunisia, intended as a pilot program to promote BDS capabilities and applications throughout the Arab world.[116]

In addition, under the Digital Silk Road rubric, Beijing uses BDS not only to connect BRI nodes horizontally but also to integrate them vertically at the local level.[117] Now that BDS has achieved global coverage, Beijing's goal is to make the system "ubiquitous, integrated and intelligent and comprehensive."[118] While this vision has not been fully elaborated in public, it appears aimed at expanding the use of BDS in multiple sectors of society by integrating BDS with advanced and emerging technological constructs such as 5G, cloud computing, and the Internet of Things.[119] This vision is most clearly evident in China's "smart cities" initiative. Smart cities are "urban ecosystems" characterized by the integrated application of networked technologies to optimize civic management.[120] China has several hundred domestic smart city pilots and is now promoting the smart city concept abroad as

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[111] Siddiqui, "BRI, BeiDou and the Digital Silk Road"; Robinson et al., "China Deploys Beidou to Project Power and Influence," 5; Hunter, Fergus and Peter Hartcher, "Australia 'helping' China develop its rival system to American GPS," *The Sydney Morning Herald*, January 28, 2019, available at https://www.smh.com.au/politics/federal/australia-helping-china-develop-its-rival-system-to-american-gps-20190128-p50u4m.html.

[112] Ghiasy and Krishnamurthy, *China's Digital Silk Road: Strategic Implications*, 9; U.S. Congress, House of Representatives, Foreign Affairs Committee, Republicans, "China Regional Snapshot: Space."

[113] *Asia One*, "China Beidou System is Ushering in a Golden Decade," September 24, 2020, available at https://www.asiaone.com/business/china-beidou-system-ushering-golden-decade; Dekker, Brigitte, Maaike Okano-Heijmans, and Eric Siyi Zhang, *Unpacking China's Digital Silk Road*, report, Clingendael Institute, 2020, available at http://www.jstor.org/stable/resrep25693.3, 5; Robinson et al., "China Deploys Beidou to Project Power and Influence," 5.

[114] Cozzens, "China and Arab states promote BeiDou via Space Silk Road"; Jones, "China to complete its answer to GPS."

[115] Cozzens, "China and Arab states promote BeiDou via Space Silk Road."

[116] Cozzens, "China and Arab states promote BeiDou via Space Silk Road"; *SpaceWatch.Global*, "China Opens Beidou Satellite Navigation Centre in Tunisia," April 2018, available at https://spacewatch.global/2018/04/china-opens-beidou-satellite-navigation-centre-tunisia/.

[117] Ghiasy and Krishnamurthy, "China's Digital Silk Road and the Global Digital Order."

[118] Jones, "China Launches Beidou, Its Own Version of GPS"; China Satellite Navigation Office, "Development of the BeiDou Navigation Satellite System (Version 4.0)," December 2019, available at http://en.beidou.gov.cn/SYSTEMS/Officialdocument/202001/P020200116329195978690.pdf, 1.

[119] Meia Nouwens, "China's Digital Silk Road: Integration into National IT Infrastructure and Wider Implications for Western Defence Industries," International Institute for Strategic Studies, February 2021, available at https://admin.govexec.com/media/china_digital_silk_road_-_iiss_research_paper.pdf, 8; People's Republic of China, China Satellite Navigation Office, "Development of the BeiDou Navigation Satellite System," 2019, available at http://en.beidou.gov.cn/SYSTEMS/Officialdocument/202001/P020200116329195978690.pdf, 18; Lu, "Update on BeiDou Navigation Satellite System and PNT System," 34.

[120] U.S. Congress, U.S.-China Economic and Security Review Commission, "China's Smart Cities Development," 1.

a key means of broadening and deepening the reach of the BRI and Digital Silk Road.[121] As of 2020, Chinese tech companies have become involved in smart city projects in over 100 foreign countries in South Asia, Central Asia, Africa, South America, and even in some non-BRI countries such as the United Kingdom and Germany.[122]

BDS is integral to the smart cities concept given PNT's growing importance to numerous municipal and economic sectors, including transportation, logistics, and e-commerce. In China's indigenous smart cities, millions of commercial and mass transit vehicles and aircraft are already dependent on BDS.[123] Now, having begun to connect vast swaths of the developing world under the Digital Silk Road umbrella, Beijing is poised to vertically deepen its digital hold on BRI member countries and economies and also to make digital inroads to non-BRI countries as well.[124] Leveraging BDS through the Space and Digital Silk Road efforts, including the smart city initiative, China is casting its BRI net even further, securing valuable technological footholds around the world, further positioning itself to reorient the locus of economic and geopolitical power in Asia and beyond from the United States to China.[125]

Implications of BeiDou for the United States

The implications for the United States of these developments are sobering. As BDS encircles the developing world through the BRI, Beijing will be increasingly poised to exert influence over great swaths of the world to the potential detriment of U.S. interests and the interests of current and future BRI countries. BDS will become an increasingly powerful tool as the demands of modern societies make regional and global economies more dependent on digital infrastructure and applications.[126] BDS, under the headings of the Digital and Space Silk Roads, connects the Chinese infrastructure of BRI countries and "smart cities" within a Beijing-managed virtual network. This creates opportunities for China to foster dependencies of countries within this network. Chinese manufacturers of devices with PNT

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[121] Ibid., 3, 16–17, 56, 78.

[122] Alice Ekman, "China's Smart Cities: The New Geopolitical Battleground," Institut français des relations internationales, December 2019, available at https://www.ifri.org/sites/default/files/atoms/files/ekman_smart_cites_battleground_2019.pdf, 22; U.S. Congress, U.S.-China Economic and Security Review Commission, "China's Smart Cities Development," 16–17, 37, 57, 60–62.

[123] Ajey Lele and Kritika Roy, "Analysing China's Digital and Space Belt and Road Initiative," *IDSA Occasional Paper No. 55*, New Delhi: Institute for Defence Studies and Analyses, November 2019, available at https://idsa.in/system/files/opaper/china-digital-bri-op55.pdf, 33; U.S. Congress, U.S.-China Economic and Security Review Commission, "China's Smart Cities Development," 8, 14; Ghiasy and Krishnamurthy, "China's Digital Silk Road and the Global Digital Order."

[124] Siddiqui, "BRI, BeiDou and the Digital Silk Road."

[125] Mendis and Wang, "Unveiling China's Grand Plan," 37; Malik, "Xi's Reforms and the U.S.-China Relationship," 21–2; U.S. Congress, U.S.-China Economic and Security Review Commission, hearing on "A Net Assessment of CCP's Economic Ambitions, Plans and Metrics of Success," statement by Loren Brandt, 1.

[126] Hillman, "Competing with China's Digital Silk Road"; Blanchette, Jude and Jonathan E. Hillman, "China's Digital Silk Road after the Coronavirus," Center for Strategic and International Studies, April 13, 2020, available at https://www.csis.org/analysis/chinas-digital-silk-road-after-coronavirus; Goswami, Namrata, "The Economic and Military Impact of China's BeiDou Navigation System."

receivers, including smartphones, cars, ships, and aircraft, are required to make BDS the default PNT provider.[127] China also requires foreign car companies to make their vehicles compatible with BDS in order to sell them in China—a type of regulatory requirement that could be exported easily to foreign smart cities within the BRI.[128] The more China makes key urban areas, developing countries, and regional economies incrementally dependent on BDS and other Chinese integrated technologies, and independent from U.S. systems, the more susceptible such areas will be to the influence of the Chinese Communist Party.[129]

In this way—and given its prominence in the digital aspects of Beijing's BRI strategy—BDS is poised to be the "digital glue" that connects the disparate BRI countries together under a vast Beijing-sponsored digital umbrella.[130] This in turn creates an environment in which China could eventually "decouple" certain countries or regions of the world from GPS and other U.S. technologies. An overarching technological decoupling trend has already begun, sparked by the United States' banning of Huawei's 5G network in 2018.[131] Since that time, China has begun to retaliate in kind, and both China and the United States are now pursuing the development of increasingly incompatible products and systems.[132] While the U.S. Government had important national security reasons for pursuing this path, there is a collateral risk that this technological decoupling trend will intensify to the point at which developing countries seeking advanced technologies will be faced with a mutually exclusive choice between China- or America-aligned technological packages that are incompatible with each other.[133] This, in turn, would foster a global technology economy that is increasingly bifurcated along geopolitical lines and the creation of separate spheres of economic and political influence.[134] Such decoupling would likely benefit China, as a rising power, in that it would create potential vacuums for Beijing to fill, especially in vulnerable developing markets.[135] This decoupling trend will likely be particularly apparent in the smart cities construct, in which the underlying principle of integration and interoperability

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[127] Emmanuel Meneut, "The Chinese Global Positioning Service and the Convergence Between Electronic Warfare and Cyber Attack," *Asia Focus #141*, Institut de Relations Internationales et Stratégiques, May 2020, available at https://www.iris-france.org/wp-content/uploads/2020/05/Asia-Focus-141.pdf, 12.

[128] U.S. Congress, U.S.-China Economic and Security Review Commission, hearing on "China in Space: A Strategic Competition?" statement by Namrata Goswami, 116th Cong., 1st sess., April 25, 2019, available at https://www.uscc.gov/sites/default/files/Namrata%20Goswami%20USCC%2025%20April.pdf, 22.

[129] U.S. Congress, U.S.-China Economic and Security Review Commission, hearing on "An Assessment of the CCP's Economic Ambitions, Plans, and Metrics of Success," testimony by Matt Pottinger, 2.

[130] Mohan, "Raja Mandala: A Silk Road for the Heavens."

[131] Ekman, "China's Smart Cities: The New Geopolitical Battleground," 21–2; David Goldman, "What is China's Grand Strategy?" Russell Kirk Memorial Lecture, No. 1312, Heritage Foundation, October 10, 2019, available at https://www.heritage.org/sites/default/files/2019-10/HL1312_1.pdf, 4–5.

[132] Ekman, "China's Smart Cities: The New Geopolitical Battleground," 21–22.

[133] Ekman, "China's Smart Cities: The New Geopolitical Battleground," 22–23; U.S. Congress, U.S.-China Economic and Security Review Commission, hearing on "A Net Assessment of CCP's Economic Ambitions, Plans and Metrics of Success," statement by Loren Brandt, 17; Lele and Roy, "Analysing China's Digital and Space Belt and Road Initiative," 45.

[134] Ibid.

[135] U.S. Congress, U.S.-China Economic and Security Review Commission, hearing on "The Chinese View of Strategic Competition with the United States," testimony by Alison A. Kaufman, 7; Ghiasy and Krishnamurthy, "China's Digital Silk Road and the Global Digital Order"; Hillman, "Competing with China's Digital Silk Road."

tends to favor a single technology provider.[136] The digital future hinges partially on successful PNT integration with both existing technologies (e.g., cellular networks) and emerging technologies (e.g., 5G, artificial intelligence, autonomous vehicles). As a result, China's unimpeded ability to cultivate smart cities and technological ecosystems—in some places, such as in Africa, nearly from scratch—will enable Beijing to create stronger and more capable power bases.[137] Backed by its own independent digital PNT backbone, China will likely seek to exploit decoupling trends to accelerate its race against the United States for global technological leadership and influence on its own terms.[138] U.S. policymakers ought therefore to be acutely concerned that China will encourage decoupling and will leverage BDS and its broader Silk Road strategies to shear off countries from the U.S.-favoring bloc and "recouple" them to China as digital vassals.[139]

The possibility of such digital dependence on China is all the more unsettling given the authoritarian agenda promoted by Beijing, especially through the smart cities initiative. The smart cities concept is predicated on the digital collection, monitoring, and aggregation of enormous amounts of data in order to automate and improve city services and operations.[140] However, one of Beijing's top priorities in its domestic smart cities is to enable the collection and synthesis of vast amounts of data on city residents for surveillance and social control purposes. It is logical to expect that China's export of BDS and smart city technology through the BRI will be accompanied by the export of its authoritarian surveillance culture to its host countries.[141] Once integrated with China's 5G network and other advanced technologies, BDS could be a crucial enabler of the surveillance agenda, empowering Chinese authorities to locate, track, and report on the people and activities in its domain.[142] Furthermore, as entire regions become more dependent on BDS and other Chinese systems, Beijing can selectively grant or deny services to influence or mold behavior, providing significant advantages to Chinese authorities seeking to shape political outcomes in strategic locales, including disputed areas such as the South China Sea.[143] This scenario is all the more possible if regions "decouple" from GPS and "recouple" to BDS and China's integrated networks, because Beijing then will be able to threaten BDS-covered areas with technological blackout as a means of political extortion.[144] Once BRI cities and countries are solidly dependent on Beijing's digital

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[136] Ekman, "China's Smart Cities: The New Geopolitical Battleground," 19; Lele and Roy, "Analysing China's Digital and Space Belt and Road Initiative," 43–44.

[137] U.S. Congress, U.S.-China Economic and Security Review Commission, "China's Smart Cities Development," 19; Lele and Roy, "Analysing China's Digital and Space Belt and Road Initiative," 43–4, 47, 56.

[138] Namrata Goswami, "The Economic and Military Impact of China's BeiDou Navigation System"; Ghiasy and Krishnamurthy, "China's Digital Silk Road and the Global Digital Order"; Mohan, "Raja Mandala: A Silk Road for the Heavens"; U.S. Congress, U.S.-China Economic and Security Review Commission, "China's Smart Cities Development," 78.

[139] U.S. Congress, U.S.-China Economic and Security Review Commission, hearing on "A Net Assessment of CCP's Economic Ambitions, Plans and Metrics of Success," statement by Loren Brandt, 1–2.

[140] U.S. Congress, U.S.-China Economic and Security Review Commission, "China's Smart Cities Development," 1, 8.

[141] Ibid., 1–3, 15, 44.

[142] Ekman, "China's Smart Cities: The New Geopolitical Battleground," 13.

[143] U.S. Congress, U.S.-China Economic and Security Review Commission, "China's Alternative to GPS," 6.

[144] Mazarr and Wyne, "The Real U.S.-China Competition: Theories of Influence."

infrastructure for the health of their economic and information ecosystems, the Chinese Communist Party will be positioned to pressure the political leaders of such areas to support Beijing's interests and policies on Taiwan, Xinjiang, Hong Kong, Tibet, and the like.[145] As BDS increases its coverage and precision, it will be optimally positioned as a lever of extortion over its feudal-like network of dependent powers. In this way, BDS is poised to become the grand aegis that connects and facilitates control of a constellation of vassal states and their citizens.[146]

Curiously, there is very little available U.S. research that highlights or explores this competitive or coercive potential of BDS within the increasingly controversial BRI. Perhaps the dearth of literature is a consequence of the U.S. tendency to view PNT as a "global commons," an arena of international cooperation and trust exempt from the competitive aspects of foreign affairs. Animated by this belief, the United States has pioneered a cooperative framework for GNSS into which China has readily tapped. Yet, the GPS "global commons" approach was only viable when backed by the United States' hegemonic ability to underwrite the security of the system globally.[147] As this hegemony frays in the face of new challenges in the 21st century, and as GPS faces serious competition, the U.S. tendency to view PNT as a "public good" is not only increasingly outmoded but also obscures the nefarious potential of an independent satellite navigation system in the hands of the Chinese Communist Party.[148] Whereas the United States has set a precedent of broadly promoting technological cooperation and interoperability for PNT services, China is less likely to leverage its GNSS in this fashion over the long term, despite its cooperative narratives.[149] Rather, China's authoritarian models and demonstrated efforts to create dependencies in its foreign relationships indicate Beijing will exploit its newly completed BeiDou System not as an opportunity for international cooperation but as a tool of geopolitical competition and control. This emerging scenario is notable given that the United States at one point worried that the EU would require, by law, the use of the Galileo GNSS in certain regions to the exclusion of GPS.[150] Now China actually is pursuing such a strategy, potentially positioning whole regions of the world for such a bifurcated future.

The Way Ahead

Beijing's leveraging of BeiDou as a tool of geopolitical competition stands in contrast to the approach of the United States. The United States pioneered satellite navigation and the accompanying model of international cooperation, but China sees space as a competitive

[145] Namrata Goswami, "The Economic and Military Impact of China's BeiDou Navigation System."

[146] U.S. Congress, U.S.-China Economic and Security Review Commission, "China's Smart Cities Development," 16–17.

[147] Meneut, "The Chinese Global Positioning Service and the Convergence Between Electronic Warfare and Cyber Attack," 11, 17.

[148] Mandelbaum, *The Rise and Fall of Peace on Earth*, 136; Meneut, "The Chinese Global Positioning Service and the Convergence Between Electronic Warfare and Cyber Attack," 17.

[149] Beidleman, *GPS versus Galileo: Balancing for Position in Space*, 65.

[150] Ibid., 56.

domain and space assets as tools of competition rather than cooperation. In short, the United States is postured for cooperation while China is poised for competition. China leverages BDS as a tool of national power, and unless U.S. policymakers view GPS in a similar fashion, Washington will not be able to develop a coherent strategy for countering the use of BDS to undermine U.S. interests.[151]

GPS policy has yet to catch up to this burgeoning reality. President Barack Obama, like his predecessors, continued to be guided by a foundational belief that international cooperation in space-based activities would result in positive gains for all. President Obama's 2010 National Space Policy stated up front that "[t]he United States hereby renews its pledge of cooperation in the belief that with strengthened international collaboration and reinvigorated U.S. leadership, all nations and peoples—space-faring and space-benefiting—will find their horizons broadened, their knowledge enhanced, and their lives greatly improved."[152] President Obama further pledged to continue providing GPS for free and to continue pursuing international cooperation as ways to maintain the United States' GNSS leadership.[153] However, a decade later, the Administration of President Donald Trump recognized that the United States faced a changing, increasingly unfriendly geopolitical environment in which an assertive and competitive China featured significantly.[154] Recognizing that broad international cooperation based on a "global utility" construct was an outmoded policy for GPS, President Trump's 2020 U.S. Space Policy pledged to "encourage interoperability with *likeminded* nations."[155]

This was a wise shift, and subsequent administrations would do well to continue updating and sharpening the U.S. GPS posture for the current age and the Chinese challenge in particular. On a policy level, this means discarding the broad, one-size-fits-all international cooperation approach dictated by viewing GPS as a global commons and instead identifying those "likeminded" partners who share an interest in supporting U.S. global leadership. In addition, Washington should reframe U.S. public communication on GPS in a way that accounts for GPS as a tool for advancing U.S. interests. Doing so would communicate to Beijing that Washington recognizes the Chinese tactic of exploiting the openness of U.S.

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[151] U.S. Congress, U.S.-China Economic and Security Review Commission, hearing on "The Chinese View of Strategic Competition with the United States," testimony by Alison A. Kaufman, 2, 8.

[152] Executive Office of the President, *National Space Policy of the United States of America*, Obama White House Archives, June 28, 2020, available at https://obamawhitehouse.archives.gov/sites/default/files/national_space_policy_6-28-10.pdf, 2.

[153] Executive Office of the President, *National Space Policy of the United States of America*, Obama White House Archives, 5.

[154] Mandelbaum, *The Rise and Fall of Peace on Earth*, 69–70; U.S. National Security Council, *National Security Strategy of the United States*, 2017, available at http://nssarchive.us/wp-content/uploads/2020/04/2017.pdf, 2, 25, 27.

[155] Donald J. Trump, Memorandum, "The National Space Policy, Memorandum of December 9, 2020," *Federal Register* 85, No. 242 (December 16, 2020): 81755, available at https://www.govinfo.gov/content/pkg/FR-2020-12-16/pdf/2020-27892.pdf, emphasis added; Donald J. Trump "Memorandum on Space Policy Directive 7: The United States Space-Based Positioning, Navigation, and Timing Policy," January 15, 2021, Trump White House Archives, available at https://trumpwhitehouse.archives.gov/presidential-actions/memorandum-space-policy-directive-7/.

values and systems to advance its authoritarian agenda and that the United States does not intend to facilitate this as a matter of its own technology policy.[156]

On a practical level, the United States ought to enhance and expand cooperative efforts with its likeminded allies, such as the EU, Japan, Australia, and India, to provide alternatives to the Space and Digital Silk Roads. As previously highlighted, China is an opportunistic power and is adept at exploiting the aspirations and consumer demands of developing countries, particularly where the United States has not purposefully and energetically engaged.[157] Working with allies and partners to enhance collective influence by offering alternatives to the BRI, especially in the Asia-Pacific region, the United States can help alleviate "decoupling" pressure on regional economies and complicate China's efforts to create a sphere of digital vassalage.[158] One way to do so—recommended by Matthew Goodman, Daniel Runde, and Jonathan Hillman of the Center for Strategic and International Studies (CSIS)—is by devoting greater priority and resourcing to the Blue Dot Network.[159] Debuted by the United States, Japan, and Australia in 2019, Blue Dot is a multilateral vehicle for supporting and certifying sustainable and transparent infrastructure projects.[160] The Blue Dot Network can serve as a useful alternative to China's Digital Silk Road for countries interested in investing in digital infrastructure.[161] Furthermore, the United States can use the Blue Dot Network to counter Chinese attempts to entangle vulnerable nations in BDS by promoting integration of GPS in Blue Dot projects. The U.S.-China Economic and Security Review Commission, as well as Jonathan Hillman of CSIS, have suggested that the United States leverage the smart cities construct to support projects that compete with China's[162] For example, while the United States has several smart city initiatives domestically, it should also consider teaming with likeminded partners to invest in smart city projects in strategic foreign regions and to promote foreign projects aimed at integrating GPS into networked urban systems.[163] As the smart city concept gains traction abroad, Washington should also seek ways to ensure that U.S. technology companies can remain competitive in foreign

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[156] U.S. Congress, U.S.-China Economic and Security Review Commission, "The Chinese Communist Party's Economic Challenge to the Free World," testimony by Miles Yu, 1, 3.

[157] U.S. Congress, U.S.-China Economic and Security Review Commission, hearing on "The Chinese View of Strategic Competition with the United States," testimony by Alison A. Kaufman, 7–8; Shullman, "Protect the Party."

[158] U.S. Congress, U.S.-China Economic and Security Review Commission, hearing on "The Chinese View of Strategic Competition with the United States," testimony by Michèle A. Flournoy, 116th Cong., 2nd sess., June 24, 2020, available at https://www.uscc.gov/sites/default/files/2020-06/Flournoy_Testimony.pdf, 2.

[159] Matthew P. Goodman, Daniel F. Runde, and Jonathan E. Hillman, "Connecting the Blue Dots," Center for Strategic and International Studies, February 26, 2020, available at https://www.csis.org/analysis/connecting-blue-dots.

[160] U.S. Department of State, "Blue Dot Network," https://www.state.gov/blue-dot-network/; Runde Goodman, and Hillman, "Connecting the Blue Dots"; Mercy A. Kuo, "Blue Dot Network: The Belt and Road Alternative," *The Diplomat*, April 7, 2020, available at https://thediplomat.com/2020/04/blue-dot-network-the-belt-and-road-alternative/; Hillman, "Competing with China's Digital Silk Road."

[161] Kuo, "Blue Dot Network: The Belt and Road Alternative"; Hillman, "Competing with China's Digital Silk Road."

[162] Jonathan E. Hillman, "Competing with China's Digital Silk Road."

[163] U.S. Congress, U.S.-China Economic and Security Review Commission, "China's Smart Cities Development," 2, 5; U.S. Department of Transportation, *Smart City Challenge*, last updated December 29, 2016, available at https://www.transportation.gov/sites/dot.gov/files/docs/Smart%20City%20Challenge%20Lessons%20Learned.pdf.

markets, such as through targeted tax incentives, easing of certain export control regulations for U.S. companies, and loan guarantees or other financial incentives for foreign customers in the smart city market.[164]

Finally, in anticipation of Beijing's use of BDS coercively in the future, Congress should have the U.S.-China Economic and Security Review Commission conduct a study examining the potential impacts of offensive technological decoupling between the United States and China. Such a study will help U.S. legislators assess the risks of PNT decoupling and develop more thoroughly informed mitigation strategies.

Conclusion

The GPS policy of the United States has not changed much in the last 20 years, even as the international environment has changed dramatically. China under the Communist Party has exploited the U.S.-led international order to rise as a great power and competitor of the United States while retaining its authoritarian political agenda and coercive model of foreign influence. As Beijing now seeks to leverage its BeiDou satellite navigation system through the Space and Digital Silk Road initiatives to expand its power abroad, the United States can no longer afford a one-size-fits-all posture of international cooperation in its PNT policy. U.S. willingness to regard GPS as a "global utility" may have enhanced American prestige and economic prosperity during the days when the United States was the sole PNT provider. In an age of increasingly fierce geopolitical competition, however, U.S. policymakers need to reevaluate foreign GNSS interoperability and compatibility as the guiding principles of GPS policy. Despite the appealing sound of a "global commons," U.S. policymakers must now recognize that allies and adversaries alike will put their own interests first—as China's drive to establish its own BeiDou-encompassing digital vassal network demonstrates. Once U.S. leaders acknowledge these abiding realities and adjust U.S. GPS policy and public communications accordingly, the United States will be better positioned to wield GPS in a way that serves U.S. interests in the modern age—not as a global public good but as a tool of national power.

Kathleen Ellis is an analyst for the U.S. Government. The views expressed here are her own and do not necessarily reflect those of the U.S. Government.

[164] U.S. Congress, U.S.-China Economic and Security Review Commission, "China's Smart Cities Development," 5; Hillman, "Competing with China's Digital Silk Road."

U.S. STRATEGIC CULTURE, HOMELAND BALLISTIC MISSILE DEFENSE, AND MUTUAL VULNERABILITY

Jacob Blank

Culture is an indispensable element of strategic policymaking. From Sun Tzu to Carl von Clausewitz, renowned theorists of strategic studies have consistently noted the importance of cultural considerations in the conduct of warfare and the shaping of national security outputs. Such insights lacked a dedicated field of study until the latter half of the 20th century, when Jack Snyder coined the term "strategic culture" in 1977 as part of an effort to explain the differing nuclear behavior between the United States and Soviet Union. The roughly fifty years since Snyder's work has seen continuous scholarship on the influence of strategic culture on the security outputs of a given state.

Despite widespread consensus on salient aspects of American strategic culture, there is one area of policy that fails to generate the expected result—missile defense. Strong emphases on technological innovation, an optimistic and problem-solving mentality, a positive approach to machines and engineering, and other elements of American strategic culture point to what should be a decisive path toward comprehensive missile defense; yet, the United States has consciously chosen to remain vulnerable to the overwhelming majority of adversary ballistic missiles since the signing of the Anti-Ballistic Missile (ABM) Treaty in 1972.[1] The incongruity between U.S. strategic culture and mutual vulnerability required by the mutually assured destruction (MAD) approach has failed to eradicate the allure of mutual vulnerability from portions of the defense policymaking community. U.S. strategic culture is more consistent with deterrence by denial measures, such as robust homeland ballistic missile defense, than mutual vulnerability typical of an assured destruction approach; however, mutual vulnerability has played a disproportionate role in guiding U.S. security policy since the Cold War.

Social Manifestations of U.S. Strategic Culture

Optimism and Problem-Solving Mentality. Born out of the unimaginable string of environmental, political, and military successes, the American psyche is uniquely optimistic about challenges both domestic and international. Insulated almost entirely from the perverse suffering typical of the interstate wars that ravaged Europe over the same time

This article is based on the author's graduate thesis for the Defense and Strategic Studies program at Missouri State University. See Jacob T. Blank, "US Strategic Culture, Homeland Ballistic Missile Defense, and Mutual Vulnerability," (Missouri State University, 2022), available at https://bearworks.missouristate.edu/theses/3810.

[1] Keith B. Payne, *Shadows on the Wall: Deterrence and Disarmament* (Fairfax, VA: National Institute Press, 2020), pp. 127–30.

period, the American experience lacked such pessimistic reminders of the worst of the human condition. Instead, the grand political experiment of a new beginning, grounded in pragmatic deference to the supremacy of the individual, reinforced a common understanding that all problems—social, natural, security, etc.—can be solved.[2]

The sanguine approach to the complex issues of the human experience reinforces a problem-solving mentality diffused across all layers of American society. With success as the expected outcome, an insoluble problem cannot exist. Incontestable structural conditions are often misread as problems that are capable of being "solved" under this framework, leading to surprise when efforts fall short of expectations.[3] Nevertheless, the can-do outlook persists as an enduring and highly esteemed trait in American society. As Dr. Jeannie L. Johnson, an associate professor of political science and director of Utah State University's Center for Anticipatory Intelligence, notes, "Problem-solving is key to American identity––being a problem-solver is both a requirement for most occupations and an admired personal trait. For Americans, it is also perceived to be the primary purpose of human activity."[4]

Logical-Analytical Cognitive Style. Through a pioneering study of revolutions in military affairs (RMAs), Dr. Dima Adamsky, an associate professor at the Lauder School of Government, Diplomacy, and Strategy at Reichman University in Israel, connected the field of cognitive psychology with strategic culture analysis. Dr. Adamsky theorized that a driving factor behind a state's ability to conceptualize and implement an RMA was its cognitive style—the "preferred collection of strategies to perceive, organize, and process information."[5] Drawing upon research from psychologists, sociologists, and anthropologists, Dr. Adamsky found that American culture prefers a logical-analytical approach, characterized by "the optimistic belief that there is an objective essence that can be reached through the linear process of discovery."[6]

Positive Role of Machines. The subjugation of the vast American frontier and rise to industrial and military preeminence did not take place by sheer force of human will. American culture, in seeking a solution to all problems, has readily embraced machines to aid in its various natural and social conquests. The cotton gin, transcontinental railroad, interstate highway system, Hoover Dam, Erie Canal, Apollo moon landings, Internet, and countless other extraordinary feats of engineering are revered as symbols of American innovation and a general refusal to abide by perceived constraints. Technology is thus

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[2] Dima Adamsky, *The Culture of Military Innovation: The Impact of Cultural Factors on the Revolution in Military Affairs in Russia, the US, and Israel* (Stanford, CA: Stanford University Press, 2010), p. 81.

[3] Colin S. Gray, "The American Way of War," in *Rethinking the Principles of War*, ed. Anthony D. McIvor (Annapolis, MD: Naval Institute Press, 2005), p. 29.

[4] Jeannie L. Johnson, "Fit for Future Conflict? American Strategic Culture in the Context of Great Power Competition," *Journal of Advanced Military Studies* 11, no. 1 (Spring 2020), p. 193.

[5] Adamsky, *The Culture of Military Innovation*, p. 18.

[6] Ibid., p. 76.

approached as a "liberating force that improves quality of life."[7] While this mentality has produced astounding levels of technological improvement, it has also internalized a potentially dangerous assumption that the U.S. engineering base has the capacity to catch up with any other state's advances given the requisite prioritization.[8]

Ahistorical Exceptionalism. The uniqueness of the American experience fostered a sense of novelty in the collective American psyche. The structural, social, and geographic conditions present during the formation of the American state have mutually reinforced the concept that this "great experiment" represented a profoundly new and better beginning of the nation-state system. In lieu of any existential challenges to the pattern of uninterrupted success, Pew Research Center polling from 2021 finds that roughly 75% of Americans still believe that the United States "stands above all other countries in the world" or is "one of the greatest countries, along with some others."[9]

The same conditions that drive a sense of exceptionalism associated with U.S. strategic culture simultaneously discourage a fulsome consideration of historical context to domestic and foreign policy challenges. While often attributed to mere arrogance, the foundational constructs of American governance and that system's subsequent rise to global preeminence are genuinely ahistorical experiences in their own right. Very little of the survival of the fledgling American state demanded a comprehensive knowledge of Old World history.[10] Thus, it is not surprising to observe that American cognition tends to focus on achieving swift results in the immediate present, unencumbered by the constraints of the "irrational past."[11] In addition to obfuscating the lessons of the past, the relatively young age of the United States as a state on the global stage and pronounced emphasis on the immediate present often clouds assessments of the distant future.

Military Manifestations: The American Way of War

Technologically Driven. The American method of warfighting leverages significant qualitative advantages in technology to overmatch any potential adversary. Born out of the necessity of machines to dominate the vast frontier, techno-centric warfare makes liberal use of the concept that all challenges can be overcome through the proper mechanical input. As Thomas G. Mahnken, Senior Research Professor and Co-Director of the Master of Arts in

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[7] William Kincade, "American National Style and Strategic Culture," in *Strategic Power: USA/USSR*, ed. Carl G. Jacobsen (New York: St. Martin's Press, 1990), p. 26.

[8] Miriam D. Becker, "Strategic Culture and Ballistic Missile Defense: Russia and the United States" (Master's, Monterey, CA, Naval Postgraduate School, 1993), p. 54, available at https://calhoun.nps.edu/bitstream/handle/10945/39769/93Jun_Becker_M_D.pdf?sequence=1&isAllowed=y.

[9] Hannah Hartig, "Younger Americans Still More Likely than Older Adults to Say There Are Other Countries Better than the U.S.," Pew Research Center, December 16, 2021, available at https://www.pewresearch.org/fact-tank/2021/12/16/younger-americans-still-more-likely-than-older-adults-to-say-there-are-other-countries-better-than-the-u-s/.

[10] Johnson, op. cit., p. 191.

[11] Adamsky, op. cit., p. 82.

Strategy, Cybersecurity, and Intelligence at the Johns Hopkins School of Advanced International Studies, observes, "No nation in recent history has placed greater emphasis upon the role of technology in planning and waging war than the United States."[12]

Drawing upon unique structural incentives to technologically progress, the United States has demonstrated a repeated ability to innovate new military technology or adapt civilian advances for military benefit as early as the Civil War.[13] During the Cold War, the technological edge of U.S. forces attempted to counterbalance the vast numerical superiority of the Warsaw Pact forces arrayed against them in Europe.[14] U.S. leadership understood that the quantitative overmatch of Soviet forces would never be replicated by the North Atlantic Treaty Organization (NATO), prompting emphasis on advanced technology to offer a qualitative edge. Drawing roots from World War Two, American strategic thinking coalesced around high-technology air power for battlefield advantage during this time period. To date, the "United States has come to treat air superiority as a necessity, and built such capable air forces that no enemy aircraft has killed U.S. ground troops since 1953."[15]

Leadership Averse to Casualties. The creation of high-technological warfighting capabilities is strongly correlated with the desire of U.S. military and civilian leadership to minimize U.S. casualties during combat operations. Building from the liberal democratic belief of the salience of the individual and the all-volunteer force structure of the American military, this attitude seems highly logical. Consequently, American military and civilian elites have repeatedly noted their desire to minimize U.S. losses when engaged in confrontation. The significant investments in U.S. airpower, stand-off precision-guided munitions (PGMs), and other forms of weaponry that reduce exposure of U.S. personnel all flow in part from the reluctance of American leadership to absorb high-volume loss.

Despite empirical evidence that challenges this claim, the notion that U.S. strategic culture is unwilling to accept loss has become so pervasive in the international arena that adversarial leaders appear willing to bet on U.S. non-intervention given an opponent's ability to inflict casualties on U.S. forces.[16] Such was the mindset of Saddam Hussein in 1991, Slobodan Milosevic in 1999, and Osama bin Laden in 2001, all of whom concocted strategy around the core belief that the United States "lacked the moral courage to face a deadly military confrontation."[17] Today, these perceptions can be found throughout statements by

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[12] Thomas G. Mahnken, "United States Strategic Culture," in *Comparative Strategic Cultures Curriculum Project: Assessing Strategic Culture as a Methodological Approach to Understanding WMD Decision-Making by States and Non-State Actors*, ed. Jeffrey A. Larsen (Defense Threat Reduction Agency Advanced Systems and Concepts Office, 2006), p. 12, available at https://irp.fas.org/agency/dod/dtra/us.pdf.

[13] Kincade, op. cit., p. 26.

[14] Mahnken, op. cit., p. 12.

[15] "Defense Primer: United States Airpower" (Washington, D.C.: Congressional Research Service, October 26, 2021), p. 1, available at https://sgp.fas.org/crs/natsec/IF10546.pdf.

[16] Peter Feaver and Christopher Gelpi, "How Many Deaths Are Acceptable? A Surprising Answer," *The Washington Post*, November 7, 1999, available at https://www.washingtonpost.com/wp-srv/WPcap/1999-11/07/061r-110799-idx.html.

[17] Richard A. Lacquement Jr., "The Casualty-Aversion Myth," *Naval War College Review,* vol. 57, no. 1 (2004), p. 10.

officials from the People's Republic of China (PRC) regarding the U.S. commitment to defend Taiwan.[18]

Overwhelming Firepower and Direct Engagement. A country rich in wealth and material resources, the United States has embraced the use of overwhelming firepower to defeat its adversaries in direct confrontation. Concurrent with leadership's desire to avoid casualties, the "American way in warfare [is] to send metal in harm's way in place of vulnerable flesh."[19] This philosophy has prompted enormous investment in standoff weapons systems that are capable of delivering unprecedented amounts of firepower to virtually any location on Earth with a high degree of expediency and accuracy. Capitalizing on comparative advantages in manufacturing and resources, the "strategy of attrition and annihilating the enemy with firepower was the best way to transform the nation's material superiority into battlefield effectiveness."[20]

Moralistic and Apolitical. American culture exhibits a tendency to perceive wars in the manner of crusades—a struggle between good and evil. This zero-sum attitude often drives a preference for wars of maximal political aims and unconditional surrender of the adversary.[21] Such cultural intolerance for anything less than complete domination was present even when fighting fellow Americans during the Civil War. Union general and future president Ulysses S. Grant became famous for a quip based off of his leading initials that embodied this philosophy: "Unconditional Surrender Grant."[22]

The just war principle flowing from moralism in American foreign policy rejects the connection between political objectives and the employment of war. Rejecting Clausewitz's famous formulation, "war is not merely an act of policy but a true political instrument, a continuation of political intercourse, carried on with other means," the onset of war is perceived by American strategic culture as a political failure, where violence is required to restore the natural order of peaceful relations between states.[23]

The Disconnect Between U.S. Strategic Culture and Missile Defense Policy Outputs

Taken in isolation and in combination, nearly all facets of U.S. strategic culture point decisively toward a comprehensive approach to missile defense policy. More than a simple

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[18] Keith B. Payne, *The Fallacies of Cold War Deterrence and a New Direction* (Lexington: The University Press of Kentucky, 2001), pp. 129, 147–48.

[19] Gray, op. cit., p. 30.

[20] Adamsky, op. cit., p. 78.

[21] Kenneth W. Thompson, "Moral Reasoning in American Thought on War and Peace," *The Review of Politics* 39, no. 3 (1977), p. 397.

[22] "Ulysses S. Grant's Letter from Fort Donelson," National Museum of American History, accessed June 29, 2022, available at https://americanhistory.si.edu/collections/search/object/nmah_439659.

[23] Carl von Clausewitz, *On War*, trans. Michael Howard and Peter Paret (Princeton, N.J: Princeton University Press, 1976), p. 87.

political or military consideration, Michael Rühle, head of the Climate and Energy Security Section at NATO, went so far as to describe the U.S. pursuit of missile defense as a "firm part of its national 'strategic culture.'"[24] This linkage can be found in both overarching categories of U.S. strategic culture, the collective social attitudes regarding security outputs and their manifestations in the American way of war.

Socially, all elements of the American national style contribute to broad support for the pursuit of comprehensive damage limitation architectures and rejection of MAD. An unwavering, collective optimism and a problem-solving ethos would seem to reject the notion that the challenge of defeating a large-scale missile attack is outside of American technological feasibility. Accepting the premise that mutual vulnerability is a predetermined, unassailable structural condition necessary for the deterrence of other great powers is highly incongruous with the U.S. approach to nearly all other security problems. This confident mentality is in opposition to the logical-analytical cognitive style of the U.S. approach, where the "linear process of discovery" fuels continued optimism in the ability to solve all problems with sequential thought.[25] The positive role of machines would further support an engineering approach to the existential threat of missile attack on the U.S. homeland, harnessing the vast industrial potential of America to overcome a geopolitical hurdle through the consistent logic of man-made machinery. Finally, the ahistoric exceptionalism that is pervasive in American strategic thought appears to reject the constraint that offense in the missile age is inherently superior. The history of U.S. missile defense development has been rife with deterministic criticism about the technological hurdles and economic infeasibility precluding any hope of change. Owing to the uniqueness of the U.S. geopolitical experience, American strategic culture is usually hostile to such claims of indisputable historical constraint.

The American way of war is also highly congruous with broad-scope missile defense efforts. Obviously, the emphasis on technological overmatch precludes any perception of vulnerability to adversary capabilities as a desirable state of being. In virtually every other warfighting domain, the United States has invested enormous sums into maintaining technical dominance through defense innovation.[26] Speaking to a virtual defense conference, Heidi Shyu, the Under Secretary of Defense for Research and Engineering, exemplified this approach: "We cannot afford a leveling of technology advantage…. We must leverage the incredible amount of technology innovation across our nation to give our [sic.] leap-ahead capabilities to solve tough operational challenges."[27] While the technological

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[24] Michael Rühle, "U.S. Strategic Culture and Ballistic Missile Defense," *National Institute for Public Policy Information Series*, no. 466 (September 3, 2020), p. 2, available at https://nipp.org/wp-content/uploads/2021/03/IS-466.pdf.

[25] Adamsky, op. cit. p. 76.

[26] Cheryl Pellerin, "DOD Embracing Innovation to Fuel Military Overmatch against Adversaries," U.S. Army, May 4, 2017, available at https://www.army.mil/article/187213/work_dod_embracing_innovation_to_fuel_military_overmatch_against_adversaries.

[27] David Vergun, "DOD in Search of Disruptive Technologies That Will Enable the Warfighter," U.S. Department of Defense, March 8, 2022, available at https://www.defense.gov/News/News-Stories/Article/Article/2959378/dod-in-search-of-disruptive-technologies-that-will-enable-the-warfighter/https%3A%2F%2Fwww.defense.gov%2FNews%2FNews-

challenge of homeland ballistic missile defense (BMD) is undoubtedly significant, the barrier has proven insufficient for previous military pursuits of technological superiority, including national-scale endeavors such as the Manhattan Project.

Coupled with the desire to maintain a substantial technological edge in the U.S. approach to war is a leadership aversion to heavy casualties. The U.S. military has spent considerable sums in order to prosecute warfare with minimal risk to the warfighter, including an enduring emphasis on airpower, unmanned aerial vehicles (UAVs), long-range PGMs, theater missile defense, and more. While there are unquestioned tactical and strategic benefits to all of these innovations, official statements regarding such technology consistently include reference to their value in ensuring the safe return of deployed personnel.[28] In the case of homeland BMD, the amount of potential military and civilian casualties associated with a deterrence failure is staggering. The utility of damage limitation measures in reducing U.S. loss of life in the instance of a deterrence failure has been acknowledged in declaratory policy by more than two decades worth of presidential administrations. The diverse suite of threats and willingness of U.S. adversaries to employ such capabilities increases the likelihood of a deterrence failure, lending further credence to a pursuit of more expansive BMD. The demonstrated efforts of U.S. military and civilian leadership to minimize casualties in combat operations would appear to justify bearing the immense financial cost necessary to ensure the safety of all Americans. Thus, it is striking that the "hostage exchange" of American citizens consistent with mutual vulnerability ever took hold in a culturally hostile environment.

Broad homeland missile defense would further allow for the employment of the American style of overwhelming firepower through direct engagement and leveraging of its industrial and material superiority. Previous conflicts have seen the wholesale inability of U.S. adversaries to hold any domestic infrastructure or power projection targets at risk. The missile age has shattered this perceived sanctity of the American homeland. Targeted missile strikes against several key U.S. ports would, at the very least, delay the ability of U.S. ground and naval forces to respond to aggression against allies in Europe or Asia. Obstructing the deployment of these forces would prevent the leveraging of the full weight of U.S. conventional firepower superiority in a given battlespace. Thus, more comprehensive homeland U.S. missile defense would potentially deny an adversary the confidence in limited missile strikes designed to limit the safe movement of U.S. or allied forces to a battlefield.[29]

Finally, the U.S. emphasis on moralism in the conduct of warfare lies in stark contrast to mutual vulnerability. Financial considerations aside, defensive measures designed to limit the damage to civilians and critical national infrastructure hold inherent moral superiority over their offensive counterparts. Creating the ability to defend oneself against aggression

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Stories%2FArticle%2FArticle%2F2959378%2Fdod-in-search-of-disruptive-technologies-that-will-enable-the-warfighter%2F.

[28] Mark A. Welsh III, "Global Vigilance, Global Reach, Global Power for America: The World's Greatest Air Force--Powered by Airmen, Fueled by Innovation," *Air & Space Power Journal*, March 2014, pp. 6–7.

[29] Jonathan Trexel, "Denying North Korea," in *Deterrence by Denial: Theory and Practice*, ed. Andreas Wegner and Alex S. Wilner (New York: Cambria Press, 2021), p. 149.

cannot be considered aggression by its own right, despite the claims of expansionist-minded autocrats. Furthermore, given the U.S. tendency to cast adversaries as evil, it is highly dissonant to seek a condition by which national survival is guaranteed only by mutual hostage taking and trust in these same reprehensible entities.

Exploring the Disconnect

The clash between U.S. strategic culture and its missile defense policies necessitates further examination. Nearly all salient pillars of American strategic culture decisively point to building comprehensive homeland BMD and rejecting mutual vulnerability required by the philosophy of MAD. Rühle echoes this view when examining EU attitudes of U.S. missile defense efforts: "Against this background [U.S. strategic culture], European advice to the United States to remain in a permanent state of calculated—"stabilizing"—vulnerability is likely to fall on deaf ears."[30] Nevertheless, neither unlimited homeland BMD nor a wholesale rejection of mutual vulnerability has been uniformly supported across three-quarters of a century of missile defense policymaking. Of course, it is unrealistic to assume that a "big idea," to borrow a term from Colin Gray, such as strategic culture will be a panacea for predicting state behavior in all circumstances.[31] Humans have yet to assemble a theory of security decision-making that forecasts with absolute precision. Still, the fact that the disconnect between U.S. strategic culture and BMD practice has persisted for so long merits a deeper dive to understand why.

Policy is Derived From Compromise. Despite the immense financial resources of the American system, the federal government operates under a condition of scarcity. There exists a finite pool of resources, including money, personnel, and time, that can be allocated to a myriad of agencies and projects. Consequently, goals that align perfectly with a given state's strategic culture may not be actualized due to the constant need to balance hundreds of other simultaneous priorities. Gray describes this condition as a "negotiated outcome" where the "pure flame of strategic culture is certain to be dimmed by the constraints imposed by scarce resources and competing agencies."[32] U.S. missile defense policy is no exception to this rule—it suffers from consistent politicization and strongly divergent preferences within the government system and from outside interest groups. Most prominent among these interest groups are the scientific community and arms control advocates. Many of their members have lobbied against missile defense development since its inception.[33] Despite Pew polling showing that the arguments for a national missile defense system were more

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[30] Rühle, op. cit., p. 4.

[31] Colin S. Gray, "Out of the Wilderness: Prime-Time for Strategic Culture," in *Comparative Strategic Cultures Curriculum Project: Assessing Strategic Culture as a Methodological Approach to Understanding WMD Decision-Making by States and Non-State Actors*, ed. Jeffrey A. Larsen (Defense Threat Reduction Agency Advanced Systems and Concepts Office, 2006), p. 22.

[32] Ibid., p. 25.

[33] Becker, op. cit., pp. 67–68.

compelling than those against, the American populace does not support homeland BMD enough to change the status quo.[34] Under these limits, a "security community can behave in ways massively contrary to the strategic preferences implied by its dominant strategic culture."[35]

Given the nature of the U.S. pluralistic system, Congress has most often opted for a compromise to satisfy both camps—a limited system to assuage the fears of destabilization, but one that can still be claimed as "progress" to the general public by protecting against potential rogue states and accidental launches.[36] These compromises are often driven by a small, but highly influential, cadre of "easy deterrence" elites who regard missile defense development as a threat to the predictable function of mutual deterrence through vulnerability.[37] Unsurprisingly, such compromises have repeatedly hamstrung national missile defense development by impeding any concerted effort to innovate beyond the limited or regional level.

Lack of Threat Immediacy. The geographic isolation of North America has shielded American citizens from the nightmares of interstate warfare for the better part of its existence. Despite the advent of long-range missiles removing the barriers of the twin oceans, these threats remain highly conceptual. The dissolution of the Soviet Union and period of unquestioned American hyperpower that followed likely downplayed the possibility of nuclear ICBM attack in the collective American psyche. Hence, it is most plausible that the true gravity of this hazard will remain a distant concern in the minds of most Americans, until such time as the threat materializes on U.S. soil.[38] While the Russian invasion of Ukraine has reignited national attention on the threat of the Russian nuclear force posture, this threat is still "far away" and difficult to internalize as a serious probability.

At the macro level, this issue can be explained by one of the most consistent findings of cognitive psychology: the inability of humans to assess risk accurately. Overconfidence in a positive outcome, known as optimistic bias, is described by Nobel Prize winning economist Daniel Kahneman as the "most significant of the cognitive biases" thanks to the risks it poses to informed decision-making.[39] In the case of the Russian and Chinese nuclear arsenals, some elements of familiarity bias may work to decrease the probability that the threat will ever materialize. This bias refers to the "comfort, affiliation, or some other type of cognitive bond" that occurs with topics or entities that an individual has repeated exposure to, such as

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[34] "Modest Support for Missile Defense, No Panic on China: Other Important Findings and Analyses," Pew Research Center, June 11, 2001, available at https://www.pewresearch.org/politics/2001/06/11/other-important-findings-and-analyses-10/.

[35] Colin S. Gray, "Strategic Culture as Context: The First Generation of Theory Strikes Back," *Review of International Studies* 25, no. 1 (1999), p. 64.

[36] "Missile Defense, the Space Relationship, & the Twenty-First Century" (Washington, D.C.: Institute for Foreign Policy Analysis, 2009), pp. 68–69, available at http://www.space-library.com/0902IFPA_IWG2009.pdf.

[37] Payne, *Shadows on the Wall*, p. 65.

[38] op. cit., p. 80.

[39] Daniel Kahneman, *Thinking, Fast and Slow* (Toronto: Doubleday Canada, 2011), p. 255, available at https://archive.org/details/thinkingfastslow0000kahn_b1q8.

the threat of Soviet nuclear attack during the 20th century.[40] While there were numerous instances of close calls during the Cold War, the ability of deterrence to hold in all previous circumstances has perhaps built a powerful connection between mutual vulnerability and the "success" of nuclear deterrence.

Several elements of U.S. strategic culture may also reinforce the inability of most to accurately assess the dangers posed by adversary missile arsenals. Enduring American norms of optimism and ethnocentrism possibly encourage overconfidence in the universality of the U.S. approach to nuclear war and the ability of deterrence to hold. This issue has plagued U.S. foreign policy since the Cold War, when decision-makers "declined to appreciate the Soviet Union as a culturally, historically unique adversary unlikely to prove responsive to American political-military desiderata—no matter how eloquently, or persistently, expressed."[41] As idealistic as these notions may seem, the "hubris regarding our master of nuclear deterrence 'stability'… built on the demonstrably false assumption that Washington's interpretation of what is rational and sensible also will be the basis of our opponents' behavior" remains in some elements of the defense community today.[42] These influences of U.S. strategic culture could therefore be considered "dysfunctional" with regard to missile defense—disproportionately reinforcing suboptimal outcomes rather than what is most congruous with the strategic culture as a whole.[43]

Image Perception and Manipulation. During the Cold War, the foundational debate about the requirements of superpower deterrence between Thomas Schelling and Herman Kahn revealed deeply held American reservations regarding any measures that could enable further nuclear employment in war. Kahn's approach, emphasizing the need for damage limitation capabilities to make the threat of nuclear use more credible to the Soviets, was sharply criticized as being "cavalier" or "jocular" about the prospect of nuclear war.[44] Schelling's recommendation of mutual vulnerability through a "balance of terror" did not receive the same criticism, despite the wholesale rejection of any defensive abilities for the American public and implicit targeting of Soviet noncombatants. Similar events unfolded during consideration of the Strategic Defense Initiative (SDI), when American commentators once again denied the possibility of protecting the American public on moralistic grounds.[45]

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[40] Casey L Smith, "The Effects of Familiarity and Persuasion on Risk Assessment" (Doctoral Dissertation, Daytona Beach, Embry-Riddle Aeronautical University, 2012), p. 36, available at https://commons.erau.edu/cgi/viewcontent.cgi?article=1130&context=edt.

[41] Colin S. Gray, "Nuclear Strategy and National Style" (Washington, D.C.: Defense Nuclear Agency, July 31, 1981), p. 68, available at https://apps.dtic.mil/sti/pdfs/ADA133216.pdf.

[42] Payne, *The Fallacies of Cold War Deterrence and a New Direction*, p. xiii.

[43] Gray, "Out of the Wilderness: Prime-Time for Strategic Culture," pp. 65–66.

[44] Keith B. Payne, *The Great American Gamble: Deterrence Theory and Practice from the Cold War to the Twenty-First Century* (Fairfax, VA: National Institute Press, 2008), pp. 36–39.

[45] Conference of Catholic Bishops, "Strategic Defense Initiative: Moral Questions, Public Choices" (Washington, D.C, 1988), pp. 5–6, available at https://www.usccb.org/issues-and-action/human-life-and-dignity/war-and-peace/nuclear-weapons/upload/statement-strategic-defense-initative-moral-question-public-choices-1988.pdf.

With this domestic base laid, international criticism became even more poignant. Soviet protests over U.S. ABM efforts consistently portrayed the defensive shield as merely a pretext to launch a first strike and retain the ability to survive retaliation. Ignoring Soviet damage limitation efforts, which exceeded those of the United States during the Cold War, easy deterrence theorists took such statements at face value and amplified the concerns that missile defense would undermine strategic stability and legitimize nuclear warfighting. Contemporary U.S. adversaries have continued this narrative, repeatedly advancing claims that U.S. missile defense efforts are a means to grant the U.S. military freedom of unilateral action and enable further "imperialism." Such assertions are often accompanied by proclamations that the U.S. "missile shield" is solely designed to enable "a surprise missile-nuclear strike in any region of the world, with no punishment" in a manner reminiscent to the bombings of Hiroshima and Nagasaki.[46]

Recent revelations regarding the scale of Russian hybrid warfare efforts, including liberal use of disinformation campaigns to undermine U.S. domestic and international standing, amplify the possibility that foreign actors have played an influential role in shaping the missile defense narrative. The 2022 *Annual Threat Assessment of the U.S. Intelligence Community* describes Russia's global influence operations as a multi-domain enterprise designed to "divide Western alliances, and increase its sway around the world, while attempting to undermine U.S. global standing, amplify discord inside the United States, and influence U.S. voters and decision-making."[47] Such efforts almost certainly extend to missile defense, where previous friction between U.S. and EU policy may be exploited to drive a wedge into the NATO alliance structure.

Conclusion

There is a striking incongruity between U.S. strategic culture and its missile defense policy. The American national style is characterized by an optimistic and problem-solving mindset, logical-analytical cognitive style, the positive role of machines, and ahistorical exceptionalism. These concepts are reflected in the American way of war, which is technologically driven, casualty averse at the leadership level, moralistic, apolitical, and firepower-focused with an emphasis on direct engagement over stratagem. Taken at face value, these factors would strongly indicate a preference for comprehensive deterrence by denial measures, most prominently homeland BMD, to protect American lives in the case of deterrence failure or catastrophic accident. However, such preferences have failed to consistently materialize over three-quarters of a century of missile defense policymaking. Instead, the United States has often settled for a strategy of mutual vulnerability synonymous

[46] "Russian General: US Needs Missile Shield for Military Supremacy over Russia, China," *TASS*, October 11, 2016, available at https://tass.com/politics/905572.

[47] "Annual Threat Assessment of the U.S. Intelligence Community" (Washington, D.C.: Office of the Director of National Intelligence, February 2022), p. 12, available at https://www.dni.gov/index.php/newsroom/reports-publications/reports-publications-2022/item/2279-2022-annual-threat-assessment-of-the-u-s-intelligence-community.

with the theory of Thomas Schelling's "balance of terror" and Robert McNamara's MAD philosophy. While the United States has slowly accepted more expansive attitudes regarding BMD and "rogue states," MAD continues to dominate the approach to Russian and Chinese missile arsenals. This can be found most prominently in U.S. declaratory policy regarding the targets of the Ground-based Midcourse Defense (GMD) system, claims of destabilization or negative effects on "strategic stability," and action-reaction cycle-based theories of Russian and Chinese nuclear modernization as a direct result of U.S. missile defense despite all empirical evidence to the contrary.

Despite little cultural support for the MAD approach and its corresponding emphasis on mutual vulnerability, this concept has disproportionately guided U.S. damage limitation policy and its corresponding discourse in many corners of the defense community. Three possible explanations for this incongruity were advanced by this monograph, including the requirement of compromise in forming policy in a pluralistic democracy, the lack of perceived ballistic missile threat immediacy by the general American public, and the concerted effort of U.S. adversaries to manipulate the international and domestic perceptions of U.S. missile defense efforts. Future studies should examine further reasons for this disconnect, potentially even offering new insights into American strategic culture to remedy the incongruity.

The continuity of mutual vulnerability despite its inherent conflict with U.S. strategic culture is nothing short of extraordinary. The end of the Cold War and dawn of a new, highly complex security environment have failed to eradicate MAD concepts from discourse over great power competition with Russia and China. While the United States has slowly expanded its rudimentary homeland BMD deployments in the face of expanding regional threats, the specter of MAD continues to dissuade policymakers from adopting a more expansive role. Discarding Cold War-era theories of strategic stability and bringing U.S. missile defense policy to a state of harmony with U.S. strategic culture will keep America safer in an ever more unpredictable international security environment.

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As part of its continuing effort to provide readers with unique perspectives on some of the most significant national security issues of our time, National Institute has conducted a series of interviews with key subject matter experts on a variety of contemporary defense and national security topics. These expert views add important perspectives to the current debate and how the United States can best prepare to address forthcoming challenges successfully. In this issue of National Institute's *Journal of Policy & Strategy*, we present an interview with Robert Taylor, U.S. Strategic Command/J8.

Mr. Taylor discusses China's rise and its potential implications for U.S. STRATCOM's missions, challenges related to the opacity inherent in China's strategic build up, and risks related to Russia's nuclear coercion in the escalation of its war in Ukraine. He also touches upon growing uncertainties in the strategic environment and the importance of U.S. nuclear modernization.

An Interview with
Robert Taylor
U.S. Strategic Command/J8

Q. Does the rise of China as a revisionist nuclear peer change U.S. Strategic Command's (USSTRATCOM's) future force requirements?

A. Any changes to USSTRATCOM future force requirements must be evaluated from a broader global security environment context. China is rapidly expanding the size and capabilities of both its conventional and nuclear forces. This expansion is arguably well beyond what we consider necessary for its stated minimum deterrence strategy. Doing so enables them to build toward a capability to execute any plausible nuclear employment strategy, as described in the 2022 *Nuclear Posture Review* (NPR).

To address this challenge, we must continuously monitor the security environment, make force posture adjustments where necessary and pursue dialogue with China to manage misperceptions, while also ensuring our strategies and capabilities are sufficient to address global strategic deterrence requirements. To this end, we maintain a flexible deterrence strategy and force posture to clearly convey to China that the United States will not be deterred from defending its vital interests and our Allies' and partners'.

Ultimately, USSTRATCOM requirements are threat-informed through intelligence assessments based on national strategy and presidential guidance, and developed as a function of what is deemed necessary to address threats posed by all potential adversaries. To ensure our deterrence remains credible, our force requirements must continue to evolve in response to a rapidly changing and increasingly competitive geopolitical environment. In some cases, adjustments may require additional capacity and capabilities. At the same time, and consistent with the 2022 *National Defense Strategy* (NDS), we must

continue to support and leverage integrated deterrence by working seamlessly across warfighting domains, integrating conventional and nuclear operations, using all instruments of U.S. national power, and our network of Allies and partners to achieve our national security objectives.

Q. What do you see as the main challenge to adapting U.S. nuclear weapons policy in the future, as China's projected nuclear systems go online and Russia's nuclear threats?

A. Understanding of China's intent behind its nuclear expansion remains a significant challenge. Russia's suspension of the New Strategic Arms Reduction Treaty (New START) and threat of coercive nuclear use in Ukraine demonstrates its intent to continue reliance on nuclear forces to achieve military objectives. Both nations continue to demonstrate the rapidly changing competitive environment that will pose future challenges to nuclear weapon policy.

We must continue ongoing efforts to fully modernize the triad, associated nuclear command, control and communications (NC3) capabilities, and supporting infrastructure to ensure the foundation of our deterrent remains sound. We are striving to operationalize conventional-nuclear integration to provide a wide range of options to the Department of Defense (DoD). China's reluctance to participate in an arms control or nuclear risk reduction efforts, and lack of transparency limits our understanding of their goals. Therefore, we must continually evaluate whether adjustments in our policy, strategy, force posture, force size, and capacity and/or capabilities will be required to ensure the deterrent remains credible. Nuclear deterrence is the foundation of strategic and integrated deterrence. Nuclear weapons, with the right delivery systems, have no equal in destructive power and will serve as a necessary element of deterrence for the foreseeable future.

Q. The United States and its Allies are facing nuclear coercion in a regional context, epitomized by Russia's threats against the North Atlantic Treaty Organization (NATO) during Russia's war in Ukraine. How does USSTRATCOM take into account the regional COCOM's perspective on a regional nuclear threat?

A. Russia represents an acute threat, and President Putin's threat of nuclear employment presents yet another deterrence challenge. Russia uses its annual strategic forces exercises to message its strategic deterrent to both regional and global audiences. The Russians have demonstrated a willingness to conduct these exercises ahead of potential crises to communicate Moscow's stake and deter third-party intervention, particularly NATO's, to achieve their objectives.

USSTRATCOM works closely with U.S. European Command for intelligence analysis, operational plans integration, and requirement development to provide the President of the United States with the best military advice and conventional/nuclear options to

address this and any other future situations. USSTRATCOM integrates with regional unified combatant commands (CCMDs) across functions of our Command, but we can and must continue to improve deliberate integrated planning across National, DoD, and agencies, to be fully prepared for crisis and conflict. In capabilities development, regional CCMDs inform our analysis and align with the Joint Force requirements across the DoD.

Q. We have heard quite a bit lately about limited capacities of U.S. defense industrial base and challenges it would face it if were to supply the nation in war with a peer adversary. Are these concerns applicable to considerations of U.S. delivery system modernization? What are the most significant near-term and long-term challenges to executing this modernization in a timely manner?

A. Executing and delivering nuclear enterprise modernization programs on time remains one of the DoD's and USSTRATCOM's top priorities. Near-term and long-term challenges include secure supply chains, manufacturing, materials, skilled labor, and testing as the nation modernizes all three legs of the nuclear triad, the nuclear weapon stockpile, and NC3 enterprise. The 2022 NDS and 2022 NPR rightfully identify the need to strengthen our defense industrial base to ensure production and sustainment of the full range of capabilities.

We are focused long-term on attaining flexibility within the industrial base necessary to rapidly adapt to a changing geopolitical environment. The defense industrial base and program funding both represent near- and long-term challenges to ensuring modernization remains on schedule. A credible and effective deterrent requires full and consistent funding to sustain and modernize delivery platforms, nuclear weapons, and the industrial base.

Q. Given Russia's advantage on the tactical nuclear force levels and China's increasing nuclear weapon numbers and projections that are very unfavorable to the United States and its Allies, would the United States be able to support an increase in the number of delivery systems it procures and nuclear warheads it deploys if the political leadership deems it necessary?

A. It is important to acknowledge that USSTRATCOM assesses operational risk but does not establish policy. If directed by national leadership, we can support adjustments in the number of delivery systems procured and nuclear warheads deployed. USSTRATCOM would work with the Services to develop options to adjust force posture as well as program schedules for modernization, and at the same time, assess operational risk.

For example, we have already begun looking at capacity, should there be requests by the DoD or administration for additional analysis given the threat environment. This analysis would evaluate and propose the best options to adjust requirements and, if desired, to deliver more capacity. Ultimately, decisions regarding delivery systems, warheads or the Nation's nuclear posture will be based on national policy and objectives, but from the

operational perspective, ongoing analysis of our ability to meet objectives is part of the assessment for future forces.

Q. Speaking of U.S. nuclear weapon requirements, what do you foresee as the main difference between the nuclear force requirement in the 1990s and the 2030s?

A. The geopolitical environment, and particularly the threat, has changed dramatically since the 1990s. When coupled with a more globally integrated economy, technological advancements, and the speed of information movement, forces must be agile, flexible and postured to respond along far shorter timelines. These and other factors necessitate improved integration between the nuclear force and non-nuclear conventional kinetic and non-kinetic capabilities.

Within the nuclear enterprise, the requirement for a safe, secure, reliable, and credible nuclear triad remains. However, modern and more capable platforms underpinned by a 21st century NC3 capability, and supported by a revitalized weapons complex are required to address a growing and increasingly complex threat. Our modernization programs in development today were originally designed in response to the 2010 threat environment and may very well require future adjustment based on changes in only the last decade. Integrating conventional hypersonic weapons, non-kinetic capabilities, and collaborating with our Allies are increasingly important aspects of strategic deterrence that will likely grow in value as we enter the 2030s. Moving forward, we must continually assess our nuclear force posture, capacity, and multi-discipline strategic capabilities to ensure they are effective to deter in the 21st century.

Q. The Administration has recently declared Russia in noncompliance with New START. How does uncertainty regarding the treaty, and the fact there may not be a follow on arms control treaty, impact USSTRATCOM's nuclear weapon planning process?

A. Russia's non-compliance with and illegal suspension of New START is unfortunate and irresponsible. Without New START or similar agreement, Russia is unconstrained in the expansion of strategic nuclear forces. In the near-term, the impact to nuclear weapon planning processes is limited because it takes significant time to develop, test, and field additional delivery platforms. However, a long-term lapse in an arms control agreement may create a more challenging strategic environment and could result in greater complexity in our planning processes.

Mutual compliance with New START strengthens the security of the United States, its allies, and partners. It also strengthens Russian security. Russia is not better off in a world where the two largest nuclear powers are no longer engaging in bilateral arms control. Arms control measures foster transparency, understanding, and predictability, thereby reducing the risk of misunderstanding and miscalculation.

Q. What do you see as USSTRATCOM's least developed future concept that deserves further analytical exploration?

A. Numerous technology areas have the potential to significantly enhance strategic deterrence and deserve further exploration. Specific capabilities include trajectory shaping, weapons accuracy, non-kinetic capabilities, NC3 enhancements, meshed networks, advanced navigation concepts, and subsea and seabed warfare. In some cases, evolution of existing capabilities such as platform and re-entry vehicle advancements, integration of conventional and nuclear operations, and the ability to hold hard- and-deeply buried targets at risk warrant exploration and analysis. To mature these advanced capabilities and concepts, USSTRATCOM has developed specific science and technology focus areas to concentrate efforts in data science to emulate decision-making, enhance survivability against emerging threats, improve threat custody capabilities to improve kill chains, improve capabilities for submarines to operate at speed and depth, and incorporate non-kinetic concepts. These technologies and several others have the potential to enhance strategic deterrence and provide national leadership with options beyond today's existing forces.

Q. How can USSTRATCOM play more effectively in the DoD's budget process?

A. The 2022 NDS informs resource investment and identifies nuclear deterrence as a top priority for the nation. USSTRATCOM is deeply integrated into the budgeting process to ensure resources are aligned with DoD priorities and budgets are informed by operational risk. We do this through two primary methods; first, we engage with Services before and during their program objective memorandum (POM) development, establish strategic priorities, and we coordinate with the Office of Secretary of Defense as it finalizes DoD recommendations for the president's budget. Second, we work with congressional representatives and committees to ensure warfighter gaps are clearly articulated as Congress finalizes the federal budget annually. Our continued engagement in the early phases of budget development and throughout the adjudication process facilitate operationally informed budgets.

Q. In your opinion, what would be the best way to address the tension between providing the DoD capabilities in need for today's fight and requirements of modernization? How should one prioritize between the two when the tradeoffs become necessary?

A. The DoD has continued to prioritize the modernization of the nuclear triad and NC3. This prioritization has ensured sustained funding to service programs of record. However, the ongoing nuclear modernization effort is facing schedule, industrial base, and workforce challenges. We are out of margin on many fronts and must deliver the new capabilities on time to address today's threats and ensure we have the capacity, capability, flexibility, and

margin to remain credible against evolving adversary threats. We cannot divest any existing strategic systems early to fund a modernization program replacement. We do not have the luxury of choosing between fully funding the modernization program of record or maintaining the current systems. Both are required to maintain a credible, reliable, nuclear deterrent force as the bedrock of our strategic deterrence and national defense.

Q. How does USSTRATCOM assess the impact of adversaries' hypersonic weapons on U.S. nuclear deterrence?

A. USSTRATCOM has a requirement for resilient and robust missile warning and tracking capabilities to defend against the growing threat posed by hypersonic weapons, cruise and ballistic missiles. Emerging hypersonic threats present significant operational challenges by limiting warning time necessary to change force posture and presents risk to our strategic forces, creating vulnerability and eroding deterrence. This operational risk must be addressed through an integrated approach with USNORTHCOM and the DoD.

Q. What is the role of US allies in USSTRATCOM's integration efforts?

A. Integrated deterrence is the foundation of the 2022 NDS and our relationship with Allies. We are executing integrated deterrence today—and our Allies are critical to the effort. It entails working seamlessly across warfighting domains, theaters, the spectrum of conflict, whole of government, and our network of Allies and partners. At USSTRATCOM, we integrate plans, operations, and force modernization with our Allies. We are a key player in extended deterrence engagements. The strengthening of our international bodies—NATO, AUKUS—and the swift, coordinated response of the United States, Allies and partners to support Ukraine gives great credence to the effectiveness of our integrated deterrence strategy.

ASSESSING THE 2022 MISSILE DEFENSE REVIEW

The remarks below were delivered at a symposium on "Assessing the 2022 Missile Defense Review" hosted by the National Institute for Public Policy on January 25, 2023. The symposium discussed the Biden Administration's approach to U.S. missile defense policies and programs and assessed areas of continuity and discontinuity between current missile defense priorities and the policies and programs of previous administrations.

David J. Trachtenberg
David J. Trachtenberg is Vice President of the National Institute for Public Policy and served as Deputy Under Secretary of Defense for Policy from 2017-2019.

In October, the Biden Administration finally released the unclassified version of its *Missile Defense Review* (MDR), which was embedded in the *National Defense Strategy* (NDS) along with the *Nuclear Posture Review* (NPR).

What I find noteworthy about the MDR is less what it says than what it doesn't say.

Consistent with the other strategy documents, the 2022 MDR acknowledges a more volatile and dangerous international security environment than that which existed only a few years ago, but it fails to adequately articulate how the United States will defend itself against the growing missile threats it highlights.

For example, the MDR acknowledges that "missile-related threats have rapidly expanded in quantity, diversity, and sophistication," noting that both Russia and China have developed new, "diversified" nuclear missile capabilities,[1] but it gives no indication that the United States will develop new, diversified capabilities of its own to bolster deterrence by countering such adversary developments or seek to defend itself against the more sophisticated strategic nuclear capabilities of these adversaries.

Indeed, the MDR appears to adopt a "business as usual" approach by foreswearing defenses against Russia's and China's strategic missile threats and identifying no new programs of record to counter the growing missile threats it acknowledges. The MDR states that we will continue with current plans for a limited defense against rudimentary threats such as those posed by North Korea but take no action to defend against the more serious missile threats posed by peer nuclear-armed powers.

For a strategy document that declares, "Missile defenses…are critical to the top priority of defending the homeland and deterring attacks against the United States,"[2] it is remarkably mum on offering any practical solutions. Americans may be forgiven for wondering if the Biden Administration believes its own statements about defending the homeland being "the top priority" or if these words are simply a throwaway line meant to suggest nothing more than a platitude to make the public feel good.

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[1] Department of Defense, *2022 Missile Defense Review*, October 2022, pp.1-3, available at https://media.defense.gov/2022/Oct/27/2003103845/-1/-1/1/2022-NATIONAL-DEFENSE-STRATEGY-NPR-MDR.PDF.

[2] Ibid., p. 5.

While noting that adversaries "are pursuing and demonstrating advanced, long-range space and missile systems" that "could increasingly blur the line between regional and homeland defense,"[3] the MDR is silent on developing U.S. space-based interception capabilities, focusing only on space sensors for the missile defense mission.

Moreover, the MDR provides scant detail on how the United States will bolster its missile defense cooperation with allies and partners, simply noting that this "continues to be an important priority for the United States."[4] While the MDR notes that the United States has "a long history of working with Israel" and "a longstanding relationship of robust cooperation on missile defense,"[5] it is silent on the specifics of that cooperation or whether or how the administration will seek to intensify it.

In short, the MDR acknowledges the growing missile threats to the U.S. homeland but fails to offer a comprehensive roadmap for countering them. It perpetuates the Cold War notion that continued societal vulnerability to peer nation nuclear missile threats is stabilizing. It fails to address the utility of space-based capabilities beyond sensors that could prove valuable for defending against adversary ballistic missile attacks, including boost-phase defenses. And it lacks any significant discussion of the administration's plans to enhance missile defense cooperation with allies and partners, especially Israel.

Finally, I would note that National Institute plans to publish an *Occasional Paper* soon on the 2022 *Missile Defense Review* with commentaries from multiple subject matter experts, including some of our panelists today. So watch for that in the near future, along with our forthcoming *Occasional Papers* on the National Security Strategy and Nuclear Posture Review.

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Matthew R. Costlow
Matthew R. Costlow is Senior Analyst at the National Institute for Public Policy and former Special Assistant in the Office of Nuclear and Missile Defense Policy at DoD.

Thank you, Dave and thank you to this distinguished panel of experts on missile defense policy and programs. My remarks today are drawn from my soon-to-be published chapter in a National Institute *Occasional Paper* focused on the 2022 *Missile Defense Review*. I hope everyone will be on the lookout for this forthcoming series of *Occasional Papers* that compile the assessments of a broad range of experts, with the first *Occasional Paper* assessing the *National Security Strategy*, the *Missile Defense Review*, and finally, the *Nuclear Posture Review*.

We hope that compiling these assessments on each major national strategy document will help provide the necessary context for how domestic and international experts view these documents.

[3] Ibid., p. 7.
[4] Ibid., p. 10.
[5] Ibid., p. 11.

Today, I want to use my remarks to take a step back from the current missile defense debate which I fear has come to resemble the trench warfare of World War I, in which both sides lob their arguments back and forth and the lines of the debate hardly move. Missile defense proponents cannot imagine why critics will not acknowledge the deterrence benefits of missile defense; while critics are befuddled by proponents' seeming nonchalance about creating first strike fears.

Now, in the spirit of full disclosure, I have been party to this trench warfare as recently as last year with my *Occasional Paper* on the subject, which was not-so-subtly titled, "Vulnerability is No Virtue and Defense is No Vice." I address the arguments about deterrence and first strike incentives in that paper extensively, so today I want to venture elsewhere, out into "No Man's Land," so to speak, and try a different tactic.

President Biden and many of the officials in his administration have a history of skepticism, if not outright opposition, to U.S. homeland missile defense. So instead of trying, once again, to show why they are wrong, today I want to examine those values and priorities, expressed in the 2022 *Missile Defense Review* and elsewhere, and point out how missile defense might contribute to achieving those goals. In other words, let's take the Biden Administration at its word that those officials truly are concerned about misperception, accidents, and crisis stability—and then examine how improved and expanded U.S. homeland missile defense can contribute to alleviating those concerns.

First, let's examine the Biden Administration's concerns about the risks of accidental or unauthorized launches. Now, these kinds of launches are not expressly called out in the 2022 MDR; instead, they are found in the 2022 *Nuclear Posture Review*. The Biden Administration says accidental or unauthorized launches, which can potentially lead to nuclear escalation, are a "risk" and then proceeds to show how the United States mitigates these risks for its own forces through open-ocean targeting, technical safeguards, etc.

Given the Biden Administration's concern about these kinds of launches, it is regrettable that the 2022 MDR does not recognize U.S. homeland missile defense as perhaps the most important contributor to minimizing these risks from adversaries. Russia's and China's technical safeguards might fail, and deterrence might not apply in the scenario of an unauthorized launch, making U.S. homeland missile defense the last line of defense for damage limitation and minimizing the risk of inadvertent nuclear escalation.

I also want to touch on another potential role for U.S. homeland missile defense that goes unmentioned in the 2022 *Missile Defense Review*, but which I think even homeland missile defense skeptics might agree could be useful. I am honestly not sure how concerned I should be about this risk that I will talk about, but since it appears to be technically possible and potentially cataclysmic in effect, I will lay it out here.

The great strategist Herman Kahn pontificated about the possibility of "catalytic war" which he defined as, "based on the notion that some third party or nation might for its own reasons deliberately start a war between the two major powers." In other words, and applied to today, Russia could conceivably launch missiles from one of its submarines, perhaps modified to perform like Chinese missiles, against the United States in the hopes of triggering

a Sino-U.S. war, leaving it standing in a relatively better position amidst the ashes of the aftermath.

Or, might China attempt the same tactic, fulfilling Sun Tzu's admonition to "win without fighting" by provoking a U.S.-Russian conflict? Again, I fully recognize the incredibly risky nature of this problem, and perhaps both Moscow and Beijing would blanche at the prospect of gambling on the future of their nations; but I cannot help but agree with Donald Brennan who over 50 years ago pointed out the potential contribution that a strong U.S. homeland missile defense system could make toward lowering the risk of inadvertent nuclear war in this scenario.

Moving on to my final point, the Biden Administration stresses throughout the 2022 MDR its desire to reduce the risks of crisis instability. In other words, it wants to minimize the risks of misperceptions, or incentives to escalate, during a crisis. And, not only will I commend the Biden Administration for stating this important point, but I will gladly praise the 2022 MDR authors for recognizing the role that U.S. homeland missile defense can play in reducing these risks. My only complaint, and, I believe, it is not an insignificant complaint, is that the 2022 MDR does not go far enough in recognizing the full scope of homeland missile defense contributions to stability.

First, U.S. homeland missile defense can serve as an important deterrent to an adversary seeking to escalate a crisis to conflict. By potentially eliminating the option for a "cheap shot" against the U.S. homeland, one meant to demonstrate resolve or ability, U.S. homeland missile defense can serve as an important firebreak between crisis and conflict. Second, should deterrence fail and an adversary seek to impose costs against the U.S. homeland via conventional strikes on critical infrastructure, U.S. homeland missile defense can again act as a firebreak against a conventional conflict escalating to nuclear conflict. By vastly complicating the attack plans of an adversary, and making the possibility of failure that much more of a reality, U.S. homeland missile defense can contribute to the overall deterrence effect against attack, in conjunction with the threat of an overwhelming response. Finally, in a potential North Korea scenario, the United States would benefit from an expanded and improved U.S. homeland missile defense system which could potentially minimize a U.S. president's perceived need to rely on preemptive strikes to limit damage to the U.S. homeland—providing more options and freedom of action during a crisis.

To wrap up, my conclusion is rather simple. If the Biden Administration means what it says about wanting to reduce the risks of inadvertent nuclear escalation, accidents, unauthorized launches, and crisis instability, then it should not cast such a critical eye on the role of improved and expanded U.S. homeland missile defense. Far from impeding progress on reducing these risks, expanded and improved U.S. homeland missile defense could instead act as a great contributor to deterrence and risk reduction. I hope the Biden Administration, and other skeptics of U.S. homeland missile defense, begin to recognize that there are multiple tools that can be used to improve deterrence and risk reduction, and U.S. homeland missile defense should get a fair appraisal in light of the importance of those stated goals.

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PROCEEDINGS

LESSONS LEARNED FROM RUSSIA'S INVASION OF UKRAINE— ONE YEAR LATER

The remarks below were delivered at a symposium on "Lessons Learned from Russia's Invasion of Ukraine—One Year Later" hosted by the National Institute for Public Policy on February 21, 2023. The symposium discussed the implications of the conflict for extended deterrence and assurance of allies; the U.S. ability to deter aggression in multiple theaters of operation; and the prospects for escalation involving the potential use of nuclear weapons. In addition, the webinar considered alliance implications and the prospects for continued NATO solidarity, as well as implications for the U.S. defense industry.

David J. Trachtenberg
David J. Trachtenberg is Vice President of the National Institute for Public Policy and served as Deputy Under Secretary of Defense for Policy from 2017-2019.

Three days from today will mark one year since Russia's latest invasion of Ukraine. Much has already been written about what we should take away from this conflict—especially Russia's poor military performance. Moscow's inability to subjugate Ukraine after a year of intense and bloody fighting suggests there are numerous lessons to be learned—lessons applicable to the United States, NATO, Russia, Ukraine, and America's other friends and enemies.

First, this conflict has exposed the fallacy of what has been called "deterrence by detection" or "deterrence by disclosure." Prior to Russia's invasion, senior Biden Administration officials stated that publicly exposing Moscow's actions would serve as a deterrent to Russian aggression. A significant amount of intelligence information was released as part of a "name and shame" approach. However, simply telling Russia we knew what they were up to in planning to invade Ukraine, and that they would be severely penalized if they violated Ukraine's sovereignty and territorial integrity, was clearly insufficient as a deterrent.

So, I would argue that one lesson is that aggressors bent on conquest are unlikely to be deterred by threats they consider less important than the goals they seek to achieve by waging war. For deterrence to work, there must be an accurate understanding of the objectives and motivations of an adversary. Lacking this, deterrence is problematic.

Second, we have learned that America's "arsenal of democracy" lacks timely resilience. Russia's war against Ukraine has exposed shortcomings in the U.S. defense industry's ability to produce and resupply weapons, as inventories decline, and the pace of weapons transfers exceed industry's ability to replenish stockpiles. One recent report characterized this as an "empty bins" crisis, noting, "The U.S. defense industrial base is not adequately prepared for the international security environment that now exists…. In a major regional conflict—such

as a war with China in the Taiwan Strait—the U.S. use of munitions would likely exceed the current stockpiles of the U.S. Department of Defense."[1]

U.S. allies are encountering similar problems. As NATO Secretary General Stoltenberg stated last week, "The war in Ukraine is consuming an enormous amount of munitions and depleting allied stockpiles…. The current rate of Ukraine's ammunition expenditure is many times higher than our current rate of production…." For large-caliber ammunition, he noted that "orders placed today would only be delivered two-and-a-half years later."[2]

Third, although NATO has remained unified to date in support for Ukraine, concerns that the war may become a "frozen conflict" lasting for years suggest fissures may open in alliance unity—including domestically in the United States—that ultimately work to Russia's advantage. So, what some may see as a Russian failure may turn out to be quite the opposite the longer the conflict drags on.

Fourth, some believe Russia has learned from its mistakes and has shown an ability to adapt its tactics, such as using swarms of drones to disable Ukraine's infrastructure and electronic warfare capabilities that disrupt Ukrainian military communications.[3] Notwithstanding its battlefield problems, Russia may be down, but it is not out, despite the Chairman of the Joint Chiefs of Staff, Gen. Mark Milley, stating, "Russia has lost… strategically, operationally and tactically."[4]

Fifth, a strategy of incrementalism is not a strategy of victory. U.S. support to Ukraine has been slow, halting, and reactive. The Biden Administration's fear of escalation allowed Putin to seize the initiative and to determine the contours of the U.S. and Western response. This is hardly a formula for success now or in the future.

Sixth, some have speculated that the prospect of nuclear escalation has deterred Russia from considering nuclear use. Yet, one year on, and having laid the predicate for nuclear use by declaring that Ukraine poses an existential threat to the Russian Federation (as Putin declared again today),[5] is Moscow willing to accept a conventional defeat without escalating to the nuclear level? As one analyst recently commented, "We should not assume that

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[1] Seth G. Jones, *Empty Bins in a Wartime Environment: The Challenge to the U.S. Defense Industrial Base*, Center for Strategic and International Studies, January 2023, p. 1, available at https://csis-website-prod.s3.amazonaws.com/s3fs-public/2023-01/230119_Jones_Empty_Bins.pdf?VersionId=mW3OOngwul8V2nR2EHKBYxkpiOzMiS88.

[2] "NATO chief says Ukraine's ammunition use outstripping supply," *Associated Press*, February 13, 2023, available at https://apnews.com/article/russia-ukraine-nato-politics-jens-stoltenberg-business-c50b44b430ae86f289baee9da5e35345.

[3] Dara Massicot, "What Russia Got Wrong: Can Moscow Learn From Its Failures in Ukraine?," *Foreign Affairs*, March/April 2023, available at https://www.foreignaffairs.com/ukraine/what-russia-got-wrong-moscow-failures-in-ukraine-dara-massicot.

[4] Tassilo Hummel and Charlotte Van Campenhout, "Chairman of US Joint Chiefs of Staff: 'Russia has lost strategically, operationally and tactically'," *Reuters*, February 14, 2023, available at https://www.reuters.com/world/us/chairman-us-joint-chiefs-staff-russia-has-lost-strategically-operationally-2023-02-14/.

[5] Speaking about the conflict in Ukraine during his Presidential Address to the Federal Assembly, Vladimir Putin asserted that "this represents an existential threat to our country." See Presidential Address to Federal Assembly, February 21, 2023, available at http://www.en.kremlin.ru/events/president/transcripts/messages/70565.

Russian nuclear threats are mere rhetoric…. escalatory processes have a way of driving leaders to behavior they never would have contemplated in normal times."[6]

Seventh, one must ask if the U.S. intelligence community severely underestimated Ukraine's ability and determination to defend itself against a larger and more capable foe. Perhaps it is time to reevaluate the methods and analytic approach the intelligence community uses and to conduct a "Team B" type assessment of the IC's processes.

Eighth, Ukraine has learned that even a superior military force commanded by an authoritarian leadership with little sympathy for the principles of basic human decency can be stymied, if not defeated, by a free people determined to shape their own future for themselves.

Ninth, U.S. allies and friends rightfully wonder if the U.S. extended nuclear deterrent remains credible, or if the American nuclear umbrella has so many holes that they need to consider acquiring nuclear weapons themselves to guarantee their own security.

Tenth, Russia's trashing of the 1994 Budapest Memorandum that guaranteed Ukraine's independence, sovereignty, and territorial integrity demonstrates that Moscow will ignore any agreement that doesn't serve its purposes, meaning the prospects for meaningful arms control are practically nil. In fact, today Putin announced that Russia is suspending its participation in the New START Treaty.

Finally, China has learned that the United States has established red lines for itself when confronting a major nuclear adversary. And that the U.S. defense industrial base would apparently be hard-pressed to support a major conflict over Taiwan. Moreover, Beijing has learned that actions taken now to offset the potential economic penalties it may face from taking aggressive military actions may insulate it from the effect of Western sanctions.[7] All of this bodes ill for deterrence of Chinese aggression against the island.

There are no doubt other lessons to be learned from the Russia-Ukraine conflict, but I will leave them to our panelists to discuss.

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Keith B. Payne

Keith B. Payne is President of the National Institute for Public Policy and former Deputy Assistant Secretary of Defense for Forces Policy.

Thank you, Dave. It is an honor to participate with this panel today. As always, I must note that my remarks reflect only my own personal views.

According to Admiral Charles Richard, then Commander of Strategic Command, deterrence working as we expect is needed for U.S. military planning at all levels: "Every

[6] Loren Thompson, "Washington Is Escalating Its Military Role In Ukraine. What Happens When Russia Reacts?," *Forbes*, February 13, 2023, available at https://www.forbes.com/sites/lorenthompson/2023/02/13/washington-is-escalating-its-military-role-in-ukraine-what-happens-when-russia-reacts/?ss=aerospace-defense&sh=75921ca0659b.

[7] Evan A. Feigenbaum and Adam Szubin, "What China Has Learned From the Ukraine War," *Foreign Affairs*, February 14, 2023, available at https://www.foreignaffairs.com/china/what-china-has-learned-ukraine-war.

operational plan in the Department of Defense, and every other capability we have in DOD, rests on the assumption that strategic deterrence, and in particular nuclear deterrence, … is holding right. And, if that assumption is not met, particularly with nuclear deterrence, nothing else in the Department of Defense is going to work the way it was designed."[8] That reality should make U.S. defense planners truly uncomfortable because the functioning of deterrence is increasingly problematic. When deterrence is essential but problematic, America has a significant challenge ahead.

This point is pertinent to developments in the war in Ukraine over the past year because those developments illustrate in an irrefutable way that today's deterrence challenge exceeds that of our Cold War experience and policy. The basic principles of deterrence theory endure, but its application must be adjusted to specific conditions and circumstances. The contemporary developments fully on display in Ukraine cast doubt on our accumulated wisdom about the application of deterrence and what we think we know about how deterrence will work.

Misreading the Times

Immediately following the Cold War, many Western leaders, academics and commentators were convinced that a "new world order" was emerging. George H.W. Bush described this "new world order" in which "the principles of justice and fair play protect the weak against the strong."[9] Nuclear weapons and deterrence were to play an ever-declining role and great power war was expected to be a thing of the past. German Foreign Minister Westerwelle labeled nuclear weapons "relics of the Cold War."[10] The U.S. "unipolar power" era was to transform the old anarchic, war-prone international system—establishing the basis for global nuclear disarmament.[11]

Yet, Moscow's invasion of Ukraine and nuclear threats over the past year prove as nothing else could that the widespread expectations of a new world order following the Cold War were as bogus as have been all such past expectations of a coming new world order—whether with the League of Nations following World War I or the United Nations following World War II.

Correspondingly, a fundamental development of this past year that now challenges deterrence expectations is that Russia includes—indeed, it highlights—coercive nuclear first-use threats in its repertoire of power. For years, and even after Russia's invasion of

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[8] Quoted in, Amy Hudson, "Richard Says Nuclear Deterrence Connected to All Other DOD Capabilities," *Air Force Magazine*, May 7, 2021, available at https://www.airforcemag.com/richard-says-nuclear-deterrence-connected-to-all-other-dod-capabilities/.

[9] *Public Papers of the Presidents of the United States: George H.W. Bush (1991, Book I)*, 219-21, National Archives and Records Administration.

[10] Quoted in, "U.S. Plans Help German Nuclear Arms Removal: Minister," *Reuters*, April 7, 2010, available at https://www.reuters.com/article/germany-nuclear-idUKLDE6360X120100407.

[11] "It is difficult to think of any moment since the height of the Roman empire in which the establishment of a world state was more possible than now." Campbell Craig, *Glimmer of a New Leviathan* (New York: Columbia University Press, 2003), pp. 171-172.

Ukraine and associated stream of nuclear first-use threats, some commentators have continued to assert that this Russian threat of nuclear escalation—its "escalate to win" regional strategy—is an exaggerated misreading of Russian doctrine.[12]

However, it now is irrefutable that Moscow uses nuclear first-use threats as part of its "escalate to win" strategy to constrain Western options in response to its expansionist aggression. And, it appears that the fear of starting "World War III," as President Biden has put it, does indeed constrain Washington's—and other Western capitals'—support for Ukraine.[13] This is entirely understandable, but it illustrates the power that Russian nuclear escalation threats have to deter Western actions. Moscow's exploitation of coercive nuclear threats to advance its revanchist regional goals—which is on display in Ukraine—compels rethinking multiple fundamental issues, including: the character of the international order; the requirements for deterrence and the prospect of its failure; U.S. freedom to defend Western interests via extended deterrence; and, the future of arms control.

Russia sees itself as being at war with the United States and is in a de facto alliance with an equally revanchist China, which appears to endorse Moscow's goal of absorbing Ukraine.[14] This geopolitical reality represents a tectonic shift for the worse in the international threat environment facing the West. Yet, much of the Washington establishment continues to speak about the emerging international context in euphemistic terms such as "Great Power competition" and the "international community,"[15] as if Eurasia were a neighborhood with secure property boundaries and members who simply are engaged in a vigorous, rules-based sporting event. Hopes and expectations to the contrary, this is a grossly mistaken image of the international system.

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[12] See for example, Olga Oliker, "Putin's Nuclear Bluff: How the West Can Make Sure Russia's Threats Stay Hollow," *Foreign Affairs Online*, March 11, 2022, available at https://www.foreignaffairs.com/articles/ukraine/2022-03-11/putins-nuclear-bluff.

[13] See for example, Vazha Tavberidze, "Former NATO Commander Says Western Fears Of Nuclear War Are Preventing A Proper Response To Putin," *Radio Free Europe/Radio Liberty*, April 7, 2022, available at https://www.rferl.org/a/breedlove-nuclear-fears-west-deterred/31791020.html; Lt. Gen. Henry Obering III (ret.) and Robert Joseph, "Putin's nuclear threats worked against Biden—we must act before China gets the same idea," *New York Post Online*, June 21, 2022, available at https://nypost.com/2022/06/21/putins-nuclear-threats-worked-against-biden-us-must-act-against-china/; Richard Haass, "Op-Ed: How the nuclear weapons taboo is fading," *Los Angeles Times*, October 19, 2022, available at https://www.latimes.com/opinion/story/2022-10-19/russia-putin-ukraine-nuclear-weapons-tactical; Daniel Michaels, "Jens Stoltenberg Prepares to Confront Putin in Extra Year at NATO's Helm," *Wall Street Journal*, July 2, 2022, available at https://www.wsj.com/articles/jens-stoltenberg-prepares-to-confront-putin-in-extra-year-at-natos-helm-11656763204; Shlomo Ben-Ami, "Russia's nuclear threat has worked," Australian Strategic Policy Institute, June 8, 2022, available at https://www.aspistrategist.org.au/russias-nuclear-threat-has-worked/; Nina Tannenwald, "The Bomb in the Background: What the War in Ukraine Has Revealed About Nuclear Weapons," *Foreign Affairs Online*, February 24, 2023, available at https://www.foreignaffairs.com/ukraine/bomb-background-nuclear-weapons; and Joseph Cirincione, "Why Hasn't Putin Used Nuclear Weapons?" *TheDailyBeast.com*, February 9, 2023, available at https://www.thedailybeast.com/why-hasnt-putin-used-nuclear-weapons.

[14] Monika Scislowska, "NATO chief sees 'some signs' China could back Russia's war," *Associated Press*, February 22, 2023, available at https://abcnews.go.com/International/wireStory/nato-chief-sees-signs-china-back-russias-war-97397155.

[15] Congressional Research Service, *Renewed Great Power Competition: Implications for Defense—Issues for Congress, Updated*, December 21, 2021, Congressional Research Service, available at https://crsreports.congress.gov/product/pdf/R/R43838/83.

Mistaken images of the international system cause distorted expectations about how deterrence will function. For example, the Biden Administration apparently had some confidence that Western economic sanctions and the "international community's" censure would deter Russia from attempting to conquer Ukraine.[16] This reflected the familiar Western expectation that an opponent's fear of sanctions and condemnation from the "international community" will somehow moderate its aggression. That expectation should be recognized for the vanity and misunderstanding of Russia that it is. Events in Ukraine demonstrate beyond doubt that Russia, in league with China, despises the West's "international community," seeks to overturn the Western rules-based order, and is willing to inflict and accept enormous pain to do so. Recognition of this new threat environment, as is now readily apparent with developments in Ukraine, appears limited.

For example, Moscow effectively all but withdrew from New START over a year ago; Putin has now done so formally in response to Western support for Ukraine,[17] and China shows zero inclination of interest in arms control. Nevertheless, many U.S. commentators and some political leaders continue to extol the virtues of, and call for a continuation of, the nuclear arms control process begun during the Cold War, as if that process is still alive and holds great potential.[18] The Biden Administration's 2022 *Nuclear Posture Review* goes so far as to claim that "Mutual, verifiable nuclear arms control offers the most effective, durable and responsible path to achieving a key goal: reducing the role of nuclear weapons in U.S. strategy."[19] Yet, for arms control to hold any such potential, the United States would need willing partners that adhere to agreed commitments. That hardly describes Russia or China.

There appears to be limited willingness in at least some Washington circles to recognize the harsh reality that is on display in Ukraine: The United States is in a new, unprecedently dangerous world, and a "business as usual" approach to deterrence and its requirements is now imprudent folly. Mr. Putin has set up a comprehensive rationale for nuclear first use in Ukraine and has added that he is not bluffing. His rationale for such thinking may seem absurd; but he appears sincerely to believe it. Typical Western hopes that a global "nuclear taboo" will prevent nuclear employment are now akin to expectations in the early 20th

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[16] See the discussion in, Paul D. Shinkman, "Putin's Hollow Nuclear Threat," *U.S. News and World Report,* February 24, 2023, available at https://www.usnews.com/news/the-report/articles/2023-02-24/why-ukraine-wont-lead-putin-to-nuclear-war.

[17] Ann M. Simmons, Sabrina Siddiqui and Austin Ramzy, "Putin Suspends Nuclear Pact, Biden Says Russia Won't Win," *Wall Street Journal*, February 22, 2023, p. A1.

[18] See for example, Joseph Cirincione, "Don't Panic About Putin's Nuclear Saber-Rattling: The embattled Russian leader's latest threats aren't grave cause for concern in the short term. But we need to change our long-term plan for managing his nukes," *TheDailyBeast.com*, February 21, 2023, available at https://www.thedailybeast.com/dont-panic-about-putins-nuclear-saber-rattling; and, Matt Korda and Hans Kristensen, *If Arms Control Collapses, US and Russian Strategic Arsenals Could Double In Size*, Federation of American Scientists, February 7, 2023, available at https://fas.org/blogs/security/2023/02/if-arms-control-collapses-us-and-russian-strategic-nuclear-arsenals-could-double-in-size/.

[19] U.S. Department of Defense, *2022 Nuclear Posture Review* (Washington, D.C.: Department of Defense, 2022), p. 1, available at https://media.defense.gov/2022/Oct/27/2003103845/-1/-1/1/2022-NATIONAL-DEFENSE-STRATEGY-NPR-MDR.PDF.

century that world public opinion would ensure peace.[20] No, it is the West's nuclear deterrence strategy that must be called upon to help provide an answer.

Nevertheless, based on the familiar Cold War balance of terror narrative and the expected deterring power of censure by the "international community," many in the West remain convinced that there exists an effective global taboo against nuclear employment and, correspondingly, that only an irrational leadership could consider the first use of nuclear weapons.[21] That is wonderfully comforting, but the truth is that when an opponent deems the prize it seeks to be its rightful due and of existential national (or personal) importance, there should be zero optimistic assumptions about what even a rational opponent will *not* dare to do.

That level of invested commitment is on display with regard to Russia's views of Ukraine (and China's views of Taiwan). In such cases, including in Ukraine, the level of commitment and willingness to accept costs is likely to be at least as weighty in determining how deterrence functions as is the number and correlation of forces, and probably more so—potentially to Russia's advantage. U.S. deterrence strategies and capabilities must recognize those truths; it is unclear that they do so.

The Enduring Value of and Need for Nuclear Deterrence

Events in Ukraine also teach us that the West's continuing aspirations for global nuclear disarmament are the contemporary great illusion. Western advocates of the UN's nuclear ban treaty often stigmatize nuclear deterrence and seek to shame those who support deterrence.[22]

Yet, the past year has demonstrated once again that solemn commitments to nuclear agreements can be hollow, and that a nuclear shadow will hang over any great power crisis. The question must be asked: If NATO had no nuclear deterrent, how much confidence could the West now have that Russia would not employ nuclear weapons in the current crisis? It is not difficult to understand that the United States must be able to deter coercive nuclear escalation threats, and that means the U.S. nuclear arsenal must backstop U.S. conventional capabilities for defensive deterrence purposes in Europe and East Asia. This continuing importance of nuclear deterrence to Western security must shape the role and value Washington attributes to nuclear weapons—and should bring to an end the stigmatization of nuclear deterrence policies and capabilities.

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[20] It should be noted in this regard that 71 percent of the Russian public reportedly supports Putin's war against Ukraine. See, Ann M. Simmons, "Putin Equates Ukraine, Nazis, Threatens to Escalate War," *Wall Street Journal*, February 3, 2023, p. A7, available at https://www.wsj.com/podcasts/google-news-update/putin-links-war-in-ukraine-with-victory-over-nazis/7d7d79a8-a07a-4b09-a010-dc3b142fe988.

[21] Tannenwald, "The Bomb in the Background: What the War in Ukraine Has Revealed About Nuclear Weapons," op. cit.

[22] See the discussion in Brad Roberts, "Ban the Bomb or Bomb the Ban? Next Steps on the Ban Treaty," *European Leadership Network, Global Security Policy Brief* (March 2018), available at https://www.europeanleadershipnetwork.org/wp-content/uploads/2018/03/180322-Brad-Roberts-Ban-Treaty.pdf.

In addition, a long-standing adage in Washington is that U.S. conventional strength can reduce or even eliminate U.S. reliance on nuclear deterrence, a continuing U.S. policy priority.[23] That anticipated linkage and goal may have been reasonable immediately after the Cold War, in America's "unipolar" moment. However, given the new threat environment on display in Ukraine, it should be clear that strengthening U.S. conventional forces is necessary, but that U.S. reliance on nuclear deterrence will remain regardless.

Why so? Because establishing even the U.S. conventional capabilities needed to defeat Russia and China in a regional conventional war, were the United States to do so, would likely compel Moscow and Beijing to consider more earnestly engaging in nuclear escalation, if needed, to deter or defeat U.S. power projection and thereby achieve their respective existential goals. Given events in Ukraine, it is now fully apparent that the United States must be able to deter regional conventional attacks and also opponents' nuclear escalation in the event opponents consider it as the path to victory.

In the emerging threat context in which opponents do indeed aspire to use nuclear escalation threats in just this way,[24] regional stability cannot be separated from U.S. nuclear deterrence capabilities. Indeed, absent a credible U.S. deterrence answer to Russia's theory of victory based on nuclear escalation threats, Moscow is likely to see regional war to advance existential goals as less risky, i.e., this apparent deterrence gap invites Russia's aggression, and likely China's. In short, there is no plausible route to lowering U.S. reliance on nuclear deterrence in this regard because Russia and China have a say in that possibility, and they are not giving the United States that option. Ignoring their voices in this matter is dangerous.

The Perception of Stakes

Another lesson from Ukraine involves how Moscow sees its stakes in comparison to how it sees Western stakes, and what that means for deterrence.

Russia deems control of Ukraine to be of existential importance; Ukraine is considered rightfully Russia's and stolen by a villainous West. Recovering Ukraine is central to Putin's version of "manifest destiny" and a matter of correcting a great, historic wrong. As noted above, Moscow clearly has a high tolerance for inflicting pain and accepting pain in pursuit of this existential goal. For an historical analogy, think of Hitler's unalterable drive to destroy the 1919 Versailles Treaty and pursuit of German *Lebensraum.*

Rightly or wrongly, Moscow appears to see an enormous asymmetry in the West's view of the stakes involved and its own, i.e., that the outcome in Ukraine is not an existential

[23] *2022 Nuclear Posture Review,* op. cit., p. 2.

[24] See for example, Brad Roberts, "On the Need for a Blue Theory of Victory," *WarOnTheRocks.com*, September 17, 2020, available at https://warontherocks.com/2020/09/on-the-need-for-a-blue-theory-of-victory/#.

matter for the West.[25] And, again, as noted above, this asymmetry in Moscow's perception of stakes works to its coercive advantage.

How so? Moscow's theory of victory appears to be predicated on this perceived asymmetry in commitment and the associated effects of Russian nuclear threats and predictable Western fatigue. Given the perceived asymmetry in stakes and related anticipation of Western fatigue, even a frozen conflict may be to Moscow's coercive advantage. Defeat is not an option, but a conflict that outlasts the West's endurance may well be. The disgraceful U.S. 2021 withdrawal from Afghanistan does not help perceptions in this regard.

A final point in this discussion of differing perceptions of stakes in Ukraine is that deterring Russia is not simply about creating some level of threat that Moscow will find painful, and thus is expected to deter. Just brandishing a threat is *not* deterrence. U.S. deterrence strategies must compel opponents to conclude, per their own values and priorities, that the violation of U.S. redlines is a more miserable option than their continuing to accept a geopolitical condition they define as intolerable—whether that condition is continuing to tolerate an independent Ukraine or an autonomous Taiwan.

In short, U.S. deterrence threats must promise costs that are more intolerable, as opponents calculate cost, than their continuing acceptance of a world order they find intolerable. The United States must brandish a prospective cost that is greater than what our opponents will have to endure if they do not alter the intolerable status quo. That is no small task and there is no methodology that can calculate that deterrence threat requirement with confidence. Think of how this reality comports with the point that all U.S. military planning depends on deterrence working reliably. We should be concerned.

Commentators often confidently presume to know what opponents won't "dare to do," including with reference to Russia's or China's future actions. It is comforting to believe with confidence that one knows how and when deterrence will work.[26] That belief greatly eases the uncertainty and stress involved in deterrence calculations. But, events over the past year have illustrated that such confidence is convenient, but unwarranted and potentially dangerous. That danger now is apparent in Russia's nuclear first-use threats and its bloody drive to conquer Ukraine. It may become obvious in the Taiwan Strait.

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[25] See Daniel Stewart, "Medvedev says 'NATO would not intervene directly' if Russia used nuclear weapons against Ukraine," September 27, 2022, available at https://www.msn.com/en-us/news/world/medvedev-says-%C2%ABnato-would-not-intervene-directly%C2%BB-if-russia-used-nuclear-weapons-against-ukraine/ar-AA12hZnv?li=BBnb7Kz.

[26] Such commentator claims are frequent. See for example William J. Perry and Tom Z. Collina, *The Button* (Dallas, TX: BenBella Books, 2020), pp. 118-119, 128, 144; Kingston Reif and Shannon Bugos, *Issue Brief: Responses to Common Criticisms of Adjusting U.S. Nuclear Modernization Plans*, Arms Control Association, May 18, 2021, available at https://www.armscontrol.org/issue-briefs/2021-05/responses-common-criticisms-adjusting-us-nuclear-modernization-plans. A senior analyst with the Institute for the Study of War reportedly observed with all apparent confidence that, "The likelihood of Russia choosing – or Putin choosing – to use nuclear weapons directly against the West is astronomically low. It should not even be seriously considered at this stage." Quoted in, Shinkman, "Putin's Hollow Nuclear Threat," op. cit.

Conclusion

In conclusion, after decades of Western confidence in the blossoming of a beautiful new world order, Russia's war against Ukraine over the past year has made painfully obvious that the old anarchic international system endures. In that system, Moscow will use force and nuclear first-use threats in its bid to destroy the status quo and restore its empire. The debate about that is over. And, it also is now apparent that those nuclear threats have at least a measure of the desired effect on Washington and other Western capitals. Whether Putin will choose to employ nuclear weapons is not clear and likely subject to many competing perceptions and motivations. But, the war in Ukraine illustrates the power of those threats and, correspondingly, that the Western anticipation of a declining need for deterrence and nuclear weapons—a particularly fashionable expectation in the immediate aftermath of the Cold War—should be discarded. The implications of this truth should affect U.S. calculations of its deterrence requirements vis-à-vis Russia and China.

The deterrence challenge vis-à-vis Moscow, in league with China, is now much more complex and our past confident expectations are now uncertain. This is what we have learned about deterrence after one year of brutal war in Ukraine; it is a sobering lesson that should move Western thinking away from business as usual but, as yet, appears not to have done so in important ways.

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Mark B. Schneider
Mark B. Schneider is Senior Analyst at National Institute and former Principal Director for Forces Policy and Principal Director for Strategic Defense, Space and Verification Policy at DoD.

With the exception of nuclear weapons, in which case Russia has more than the rest of the world combined (in my estimate twice as many), Russia has an inferior and, in many respects, a corrupt and incompetent military. It has resulted in massive loses (reportedly near 200,000), particularly in the top ranks of the Russian military. In its Winter offensive, Russia is losing 800-1,000 personnel daily. One of Russia's strengths is that Putin is willing to accept enormous loses in order to win and, thus far, the Russian people are going along with it.

Russia will not change its ineffective Soviet-style, Moscow-centered command and control system. The Russian one-year draft system is not effective. According to Defense Minister Shoigu, the average age of the personnel mobilized is 35. This is not an effective replacement for Russia's losses.

One of Putin's biggest problems is that the Russian population does not share his dream of military glory and imperial expansion, but they are subservient to his leadership. If this was an invasion of Russia, they would fight much harder.

Former Defense Minister Anatoly Serdyukov was ousted a decade ago because of corruption, but the real reason was that he was not willing to procure new weapons systems that were inferior to Western systems. When Shoigu replaced him, this policy was reversed.

The Russian Air Force has performed poorly in the war. They suffered very heavy loses and gave up trying to do deep penetrations early in the war. Russian defense suppression was poor. They are now increasing their attacks but over Russian controlled territory, probably because of the man-portable air defense system (MANPAD) threat.

There should be a lot of aviation writers with egg on their face over their glowing treatment of Russian 4.5 generation fighters. All Russia has been able to do is fire air-to-ground missiles against targets in Ukraine and long-range air-to-air missiles against Ukrainian fighters. It is very clear the United States was right about the importance of stealth.

Russian 4.5 generation fighters use thrust vectoring; NATO fighters, except for the F-22, do not. Russia is not using it against Ukraine because Russian fighters won't dogfight. Russian fighters are exploiting their radar range advantage by staying far outside of visual range and sniping at older, less capable Ukrainian fighters with their long-range air-to-air missiles. Russia's best deployed fighters, the Su-35S and the Mig 31 interceptor, are using long-range air-to-air missiles against Ukrainian Soviet-era fighters. This would badly fail against the F-22 or F-35, which because of their stealth, advanced radars and other sensors, can kill Russian fighters before they can be detected. However, eighty percent of the U.S. air force is almost 30 years old, and the Biden administration is cutting fighter production.

Some of the problems Russia has had over Ukraine will impact U.S. 4.5 generation fighters. With only a small number of F-35s, the Navy is vulnerable to the combination of Russian surface-to-air missiles (SAMs) and highly maneuverable fighters.

The Eurofighter probably has electronic dominance over the Russian 4.5 generation fighters, but it does not have an active electronically scanned array (AESA) radar or thrust vectoring.

The Russian Su-57 "fifth generation fighter" has been used only to a limited degree. The Su-57 is not really a stealth fighter, and its electronics are very similar to the Su-35S. Still, in a beyond visual range engagement with Western 4.5 fighters it would probably win because it would have an order of magnitude stealth advantage. In a dogfight, the Su-57 is more maneuverable than any fighter other than the F-22.

The Russian surface Navy has not lived up to its hype. In addition to the sinking of the cruiser Moskva, several Russian ships have been hit by upgraded Soviet-era missiles, which should have been intercepted.

The small new Russian corvettes and frigates have a lot of offensive missile capability but don't have a lot of air defense capability. Their missiles are nuclear capable.

The Russian Army reforms since 2008, are a direct result of Russia's poor performance against the Georgian Army, when the Russian mobilization capability was proven ineffective. In Ukraine, Russia has proven very poor in combined arms operations.

According to the Director of National Intelligence, Russia has lost half of its heavy tanks in Ukraine. Russian tanks have been demonstrated to have a serious vulnerability due to their automatic loading systems and the resulting storage of ammunition. Until about a week

ago, Russia apparently had not used their vaunted Armata super tank. Its commitment is a sign of how serious Putin is about winning.

Russia has launched thousands of missiles against Ukraine. But they have had reliability and accuracy problems. Dr. Phillip Karber, President of the Potomac Foundation, has stated that one of three Russian missiles were destroying their targets, but with a 20-ton yield nuclear warhead it would double the kill rate.

In January 2023, Ukraine said that Russia only has enough missiles left for two or three more of the mass strikes it has launched in recent months (i.e., 80 missiles each.) Ukraine says that Russia is using 30 Kh-101 air-launched cruise missiles and 15 to 20 units of Kalibr ship-launched cruise missiles per month.

In November 2022, the head of Estonian intelligence stated that Russia has exhausted about two thirds of its ammunition. Russian efforts to ramp up production of armaments reportedly have not been very successful. However, NATO does not have the production capacity to support Ukraine.

If Putin survives in power, his next target is NATO. Putin's invasion of Ukraine was not an objective in itself but a "splendid little war," the intent of which was to frighten NATO into surrendering the sovereignty of its member states.

We should remember that not long ago, Putin was bragging that Russia could "strangle" all of NATO and take five NATO capitals in two days. Putin is capable of self-delusion.

As a result of Putin's invasion of Ukraine, NATO forces have been increased to a level that creates a substantially different invasion problem for Putin's inept Army. However, NATO's presence in Estonia, Latvia and Lithuania is not adequate and the United States is operating with a peacetime nuclear deterrent posture.

The Chairman of the Joint Chiefs of Staff, General Milley, is wrong when he says Putin has lost in Ukraine. Russia may eventually win. Putin is aided by the restrictions that have been placed on military assistance to Ukraine, which is allowing Ukraine to bleed over time. Putin can win either by using nuclear weapons or by destroying the Ukrainian power grid.

In sum, NATO should rethink its war plans. Announcing we will fight a purely defensive war along the border minimizes deterrence, particularly when put in the context of an inadequate nuclear deterrent posture. According to the Biden administration's *National Security Strategy*, "Russia's conventional military will have been weakened, which will likely increase Moscow's reliance on nuclear weapons in its military planning." The answer to this threat is nuclear deterrence, not McNamara like rules of engagement.

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Nolan Peterson
Nolan Peterson is a former U.S. Air Force special operations pilot and journalist covering the war in Ukraine since 2014.

On the evening of Feb. 25 last year, I was in a bomb shelter in Kyiv.

Outside, you could hear a battle on the city's outskirts.

Yet, it was strangely quiet inside that underground space, even though it was crammed with hundreds of people, young and old, including many children.

But there was one sound that stood out from the silence.

It came from peoples' smartphones, as they listened, over and over again, to a speech by President Volodymyr Zelenskyy, declaring that he would not leave the city.

In that moment, I felt that Russia's initial war plan was doomed.

Even if the Russians had taken Kyiv, I believe we would still be here today, discussing the first anniversary of a war that has not ended.

Since 2014, I've witnessed how Ukrainians' pursuit of their democratic dreams has laid the groundwork for their resistance to Russia's full-scale invasion.

This past year confirmed what I already knew—that Russia cannot destroy Ukrainians' will to resist.

And now, as we look ahead to 2023—and what will surely be another tough year—it seems to me that Russia has no path toward achieving its political objectives in Ukraine.

The Ukrainian army could be defeated, but the Ukrainian people will not submit.

Recent polling shows that an overwhelming majority of Ukrainians reject making territorial concessions to end the war. And that share has gone up as the war continues.

But when it comes to victory, Ukrainians care about more than just lines on a map—they care about liberating millions of their fellow citizens who now live under Moscow's brutal occupation.

And each new Russian atrocity reinforces their resolve.

Ukrainians aren't just fighting for their freedom—they're fighting for their survival. And it's hard to fathom making concessions to an enemy that is committing a genocide against your own people.

Ukrainians have the will to fight.

They proved that nine years ago, when protesters braved sniper fire to set their country on an irreversible path toward democracy and a divorce from Russia.

The 2014 Revolution of Dignity kickstarted many of the societal changes that Ukraine needed to make in order to survive this past year.

The revolution propelled the development of Ukraine's spirit of innovation, independent thinking, and entrepreneurship—qualities that transformed civil society, as well as the military—giving soldiers the agency to innovate new tactics and technologies, and to have the flexible mindsets needed to rapidly field a mix of Western weapons.

Russia's 2014 invasion of the Donbas, and the ensuing eight years of limited warfare, also prepared Ukrainians for the full-scale war.

After 2014, Ukraine's military aimed to ditch the rigid, Soviet-style chain of command in favor of a Western model, which pushes tactical decision making down to front-line personnel.

Those changes paid huge dividends this year, allowing Ukraine's combat leaders—including its pilots—to make their own decisions based on battlefield realities, rather than taking play-by-play orders from some faraway commander, like the Russians do.

The spirit of volunteerism among Ukraine's civilians, which saved their country from disaster in 2014, also kicked into overdrive when the full-scale war began.

Literally overnight, Ukraine's civil society mobilized to support the war effort.

In particular, Ukraine's combat veterans were instrumental in holding the country together. Many rejoined the regular army. Others served in territorial defense units, or spearheaded volunteer operations.

On Feb. 4 last year, my friend Oleksandr Makhov, a journalist and combat veteran of the Donbas, told me, "My war never ended—it's just been on pause."

He reported for active duty on Feb. 24—and he died in combat near Izyum on May 4. His bereaved fiancée then enlisted, and is now serving on the front lines.

For years, combat was limited to the static front lines in the Donbas.

But the full-scale war changed all that.

No corner of Ukraine is spared from Russia's invasion—and it's an all-hands-on-deck effort to defend the homeland.

As a nine-year resident of Kyiv, and the proud husband to a Ukrainian wife, I've lived through this war alongside my friends and family.

I've lost many friends who bravely defended their country, and I've met countless civilians who've endured unimaginable trials and tragedies.

In this war, I enjoyed no quarantine between the front lines and home.

I listened to gun battles and artillery from my living room.

I saw tracers cut across the sky from my balcony.

And I had to grab my wife's arm, yank her from bed, and sprint to a bomb shelter while Russian cruise missiles struck our neighborhood, just a few blocks away.

Above all, I'll never forget the horrors I observed in Bucha, Irpin, and other areas around Kyiv right after the Russian retreat.

The criminality of Russia's war is clear. And so is the moral justice of Ukraine's cause. For my part, I'm honored to be among Ukrainians and to stand on the side of the good.

This war isn't over, but its opening chapter has ended.

Everything that happens next will happen because Ukrainians—inspired by values that we all share—bootstrapped a fighting force that defied Russia … and won the world's respect.

Ukraine will win.

But now it's up to us, in the West, to shorten the timeline of that victory—and save countless lives in the long run—by providing Kyiv with the weapons and hardware it needs today to get the job done.

THE GRAND ILLUSION OF DISARMAMENT

The remarks below were delivered at a symposium on "The Grand Illusion of Disarmament" hosted by the National Institute for Public Policy on April 25, 2023. The symposium explored the arguments of both church-based and secular nuclear disarmament advocates in the context of the current international environment. It keyed off of Keith Payne's most recent book, entitled, Chasing a Grand Illusion: Replacing Deterrence with Disarmament, published by National Institute Press *and his* Information Series *article,* Nuclear Disarmament: The Contemporary "Great Illusion?".

David J. Trachtenberg
David J. Trachtenberg is Vice President of the National Institute for Public Policy and served as Deputy Under Secretary of Defense for Policy from 2017-2019.

Despite what I would call tectonic shifts in the global political and strategic landscape in recent years, the arguments over how best to preserve the nuclear peace today and in the future remain relatively frozen between two competing schools of thought. On the one hand, there are those who believe nuclear deterrence has worked well and represents the only practical approach to avoiding major conflict in an anarchic international system where nations must rely on their own power for protection. On the other hand, those who favor nuclear disarmament believe the winds of war are blowing stronger and that the global elimination of nuclear weapons is the only way to ensure that they are never used. This view is strongly held by both religious and secular advocates of disarmament. And this tension between the deterrence and disarmament camps is the subject of Keith's new book, entitled *Chasing a Grand Illusion: Replacing Deterrence with Disarmament*, and it is the focus of our discussion today. Keith's latest *Information Series* article is a condensed examination of the arguments in his book.

The Russian invasion of Ukraine provides a contemporary example in support of the arguments of deterrence proponents. Certainly, there are those in Ukraine today who question the wisdom of agreeing to surrender Kyiv's nuclear deterrent in the 1990s in exchange for Russian promises of security. Even former President Bill Clinton expressed regret over convincing Ukraine to eliminate its nuclear weapons capabilities, saying, "I feel a personal stake because I got them [Ukraine] to agree to give up their nuclear weapons. And none of them believe that Russia would have pulled this stunt if Ukraine still had their weapons…. They were afraid to give them up because they thought that's the only thing that protected them from an expansionist Russia."[1]

Indeed, the lack of trust among nations and the absence of a global entity that has the power to impose and enforce rules of behavior equally on all states, suggests that each country must look out for its own interests and defend itself in an international system that

[1] Miriam O'Callaghan, "Clinton regrets persuading Ukraine to give up nuclear weapons," *RTE*, April 4, 2023, available at https://www.rte.ie/news/primetime/2023/0404/1374162-clinton-ukraine/.

has been described as a "self-help" system.[2] Israel, for example, has argued it has the right to strike Iran should Tehran acquire nuclear weapons. As Benyamin Netanyahu recently stated, "Are we forbidden from defending ourselves? We are obviously permitted to do this."[3] Such comments reflect what has been described as a realist view of international relations, in contrast to the idealist assumptions of disarmament advocates.

Of course, there are those who believe that the existing rules-based international order demonstrates the value of international cooperation and a common adherence to moral norms and ethical standards of behavior, and that these traits—rather than the individual accumulation of power—are necessary to guarantee security. However, as a recent commentary in *The Wall Street Journal* noted, the "rules-based international order" is difficult to defend "in the face of a ruthless opponent."[4]

Nevertheless, some disarmament supporters believe that despite current events, in which the danger of nuclear conflict is viewed as an increasing prospect, or perhaps because of them, disarmament is the only "realistic" solution. In a recent article on the 60th anniversary of St. John XXIII's encyclical "Pacem in Terris" ("Peace on Earth"), Pope Francis reiterated St. John's call for "integral disarmament," saying that "true peace can only be built in mutual trust." He added, "to some ears these words may sound utopian, especially at this time. But it is not utopian, it is healthy realism."[5]
Yet, as Keith argues:

> Barring the fundamental transformation of humankind, and thus international relations, there appears to be little or no basis for trusting foes or a prospective global authority as necessary for disarmament. That trust seems absent in the past and shows no signs of emerging. It is in light of this harsh reality that leaderships now reliant on nuclear deterrence would have to judge various church-based and secular proposals for disarmament to be prudent. It seems unlikely that many ever would do so.[6]

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[2] See, for example, Colin S. Gray, "Foreword," in, Keith Payne, *Shadows on the Wall: Deterrence and Disarmament* (Fairfax, VA: National Institute Press, 2020), pp. xi-xii.

[3] Dan Williams, "Netanyahu rebuffs IAEA chief's remarks against possible attack on Iran," *Reuters*, March 5, 2023, available at https://www.reuters.com/world/middle-east/netanyahu-rebuffs-iaea-chiefs-remarks-against-possible-attack-iran-2023-03-05/.

[4] Walter Russell Mead, "How Obama Killed Nuclear Nonproliferation," *The Wall Street Journal*, April 11, 2023, available at https://www.wsj.com/articles/how-obama-killed-nuclear-nonproliferation-npt-soviet-union-ukraine-deterrence-bill-clinton-russia-invasion-rules-based-order-49959cc8.

[5] Cindy Wooden, "On 60th anniversary of 'Pacem in Terris,' pope calls for disarmament," National Catholic Reporter, April 10, 2023, available at https://www.ncronline.org/vatican/vatican-news/60th-anniversary-pacem-terris-pope-calls-disarmament.

[6] Keith B. Payne, *Chasing a Grand Illusion: Replacing Deterrence with Disarmament* (Fairfax, VA: National Institute Press, 2023), p. 8.

Our webinar today will discuss in more detail the tension between those who favor nuclear disarmament and those who believe nuclear deterrence is the only rational approach to preserve peace in a dangerous world.

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Keith B. Payne
Keith B. Payne is President of the National Institute for Public Policy. Previously, he served as Deputy Assistant Secretary of Defense for Forces Policy.

It is an honor to participate with such a great panel on an important topic. My comments this afternoon are my personal views only.

I will start by noting that there is a deep and ultimately irreconcilable divide between nuclear deterrence and disarmament policies. My new book, *Chasing A Grand Illusion*, examines the arguments behind contemporary church-based and secular advocacy of disarmament, and the associated drive to replace nuclear deterrence with disarmament. Before that discussion, I will preface my remarks on the subject with some pertinent historical background that is a good set up for today's discussion.

In 1910, Sir Norman Angell first published a book entitled, *The Great Illusion*. With numerous illustrations and detailed evidence, Angell reached conclusions that the world was eager to hear, that war and military preparations were of sharply declining value and could soon be a thing of the past. *The Great Illusion* was a sensation in much of Europe—particularly among the British intelligentsia. Angell was both knighted and awarded the 1933 Nobel Peace Prize for his powerful work.

The basic thesis of Sir Norman's work was that territorial control and military power no longer were the basis for economic advantage and national prosperity. War, he said, had become irrational because cooperative relations provide the potential for mutual prosperity and are the only rational choice. As broad European communities recognized the disastrous economic consequences of war for winner and loser alike, they would rationally seek cooperative transnational ties and reject war and the preparation for war.[7]

The actual history of the Twentieth Century, of course, demonstrates that Sir Norman was deeply mistaken, as he later acknowledged.

Now, over a century after the publication of *The Great Illusion*, the new illusion is that nuclear disarmament can replace nuclear deterrence—this is a contemporary proposition offered by many church-based and secular advocates and is the basis for the UN's Treaty on the Prohibition of Nuclear Weapons.

Some of my colleagues have suggested that advocacy of disarmament is now so absurd that there is no need to bother responding. Yet, political pressure for nuclear disarmament continues apace, and to the extent that it has an effect, it will only be on the Western

[7] Norman Angell, *The Great Illusion: A Study of the Relation of Military Power to National Advantage* (London: William Heinemann, 1912), pp. 119, 220.

democracies. For example, a key agenda topic for the May G-7 meeting is how to advance nuclear disarmament.[8] And, some U.S. allies under the nuclear umbrella are beginning to show less resistance to the U.N.'s Treaty on the Prohibition of Nuclear Weapons. Fifty-six former leaders of NATO countries have signed an open letter praising the treaty,[9] and the Australian government reportedly is weighing whether to sign the Treaty.[10] The Australian PM has referred to signing on to the Treaty as "Labor at our best."[11] It is in this context that we must understand the fallacies of nuclear disarmament advocacy.

I will offer my conclusion up front. It is that, for all their variety and acclimation, contemporary disarmament proposals are substantively comparable to Norman Angell's *The Great Illusion* and are, of course, as favorably received by Western audiences. For example, in line with Angell, contemporary nuclear disarmament proposals virtually always identify a cooperative transformation of international relations as the path to disarmament.[12] Greater amity and cooperation among nations, it is said, can move the international system to some form of global governance that mandates and enforces norms and cooperation, including nuclear disarmament.

Of course, unprecedented global cooperation could, indeed, lead to a new international order, including nuclear disarmament. But that point, usually presented as if some great insight, is both self-evident and useless. It simply shifts the question from how to achieve nuclear disarmament to a different impenetrable question: how to make international relations so amicable and cooperative that nuclear disarmament becomes the prudent choice for national leaderships who now see nuclear arms and deterrence as critical for national survival.

Achieving global disarmament is not about convincing an intelligentsia that is not responsible for national security; that appears to be easy. The requirement is for a fundamental, global transformation in human patterns of thinking and international behavior. That is implausible in any timeframe pertinent to policy planning for national leaderships.

Unlike Sir Norman's elaborate and detailed work in *The Great Illusion*, nuclear disarmament advocates typically point to dynamics for this transformation that are not clearly linked to the goal, and are obscure, arcane, ambiguous, and/or transcendental. They

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[8] "Nuke disarmament to be key topic in G-7 top diplomats' talks in Japan," *Kyodo News* (Japan), Apr. 13, 2023, available at https://english.kyodonews.net/news/2023/04/fc29fc88337e-nuke-disarmament-to-be-key-topic-in-g-7-top-diplomats-talks-in-japan.html?phrase=schools%20&words=.

[9] As discussed in, Heather Williams, "What the Nuclear Ban Treaty Means for America's Allies," *War on the Rocks*, November 5, 2020.

[10] Matthew Knott and Paul Sakkal, "Government considers break with US on treaty," *Sydney Morning Herald* (Australia), April. 4, 2023, p. 8, available at https://www.smh.com.au/politics/federal/would-the-us-alliance-survive-signing-nuclear-weapons-treaty-comes-with-risk-20230403-p5cxo3.html.

[11] Ibid.

[12] See, for example, David Krieger in, Richard Falk and David Krieger, *The Path to Zero* (Boulder, CO: Paradigm Publishers, 2012), p. 209; and. David Cortright and Raimo Väyrynen, *Towards Nuclear Zero* (New York: Routledge, 2010), p. 21.

include, for example, "public opinion" and "human genius."[13] A new cooperative world order and nuclear disarmament, it is said, can be the result of a "black swan phenomenon" that "consists of those parts of reality that shape historical change but are currently hidden from our perception or understanding…"[14] Momentum, it is said, "calls on every person to disarm his or her own heart and to be a peacemaker everywhere..."[15] And, it will be "a result of the intervention in our history of some totally unanticipated happening: a shock of some sort to the system, a charismatic leader who mobilizes a new public consciousness, a new cultural turn toward spirituality and universal humanism…."[16]

Perhaps pointing to these dynamics for a cooperative global transformation and disarmament is prescient. But how and when such engines of change could have the hoped-for effect is nebulous at best.

This is the critical point because the question is not whether a new, reliably cooperative world order would be far superior to the current anarchic system. That much is obvious. The question is whether national leaders could ever have sufficient confidence in a new, prospective new global order, on a foreseeable timeline, to relinquish sovereignty and the arms they see as critical for national security in the existing anarchic system. Doing so is deeply problematic because the global orderer envisioned would be run by individuals with human imperfections and foibles, and likely have its own institutional sources of failure. There can be no reasonable expectation that it would function as necessary for global cooperation and disarmament.

The end of the Cold War brought widespread expectations that, somehow, international relations had changed; as Paul Bracken says, almost everyone got on the nuclear zero bandwagon—doing so showed that a person's "heart was in the right place." Fewer than two decades later, however, it became painfully obvious that the structural and behavioral conditions that are the reasons countries seek nuclear deterrence are much more resilient than the naïve Zeitgeist that followed the end of the Cold War.

Nuclear disarmament may, someday, be possible. But the beginning of wisdom in this regard is to understand that some powerful, new dynamics that are now entirely obscure, must first actually drive a transition to a cooperative international order. The need for this transformation is a high bar and not a trivial detail; it is the single most fundamental point.

Yet, the existing anarchic international system is highly resistant to this transformation, not because national leaders are foolish, uninformed or malevolent in this regard. It is because they are responsible for national security and the dynamics for this transformation identified by disarmament proponents are, at best, of dubious power and effect.

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[13] See the American Catholic Bishops' Pastoral Letter in, "The Challenge of Peace: God's Promise and Our Response," *Origins*, Vol. 13, No. 1 (May 19, 1983), p. 30.

[14] Richard Falk in, *The Path to Zero*, op. cit., pp. 200, 204.

[15] Peter Turkson, "Foreword," in, *A World Free from Nuclear Weapons: The Vatican Conference on Disarmament*, op. cit., pp. x-xi.

[16] Falk, in *The Path to Zero*, op. cit., p. 201.

Yielding national sovereignty and power to the hypothetical global authority would demand that national leaders first expect that the global authority would provide protection against foes, and also that it would not itself become a threat to national survival.

Yet, any prospective global authority powerful enough to mandate and enforce norms would be subject to the seemingly enduring patterns of inconsistent and unscrupulous human and institutional behavior. It should be expected to fail to protect consistently, and could, in fact, pose its own security threat to its members. This latter possibility is why Thomas Schelling said that if a powerful global authority ever did emerge, he would likely have to start plotting civil war.[17]

In summary, there appears to be little or no basis for nations to trust foes or a prospective global authority as would be necessary for disarmament, and the dynamics for change identified by disarmament advocates shed no light on how to correct this seemingly enduring characteristic of international relations.

It is in light of this harsh reality that leaderships now reliant on nuclear deterrence must weigh calls for nuclear disarmament. It seems unlikely that many ever will judge disarmament to be prudent. When disarmament is incompatible with sustaining deterrence, as it must be, for many leaderships the prudent priority option almost certainly will remain deterrence. Why? Because while deterrence policies have a demonstrated measure of effectiveness for preventing war in the existing anarchic environment, calls for disarmament are based on obscure dynamics and a wholly uncertain global transformation.

It is true that nuclear deterrence is only a palliative with inherent risks and the possibility of failure. A practicable, safer alternative would be a great and unalloyed good.

But a cooperative global transition and disarmament almost certainly is not a plausible planning alternative. The resilience of this truth and its significance seemingly must be relearned by every new generation. Indeed, the seeds of future crisis and conflict may well be sown in the asymmetrical political effect that disarmament advocacy has on Western democracies.

In conclusion, the elegance of disarmament advocacy, and the unarguable beauty of the goal, do not put it within reach, and there is nothing commendable about chasing an illusion or the cost of doing so.

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[17] Thomas Schelling, "The Role of Deterrence in Total Disarmament," *Foreign Affairs*, Vol. 40, No. 3 (April 1962), p. 405.

Kathleen C. Bailey
Kathleen C. Bailey is Senior Associate at the National Institute for Public Policy, former Assistant Director of the Arms Control and Disarmament Agency, and former Deputy Assistant Secretary of State in the Bureau of Intelligence and Research.

Chasing A Grand Illusion is an outstanding analysis of why nuclear disarmament is not practical and the need for nuclear deterrence continues. Today I offer two sets of thoughts I had upon reading it.

First, I envisioned a companion work, perhaps entitled, *U.S. Deterrence Stasis: The Erosive Effects of the Disarmament Agenda*. The theme would be that, despite the logic failures of disarmament outlined in *Chasing A Grand Illusion*, the disarmament quest has been central to hampering modernization of the U.S. deterrent. I mean *modernization* both in the sense of complete and timely life-extension of weapons and maintenance of production capabilities, and in the sense of new capabilities to meet new threats in a multiplicity of scenarios.

Disarmament efforts have frozen much of the technology of the nuclear deterrent through a sort of self-imposed "time lock." Meanwhile, threats to the U.S. deterrent have evolved in ways to which we have either not responded or responded inadequately. Here are three examples.

1. We now confront a two-peer scenario (Russia + China), or perhaps a two-peer-plus scenario (China & Russia + North Korea…or Iran). Imagine that things heat up regarding Taiwan. A DPRK nuclear missile eliminates a U.S. aircraft carrier. Would we really launch an ICBM, SLBM, or send a bomber in retaliation, with all the risks that would entail? My opinion is, probably not. But if we had a short-range, low-yield missile onshore or near-shore, *that* might be deemed appropriate retaliation and could forestall additional nuclear use.

2. The threat from adversaries' existing nuclear weapons is not simply numerical. Opponents' warheads and delivery systems are modern and diverse, including theater-range prompt strike systems, by comparison to those of the United States. We haven't even maintained a capability to increase offensive force numbers of existing weaponry in the face of China's rapid build-up of long-range nuclear missiles and the possible end of limitations on Russia in 2026. Again, we are frozen in the 1990s and pedaling hard to stay even at that level…and possibly failing.

3. New technologies are under development that could drastically undermine our nuclear deterrent. A premier example is China's test in 2021 of a fractional orbital bombardment system that successfully delivered a hypersonic glide vehicle through reentry from low earth orbit and performed high-speed gliding maneuvers. Coming from any azimuth and with unlimited range, it could be used to destroy U.S. nuclear command and control or U.S. bombers before take-off.[18] And there are other

[18] Steve Lambakis, *Space Sensors and Missile* Defense (Fairfax, VA: National Institute Press, 2023), available at https://nipp.org/monographs_cpt/space-sensors-and-missile-defense/.

> survivability issues that need urgent action as well, including: deployment of a submarine-launched nuclear cruise missile (SLCM/N), making a portion of the ICBM force road-mobile, improvement of maneuvering reentry vehicles, and new countermeasures against defense penetration.[19]

By no means is creeping disarmament to blame for all of the stasis of the U.S. deterrent today. One could make a long list of other contributors—lack of understanding in Congress, inaccurate intelligence estimates on foreign nuclear developments, non-communication with the public about the raison d'être for the deterrent, and so on. But the disarmament arguments have been critical in undermining support for and understanding of the U.S. nuclear deterrent, and in stymieing U.S. maintenance and modernization of the deterrent. There are two major themes to these arguments.

First is the "moral high ground" stance well-described in *Chasing A Grand Illusion*, that argues the United States should not develop any new defense or war fighting capabilities that substantially improve the lethality, usability, or flexibility of our nuclear weapons. The presumption is that our exemplary behavior will result in others behaving similarly.

A second argument for self-limitation is for the sake of arms control agreements. A good example is the compliance with the Comprehensive Test Ban Treaty (CTBT), even though the U.S. Senate refused to ratify it. Thus the United States has unilaterally denied itself of the benefits of very low-yield testing that would improve confidence in, and safety and security of, existing nuclear weapons. Others have not been so constrained.

Another example is self-limitation in the name of the Nuclear Non-Proliferation Treaty (NPT). While in government, I witnessed myriad instances in which military, diplomatic, and congressional officials argued we must not improve the deterrent because doing so would undermine our disarmament commitment under Article VI.

Given that the disarmament agenda has already led to stasis, what can be done? I believe that better education of Congress, the media, and the public on the reason for nuclear deterrence is vital. *Chasing A Grand Illusion* is an outstanding tool to help citizens, particularly our future decision makers, understand why disarmament is not the answer to the threats we face. However, I think that *Chasing A Grand Illusion* can be bolstered with additional teaching tools might amplify and complement it. What tools?

My own experience is my guide in answering that. In 1974, I took a job as a nuclear weapons intelligence analyst. My view of the need for nuclear disarmament was akin to that of the American Catholic Bishop's Conference described in *Chasing A Grand Illusion*. What set me on the road to more realistic thinking was participation in war games and Red vs. Blue Team training. You can study written works on how to fly for hundreds of hours, but you learn even more by being the decision-maker in a simulator cockpit for just a few hours.

I suggest a similar approach by using *Chasing A Grand Illusion* as step one, and a video game using its principles as step two. So, if money and talent could be mustered, I advocate

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[19] *China's Emergence as a Second Nuclear Peer: Implications for U.S. Nuclear Deterrence Strategy*, Center for Global Security Research, Lawrence Livermore National Laboratory, Spring 2023, p. 8.

that a game be produced—a war game playable by one that teaches the same concepts and reasoning as *Chasing A Grand Illusion* does.

Similarly, the task of teaching from *Chasing a Grand Illusion* would be easier if there were a PowerPoint of key arguments and conclusions tailored to college students. And, the package of book, game-video, and PowerPoint could be placed online, free for any teacher who wishes to use it.

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John Harvey
John Harvey is former Principal Deputy Assistant Secretary of Defense for Nuclear, Chemical, and Biological Defense Programs and former Director of the Policy Planning Staff of the National Nuclear Security Administration.

Thank you David and the folks at NIPP for inviting me to participate in today's session offering commentary on Keith Payne's recent monograph, *Chasing a Grand Illusion: Replacing Deterrence with Disarmament*. Let me cut to the chase by offering my short "take" on Keith's work that he generously thought worthy of inclusion in his book's commentary. To wit:

> To those who seek a world without nuclear weapons, Keith Payne poses an unforgiving question: In a future, more benevolent world order, what are the necessary conditions under which all nuclear powers could safely disarm and, more importantly, what are the practical steps to achieve such a state? In his thoroughly-researched and thoughtfully-argued piece, Dr. Payne concludes that given today's anarchic international system, and still dangerous world, there is no prospect for achieving nuclear disarmament in the near term. Moreover, in light of man's foibles, and the shortcomings of international institutions created by man, such a transformation is, much as he might wish it weren't so, simply implausible even in the long term. Dr. Payne's work provides the intellectual framework that is, without doubt, central to any future debate on these matters.

Now a few details.

When Keith asked me to provide my thoughts on his draft manuscript, I replied "happy to"—most of what Keith writes on deterrence I read "cover to cover" without his even asking! But when I received the draft and looked it over, I gave him a call. I had a question. Given today's strong support among Congress and the American public for U.S. nuclear forces and their modernization, and given that those who advance nuclear disarmament have gained very little if any traction of late in their efforts to achieve it, why was he spending several months of his valuable creative time to take this issue on? His reply: "Well, John, it hasn't always been that way and nuclear disarmament advocates may again raise its specter in coming years. I want my students, and their students, to be prepared; that is, to have a clear,

fact-based statement of the arguments that they can draw from in any future debate." Keith was focused, not on today, but on the future, and this book will be part of his legacy in seeking to ensure a safe, secure world for future generations.

After I read the draft, I had occasion to pose another question. In the book, he notes "church-based studies conclude that possessing or employing nuclear weapons is immoral, and there is, correspondingly, no acceptable basis for nuclear deterrence." In thoughtful commentary, he addresses why possession and possible use could be consistent with "just war doctrine" including the concepts of "distinction" and "proportionality" that govern the use of any military force, not just nuclear. That said, he did not address why possession and possible use are, in themselves, not immoral from either a religious or secular standpoint. I asked, "why not." Keith replied: "I thought long and hard about including this but there are two reasons I did not. First, it would have added seventy pages to what was intended as a shorter piece. Second, I have already written about the morality question in other work." Let me digress for a moment. As a New Jerseyian born and bred, and who grew up in the same county on the Jersey shore at roughly the same time, I decided about ten years ago that I needed to see Bruce Springsteen perform in concert. We got tickets, and it was an amazing experience. The crowd would not allow the E Street Band to leave the stage and insisted on several encores. Now I consider Keith Payne to be one of the preeminent "rock stars" of nuclear deterrence. And, like Bruce's fans, I am asking for an encore; specifically, to bring his great store of intellectual capital to bear in addressing the moral implications of nuclear weapons possession and possible use![20]

In the final copy of his book, one thing stands out even before flipping through the pages. The cover art is not typical of that one usually encounters in works on nuclear deterrence. Three parallel strands of barbed wire are framed by what seems to be a blazing sunset but, after gazing at it for a while, could be a nuclear explosion. The top strand of the barbed wire is cut and emanating from that cut are barbs that morph into the shape of birds flying away from the sun/explosion. To a nuclear disarmer, the barbed wire might represent a world still constrained by the aura of nuclear deterrence and the birds, possibly doves of peace (although they look more like seagulls), as reflecting evolution to a world in which nuclear deterrence is no longer needed. Folks like me, not yet having succumbed to the "Grand Illusion," can imagine another bird—a hawk of totalitarianism—just beyond the frame, swooping down to attack the doves before they can get too far! We must give credit to the artist, Stephanie Koeshall, for her amazing work. My third question to Keith: Where did you find her?

Finally, it is worthwhile for those who come down on either side of the debate to consider what else can be done to manage global nuclear dangers because, as Keith poses, we may never get to elimination. Even so, over the past 40 years remarkable progress has been made on a path to that ultimate goal. The intense nuclear arms race of Cold War days was, in fact, halted. The United States has reduced its nuclear forces and nuclear weapons stockpile in a consistent fashion through both unilateral and bilateral initiatives, and has worked

[20] I have since learned that Rebeccah Heinrichs is working on a book to do just that. Stay tuned.

cooperatively with allies, partners, and adversaries to further reduce nuclear threats and associated dangers. The track record is remarkable:

- Arms control treaties between the United States and Russia have led to substantial reductions in nuclear forces, both long-range and intermediate range forces.
- The START process with Russia had reduced so-called "accountable" strategic nuclear weapons from over 10,000, deployed at the end of the Cold War, to about 1,500 today.
- The U.S. nuclear stockpile is less than one-quarter its size at the end of the Cold War.
- The most dramatic transformation is the elimination of many thousands of U.S. short-range tactical nuclear warheads—reductions to less than one-tenth of Cold War levels.
- The only nuclear weapons that remain in the U.S. stockpile today are those carried by the nuclear triad of ICBMs, SLBMs, and heavy bombers and by dual-capable fighter aircraft.
- Adjustments in the alert posture of nuclear forces has made forces safer and more secure against accidental or unauthorized use.
- Adjustments to de-MIRV U.S. ICBMs to single warhead systems, bolster nuclear command and control, and reduce reliance on ICBM launch under attack have acted to strengthen strategic stability. Also, to this end, decisions made in the Carter-Reagan nuclear modernization program encouraged Russia to evolve its ICBM force to lower throw-weight, less highly-MIRVed, and more survivable mobile ICBMs.
- The United States has been able, since 1992, to maintain its moratorium on nuclear testing.
- Threat reduction cooperation with Russia (now ended by Russia) made remarkable progress in destroying nuclear delivery systems and securing weapons and weapons materials (i.e., plutonium and highly-enriched uranium) further reducing nuclear dangers.

Given recent negative developments in the international security arena, it is unclear whether this strong record of achievement can be continued. That said, this record demonstrates that the United States is serious about managing global nuclear threats. Sadly, it does not go far enough to satisfy the idealists—who want to move much faster toward global nuclear elimination.

The debate between the nuclear disarmers and the nuclear realists is central to Keith's book. In another of his pieces, I believe it was in NIPP's *Information Series #540*, Keith cites Sir Michael Howard, the Oxford Professor, who provides an important insight into a less well understood tension between the two sides. Quoting from Sir Michael:

> Nobody who has been brought into contact with that inner group of civil and military specialists who are responsible for the security of this country can fail to notice the almost physical pressure exerted on them by that responsibility, affecting their processes of thought (and often their manner of speech) in much the same way as the movements of a man are affected when he tries to walk in water . . . they share a common skepticism as to the possibility of disarmament, or indeed of the creation of any effective international authority to whom they can turn over any portion of their responsibilities . . . the impatient onlookers, who have never themselves been plunged into that element, cannot understand why.[21]

In my career from graduate school to retired DoD official, I have lived on both sides of this divide and can vouch for the accuracy of Sir Michael's statement. Those of us who have been given the privilege to serve our country in ensuring its security to the gravest of all threats cannot be anything but humbled by this burden when faced with its harsh reality. Not to demean any of their arguments, those on the "outside" are free to offer up ideas that pose risks they deem acceptable. Those on the "inside," often irrespective of presidential administration, do not have the luxury to gamble with the security of the American people or those of its allies. This, in large part explains their more conservative approach to issues involving nuclear weapons.

[21] Michael Howard, *Studies in War and Peace* (New York: Viking Press, 1964), pp. 215-216.

Jim Popkin, *Code Name Blue Wren: The True Story of America's Most Dangerous Female Spy—and the Sister She Betrayed* (Toronto, Canada: Hanover Square Press, 2023), 337 pp.

In January 2023, Ana Belén Montes was released from a federal penitentiary in Fort Worth, Texas after serving more than 21 years for espionage on behalf of the Cuban government. Montes was a highly decorated Defense Intelligence Agency (DIA) intelligence analyst responsible for assessing developments in Cuba and Latin America, information that was used to develop U.S. policy toward the region. A U.S. citizen of Puerto Rican descent, she was a rising star within the intelligence community who successfully spied for Cuba for nearly 17 years until she was finally discovered and arrested.

In *Code Name Blue Wren*, Jim Popkin tells the gripping story of how Montes was recruited; how she received her directions from the Cuban intelligence service, the DGI, via coded shortwave radio transmissions; how her double life of espionage activities went undetected by her colleagues at DIA; how bureaucratic disputes between DIA and the FBI bogged down progress on the case; and how it took analysts at other agencies, including the National Security Agency, to overcome the bureaucratic impediments, sometimes risking their own professional careers, to uncover the truth about Montes' spying that ultimately led to her arrest.

Unlike other well-known spies such as Robert Hansen and Aldrich Ames, who were motivated by money, Montes was motivated by ideological sympathy for the Cuban regime and a belief that U.S. policy toward the island and Latin America in general was immoral and a vestige of America's colonialist and imperialistic past that imposed unfair suffering on the Cuban people. In 1977, while studying abroad in Spain during her junior year in college, she met and became involved with a politically active Argentinian friend who stoked her sympathies for the victims of dictatorial regimes in Latin America that enjoyed U.S. support. As a CIA account noted after her arrest, "She viewed various European Communist parties as most capable of responding to the population's social needs…her early sympathies may have enhanced her later desire to assist a Communist government, such as Cuba." After getting an entry-level job at the Department of Justice, she was recruited as a spy by a graduate school friend who was in reality a Cuban intelligence agent and who was aware of her criticisms of U.S. foreign policy. That Montes' ideological leanings did not raise suspicions among her colleagues much sooner than it did is itself surprising. Indeed, her betrayal of the public trust that she was granted by serving the demands of a foreign adversary led to her estrangement from her own family—especially her sister, who spent her career working for the FBI to identify Cuban spies operating in the United States.

Popkin's narrative moves briskly, with many chapters only several pages long. It is based on numerous interviews with Montes' relatives and friends, U.S. officials, and official transcripts of depositions with Montes and other documentation. The story it tells provides a disturbing example of how groupthink can lead otherwise intelligent people to ignore signs of deceit when they consider it unimaginable that a trusted colleague could be serving the

interests of America's enemies. In personal relationships, such deceit can be emotionally tragic. In the intelligence community, it can be utterly devastating to U.S. national security.

Popkin notes that Montes "is sometimes called the most important spy you've never heard of." He notes that she "not only poisoned nearly every secret plan that American intelligence officials hatched in Cuba, but she also helped author some of the U.S. government's own policies on the region." In fact, she won various intelligence awards and was honored with the National Intelligence Certificate of Distinction by none other than then-Director of Central Intelligence George Tenet. The nation's first National Counterintelligence Executive, Michelle Van Cleave, called Montes "one of the most damaging spies in U.S. history." In notes and letters Montes wrote from prison, she stated, "I owe allegiance to principles and not to any one country or government or person," and criticized U.S. policies toward Latin America, including efforts to "unjustly overthrow the government of Nicaragua in the 1980s."

Operation Blue Wren ultimately led to the capture of this notorious Cuban spy. But the fact that Montes was able to ply her trade so successfully for so many years raises the question of who else may be working within the U.S. government on behalf of a foreign adversary to undermine American national security policies. As Popkin notes, Cuba "operates a totalitarian regime that spies on its people and stifles dissent. [It] covets the information that the United States holds dear and runs a scrappy spy agency capable of prying those classified secrets loose. Trained by the Soviet spy services and run by hard-line Communist party members, the DGI remains hungry. And mercenary."

Regardless of what one thinks of American foreign policy or the U.S. relationship with Cuba, Popkin argues that Montes' actions were "dangerous, immoral, and traitorous. She's not more virtuous than Hansen or Ames because she was motivated by ideology instead of cash. Illegal is illegal and wrong is wrong."

When it comes to espionage and anti-U.S. activities, the Cuban government actively targets American sympathizers in academia and in positions of responsibility within the U.S. government. To this day, there are concerns that Cuban intelligence operations are not only sophisticated but dangerously unorthodox in their methods. For example, there is lingering conjecture that Cuba initially may have been responsible for so-called "Havana Syndrome," a debilitating illness thought to be caused by the use of directed energy radio waves as a weapon to attack the neurological system of unsuspecting U.S. embassy diplomats in Havana, causing serious brain injuries. The U.S intelligence community contends that the incapacitating effects of radio frequency energy evidenced by more than a thousand U.S. officials were likely not the result of a hostile foreign power targeting U.S. personnel. Yet many of those who experienced anomalous health issues have been critical of the apparent attempt to blame such symptoms on environmental or preexisting medical conditions, arguing that "weapons capable of causing these types of injuries are known and have existed for decades."[1] Although no direct link to the Cuban government has emerged to date, suspicions remain.

[1] *Statement by Advocacy for Victims of Havana Syndrome on ODNI Report on Anomalous Health Incidents*, March 1, 2023.

Code Name Blue Wren makes an important contribution to understanding how adversaries target classified U.S. information and the risk of insider threats. It also provides an example of the damage that can be done when an individual entrusted with U.S. national security secrets works clandestinely to support the objectives of a hostile government. Though it reads like a novel, *Code Name Blue Wren* is as truthful as it is disconcerting. The case of Ana Montes it highlights may just be the tip of the iceberg. As Thomas Jefferson reportedly stated, "The price of liberty is eternal vigilance." May we as a nation be eternally vigilant.

Reviewed by David J. Trachtenberg
National Institute for Public Policy

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Mark Galeotti, *Putin's Wars: From Chechnya to Ukraine* (New York: Osprey Publishing, 2022), 384 pp.

Writing a book on a developing topic is always fraught with peril, particularly if one writes about post-Cold War Russia and its numerous wars, including its latest one: the largest land force invasion of Europe since World War II. Mark Galeotti's work rises to the challenge. Granted, his main focus is not an in-depth analysis of Putin's psyche as the explanation leading him to invade countries near and far. Neither is Putin the main focus of the book, as one may be pardoned for thinking given its title. Rather, Galeotti analyzes the *making* of Russia's post-Cold War military forces and discusses wars that shaped them into the fighting force they are today, or rather what some analysts thought they were prior to Russia's escalation of its war against Ukraine in February 2022. The book incorporates preliminary reflections from about six months' worth of war developments; a reader can usually tell which parts were a later addition.

The book maps the most and least successful aspects of Russia's armed services' transformation from a mammoth, inefficient, underfunded, and poorly led Soviet-style military to today's more professional fighting force. The book is organized chronologically, discussing the woes that shaped Russia's military after the break-up of the Soviet Union, particularly its poor performance in the First and Second Chechen Wars (1994-1996 and 1999-2000). The latter paved the way for Vladimir Putin's leadership takeover. His appreciation for the realities of hard power politics led him to support the military as an oft-used instrument of Russia's state policy and as a tool to reward his cronies at the same time.

Putin could not have turned the military around by himself, and one of the more interesting sections of the book introduces operatives that helped Putin do so—some of whom are still in service (for now). Among them is Sergei Ivanov, a former Defense Minister and Deputy Prime Minister who initiated military reforms despite the resistance of the General Staff; Anatoly Serdyukov, another former Defense Minister who enforced those reforms, enabled by the abysmal performance of Russia's forces in Georgia in 2008; and Sergei Shoigu, the rebuilder and current Minister of Defense.

If there is one thing to criticize, it is Galeotti's treatment of the demise of the Intermediate-Range Nuclear Forces (INF) Treaty. Here he somewhat thoughtlessly repeats Russia's line that it does not have intermediate-range missiles, despite the United States raising compliance concerns as early as 2013,[2] and finding Russia in violation of its INF Treaty obligations in the 2014, 2015, 2016, 2017, and 2018 editions of the State Department's compliance report.[3] At the end of 2018, the United States assessed "that Russia has fielded multiple battalions of SSC-8/9M729 missiles" in violation of the INF Treaty, indicating a progressive increase in the scale of the violation.[4] The United States finally withdrew from the Treaty in 2019, but only after years of extensive efforts to bring Russia back into compliance.[5] Galeotti's equal treatment of Russia's fake and U.S. real allegations of INF Treaty violations does not do justice to a full and fair understanding of the issue. Despite this hiccup, Galeotti has written an insightful, interesting, and timely book.

Reviewed by Michaela Dodge
National Institute for Public Policy

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Center for Global Security Research (CGSR) Study Group, Brad Roberts, Chair, *China's Emergence as a Second Nuclear Peer: Implications for U.S. Nuclear Deterrence Strategy* (Livermore, CA: Lawrence Livermore National Laboratory, CGSR, Spring 2023), 74 pp.

The United States faces a wounded Russia more heavily reliant on its nuclear arsenal, headed by a President on increasingly friendly terms with another leader-for-life, Xi Jinping of China. Xi, for his part, has ordered the massive expansion of the Chinese nuclear arsenal such that it could reach 1,500 nuclear warheads by 2035, up from its estimated 400 currently.[6]

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[2] U.S. Department of State, *Adherence to and Compliance with Arms Control, Nonproliferation, and Disarmament Agreements and Commitments Report*, July 31, 2014, available at https://2009-2017.state.gov/t/avc/rls/rpt/2014/230047.htm#inf2.

[3] U.S. Department of State, *Adherence to and Compliance with Arms Control, Nonproliferation, and Disarmament Agreements and Commitments Report*, April 11, 2016, available at https://2009-2017.state.gov/t/avc/rls/rpt/2016/255651.htm#INF%20TREATY; and U.S. Department of State, *Adherence to and Compliance with Arms Control, Nonproliferation, and Disarmament*, 2017, available at https://2017-2021.state.gov/2017-report-on-adherence-to-and-compliance-with-arms-control-nonproliferation-and-disarmament-agreements-and-commitments/; and, U.S. Department of State, *Adherence to and Compliance with Arms Control, Nonproliferation, and Disarmament*, 2018, available at https://2017-2021.state.gov/2018-report-on-adherence-to-and-compliance-with-arms-control-nonproliferation-and-disarmament-agreements-and-commitments/.

[4] U.S. Department of State, *Adherence to and Compliance with Arms Control, Nonproliferation, and Disarmament*, August 2019, p. 13, available at https://2017-2021.state.gov/wp-content/uploads/2019/08/Compliance-Report-2019-August-19-Unclassified-Final.pdf.

[5] C. Todd Lopez, "U.S. Withdraws From Intermediate-Range Nuclear Forces Treaty," *U.S. Department of Defense*, August 2, 2019, available at https://www.defense.gov/News/News-Stories/Article/Article/1924779/us-withdraws-from-intermediate-range-nuclear-forces-treaty/.

[6] U.S. Department of Defense, *Military and Security Developments Involving the People's Republic of China* (Washington, D.C.: Department of Defense, 2022), pp. 97-98, available at https://media.defense.gov/2022/Nov/29/2003122279/-1/-1/1/2022-MILITARY-AND-SECURITY-DEVELOPMENTS-INVOLVING-THE-PEOPLES-REPUBLIC-OF-CHINA.PDF.

Regrettably, much of the current literature tends to stop the analysis at this point, content to point out problems that need solutions.

The Study Group convened by the Center for Global Security Research, and headed by Dr. Brad Roberts, is an exemplary exception to this analytical malaise. Its report, *China's Emergence as a Second Nuclear Peer*, is methodical in its examination of the problems facing the United States, their implications, the resulting policy choices, and the relevant solutions or mitigating actions. Indeed, the diverse expertise of the Study Group's membership is reflected in the comprehensive set of recommendations that covers topics as varied as arms control, nuclear targeting, nuclear infrastructure, and deterrence policy.

The report begins by defining the problems the Study Group believes are most impactful, namely, a rising Chinese nuclear threat, a growing and unstable Russia nuclear threat, the burgeoning Sino-Russian friendship, the possibility of U.S. conflict with one or both simultaneously, and the "wild cards" of North Korea and Iran. The main focus of the report, however, is the unique set of stresses that the possibility of simultaneous or sequential conflicts with Russia and China may place on U.S. conventional and nuclear forces. These stresses cut across multiple areas of concern, including deterrence, extended deterrence, nonproliferation, arms control, damage limitation, and operational planning.

At this point, most reports on this subject would jump to proposing solutions – but the Study Group wisely presents alternative nuclear strategies, their pros and cons, and explains their preferred options. This method of analysis minimizes the chance anyone charges them with simply endorsing current policy without considering other choices, but it also presents a useful learning opportunity for those less-studied in the field to understand the factors at play in nuclear policy, force sizing, and targeting. The Study Group presents one of the best unclassified discussions of planning considerations the U.S. nuclear force structure in the available literature, an especially valuable addition to current debates as U.S. modernization programs are still at points where changes can be made where necessary.

After discussing how the two nuclear peer environment impacts nuclear deterrence strategy, the report presents chapters on U.S. nuclear forces, hedging, extended deterrence, force survivability, arms control, and strategic communications. Each chapter is valuable in its own right because the authors took the right amount of space to explain the unique aspects of their topic (which often takes the form of explaining to the reader how there are no easy answers) and how the United States can adapt in each area.

There are a few instances of statements in the report that required more explanation than was given. For instance, "It remains unlikely that Moscow or Beijing or both would decide to escalate to attacking the U.S. homeland in response to limited U.S. nuclear employment at the regional level (in response to their limited regional nuclear attacks)—as such an action would mean national suicide." (p. 26) This appears to be an unjustifiably definitive statement, especially given the fact that the Commander of U.S. Northern Command has testified that Russia and China are both acquiring the means to strike the U.S.

homeland, even and perhaps especially during a regional conflict, as a means of deterring U.S. action.[7]

Additionally, the report identifies advances in adversary air and missile defenses as an increasingly important factor in how the United States develops and modernizes its nuclear forces. Yet, instead of discussing what role U.S. homeland air and missile defenses can play in areas such as force survivability, hedging, and extended deterrence, the report stays mostly silent and chooses instead to recommend *limited* (emphasis in original) missile defense of nuclear command, control, and communication (NC3) assets. The authors do not elaborate on the deterrence or defense benefits of their recommendation, or why only NC3 capabilities should be protected instead of, for example, ports that are critical for military force projection.

Setting these relatively minor points aside, the report's authors should be commended for their clear writing, succinct explanations, and well-reasoned recommendations. This report is precisely the sort of analysis U.S. officials should consider as they adapt U.S. policy and forces to the two nuclear peer threat environment.

Reviewed by Matthew R. Costlow
National Institute for Public Policy

[7] Glen D. VanHerck, *Statement of General Glen D. VanHerck, United States Air Force, Commander, United States Northern Command, and North American Aerospace Defense Command* (Washington, D.C.: Senate Armed Services Committee, March 24, 2022), available at https://www.armed-services.senate.gov/imo/media/doc/USNORTHCOM%20and%20NORAD%202022%20Posture%20Statement%20FINAL%20(SASC).pdf.

In February 2023, Russia suspended the implementation of the New Strategic Arms Reduction Treaty (New START) with the United States. Over a decade since the Senate gave its advice and consent to New START's ratification, it is worth revisiting the experts' criticisms made at the time of Senate consideration. As the excerpts below show, events since New START's entry into force validated their insights and criticisms of the Treaty.

Document No. 1. Prepared Statement, Hon. Robert G. Joseph before the Senate Foreign Relations Committee, June 24, 2010.

Chairman Shaheen, Senator Lugar, distinguished members, thank you for the invitation to appear before this committee to discuss the New START Treaty. Having retired from the career civil service in 2007 after serving at the Department of Defense, on the National Security Council staff, and at the Department of State, I am here today in a personal capacity.

While my direct experience with arms control is grounded within the executive branch, I am well aware of the vital role the Senate has played in all of the treaties that I have been associated with—including the INF Treaty and the START I Treaty to reduce nuclear arms and provide strategic stability. In particular, this committee has consistently provided close scrutiny of all arms control agreements submitted for consent to ratification. Our Nation's security has benefited from this due diligence—from asking hard questions and from fixing flaws that have been uncovered in the process.

I would like to raise three questions for your consideration based on concerns that I have in my reading of the New START Treaty.

The first is whether New START—especially the provisions on limitations and monitoring—meet the long-held standards we have thought necessary to protect U.S. security? Do the terms of the treaty limit what we assume to be limited or are there gaps that must be addressed? And, equally important, do the terms provide for effective verification?

A number of arms control experts have concluded that, based on their examination of the treaty, rail-mobile ICBMs would not be counted under the treaty limits. Other experts disagree. The position of the Obama administration is clear and now part of the treaty record. In testimony to this committee, Dr. Jim Miller, Principal Deputy Under Secretary of Defense for Policy, has stated unequivocally that rail-mobile ICBM launchers, missiles and warheads are accountable.

I do not know the Russian position. But I do know that the New START Treaty is totally silent on rail-mobiles and that all previous START provisions that captured rail-mobile ICBMs were either deleted or changed to exclude them. To me, it is inconceivable that, should Russia again deploy rail-mobile ICBMs, they would not be counted under the treaty's launcher and warhead limits. That said, based solely on the treaty text, its protocols and annexes, one can come to a different conclusion than that of the administration—one that excludes rail-mobiles from accountability.

On this point, I believe Senate can play a very constructive role by ensuring that there is no room for ambiguity, through amendment or other means, such as a formal exchange of

notes. The language should not allow for competing interpretations. It should be clear and precise—as it is with silo-based and road-mobile missiles.

When faced with an analogous situation in the INF ratification debate, on important points on which the terms of the INF Treaty were not clear, the Senate directed the Reagan administration to seek clarification with the then Soviet Union on several aspects of the verification regime and on the meaning of a "weapons delivery vehicle." As it was then, leaving any potential loophole would not be in our security interest or in the interest of improved United States-Russian relations. Ambiguities involving treaty obligations do not lead to greater confidence. Rather, they undermine mutual trust.

Another principal, longstanding theme in Senate oversight has been the requirement for effective verification. "Trust but verify" has been the standard for more than 20 years. Whether the New START Treaty meets this standard is a major issue.

The Intelligence Community (IC) has yet to provide its assessment. How that assessment will be stated and conditioned will be a key factor in evaluating the treaty. Experience suggests that there will substantial conditionality in the IC's judgments. The level of confidence in the assessments will differ depending on the assumptions. As just one example, if Russia does what the IC expects in terms of road-mobile ICBM deployments, the confidence level will be higher than the level if Russia practices denial and deception techniques that are not prohibited by the treaty. As with previous assessments from the IC and State, the devil will be in the details.

We do know that the verification regime for New START includes data exchanges and onsite inspections that could provide valuable information that we may not have absent the treaty being ratified. But we also know that the treaty leaves potentially significant gaps in our ability to monitor developments in Russia's strategic posture. For example, the end of the United States on-the-ground presence at Votkinsk means we will have less confidence than under START I in our ability to determine what is exiting this Russian missile manufacturing facility.

Moreover, given the telemetry exchange provisions, whereby each side determines the information to be shared, we may have additional gaps in understanding ongoing and future Russian strategic force improvements. The Obama administration argues that this change in monitoring posture will not affect the ability to verify New START limits because these limits are different than under START I. While perhaps technically true, New START is being advertized as a means of strengthening predictability. Yet, because of changes in the telemetry regime, we will have less transparency into Russia's modernization. This is likely to undermine confidence and predictability.

The question before the Senate is not whether we are better off with the monitoring provisions of New START Treaty than without them. The question is whether the treaty is verifiable. The answer is unclear at this time. Before rendering judgment on the treaty, we must await assurances of the ability to verify its provisions.

A final point on the terms of New START relates to the size of the reductions and whether the treaty will provide for equal force reductions. While technically accurate, saying that the

treaty will result in a one-third reduction of deployed strategic warheads (from 2,200 to 1,550) ignores two factors.

First, both sides are already well below the 2,200 level of the Moscow Treaty. Russian military journalist Alexander Golts has written that Russia is now about 100–150 warheads above the 1,550 level and that, with the expected near term retirement of legacy systems, Russia will soon be under the limit—with or without New START. For our part, under guidance set by President Bush, the United States has been in the process of going significantly lower than the 2,200 warhead limit. In fact, I understand we are now below 2,000 deployed warheads.

Second, actual reductions of warheads may be substantially less than advertised given the change in the bomber counting rule. Technically, because strategic bombers, no matter what their actual load out, are counted as carrying one warhead, it is possible that any actual reductions in deployed warheads would be much less than anticipated. In fact, it is possible under the treaty for either or both parties to increase the level of deployed warheads beyond the 2,200 level set by the Treaty of Moscow.

While the bomber counting rule may be a positive for the United States if we modernize this leg of the triad, it is essential to understand how the treaty works and the implications. In doing so, we must recognize that, while the United States will almost certainly seek to go below the 1,550 level of actual deployed warheads, the same may not be true for Russia. And Moscow is not legally obligated to do so.

As for who reduces more, the answer is clear. As stated by Secretary Gates, Russia is currently below the top levels permitted under New START with regard to delivery vehicles. Consequently, Moscow is not likely to have to eliminate a single launcher from where it was headed without New START. The expectation is that Russia will cut some deployed warheads but significantly less than suggested by the administration. For the United States, the reductions are much deeper and, in the case of launchers, well below what U.S. military officials had earlier stated to be the U.S. requirement.

My second question relates to the treaty's impact on two vital capabilities for the future: missile defenses and conventional prompt global strike capabilities—the very capabilities that, according to the recently released Nuclear Posture Review, make possible the reductions in nuclear forces envisioned in New START. What will be the impact of New START on our ability and willingness to develop and deploy future capabilities in both of these areas to meet future threats?

I know my esteemed colleague, Ambassador Edelman, will go into some detail on conventional prompt global strike, so I will limit my remarks to missile defenses. Initially, the Obama administration gave numerous assurances that there would be no limitations on missile defenses in the treaty—"no way, no how." Later, once the treaty text was made public, the line changed to "no meaningful" limitations and "no constraints on current and planned" programs.

We know there are restrictions on missile defenses in the treaty, both direct and possibly indirect. Article V prohibits the future conversion and use of ICBM and SLBM launchers for placement of missile defense interceptors. While the Obama administration has stated it has

no intention to convert such launchers for missile defense, the previous administration did undertake such conversions. And future administrations might also find the conversion option attractive. As Dr. Kissinger testified before this committee: "I would also have preferred to avoid prohibiting the use of missile launching sites for strategic defense as unnecessarily limiting strategic options of a future President."

As for implicit constraints on missile defenses, Russian officials have stressed what they call the "legally binding" protocol language which notes the "inter-relationship between strategic offensive arms and strategic defensive arms." Foreign Minister Lavrov has repeatedly stated that Russia will be entitled to withdraw from the treaty if there is a change from existing levels in the "quantitative and qualitative" capacities of U.S. strategic defenses. By doing so, Moscow may desire to gain leverage over the future direction of U.S. missile defense programs—development and deployments of future systems that are necessary to defend the United States and our friends and allies.

Last week Under Secretaries of Defense Michele Flournoy and Ashton Carter, two widely respected professionals, wrote in the Wall Street Journal that New START "does not constrain the U.S. from testing, developing and deploying missile defenses." They emphasized that these "capabilities are critical to protecting U.S. citizens, our forces abroad, and our allies from real and growing threats." In the ratification process, the Senate can build on, and make formal, this assurance. It can also make evident that the United States will not accept limits on current and future missile defense programs and capabilities. Perhaps the best means of doing so would be an explicit statement that no further limitations or prohibitions on missile defenses, such as those that could potentially be agreed in the treaty's consultative body, will be acceptable.

My third question is how does the United States benefit from New START?

The Obama administration has stressed the importance of New START to "re-set" the United States-Russian relationship. To the extent that the treaty improves mutual confidence in our bilateral relations, it may make a modest, near term contribution. To the extent the treaty contributes to the reestablishment of the cold-war relationship we had with the Soviet Union, it will carry a long-term cost.

For some in Russia, including in high government positions, the United States is seen and described openly as the adversary. For them, New START serves a number of purposes: it constrains U.S. forces while not encumbering Russian forces; it perpetuates deterrence through the balance of terror and mutual assured destruction; it enhances the status of Russia and restores in part the lost prestige from superpower days; and it once again treats nuclear weapons—the one category of arms on which Russia can compete with the United States—as the principal currency of the relationship.

If we do believe the cold war is over, and if we want a normal relationship with Russia, we need to move beyond cold-war approaches. We need to base our relations on common interests and joint efforts to deal with today's security challenges, such as countering nuclear terrorism and managing the expansion of nuclear energy in a manner that reduces the risks of nuclear weapon proliferation.

Predictability and stability are important elements of our relationship with Russia. Reductions of nuclear weapons to the lowest level possible consistent with our security requirements, including for extended deterrence for our friends and allies, are important to our nonproliferation goals. But these objectives are not well-served by traditional arms control of the type practiced in the cold war when we and the Soviet Union were enemies in a divided world with thousands of nuclear weapons pointed at each other.

The Obama administration has also made the case that New START is important because it demonstrates the U.S. commitment to disarmament, and thereby will lead to greater support for U.S. nonproliferation goals. The first half of the administration's case is sound—through New START and other means, it has established impeccable credentials on disarmament. However, it is far from clear that this has or will lead to greater international pressure on states like Iran or to greater cooperation in strengthening the NPT regime. The most recent U.N. Security Council resolution on Iran falls far short of what the administration sought, as did the outcome of the NPT review conference.

In closing, I would join with many others, including in the Senate and in the administration, to stress the need for ensuring an effective, reliable, and safe nuclear deterrent force for the future. New START must be assessed in the context of a robust commitment to maintain the necessary nuclear offensive capabilities required to meet today's threats and those that may emerge. This is a long-term commitment, not a 1-year budget bump-up. It includes the maintenance of the TRIAD and of a modern nuclear weapons infrastructure. These are the capabilities that will provide strategic stability, deterrence, and credible assurances to our friends and allies.

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Document No. 2. Prepared Statement, Dr. Keith B. Payne before the Senate Armed Services Committee, July 27, 2010.

Chairman Levin, Senator McCain, distinguished members, thank you for the invitation to appear before the committee to discuss New START; it is an honor to do so.

I would like to begin by observing that reductions in the number and diversity of U.S. forces can matter greatly because the credibility of our forces is dependent on their flexibility to provide a spectrum of deterrent options and their resilience to adjust in a timely way to changes in the threat environment. This flexibility and resilience, in turn is determined to a great extent by the number and diversity of our strategic forces.

An ''assured destruction''-type deterrent lacking this flexibility and resilience is likely to be incredible against many of the limited, yet severe threats we and our allies may face. U.S. officials knew this full well during the Cold War; virtually all major nuclear policy documents since the 1960s emphasized the need for flexibility and multiple strategic force options.[1]

[1] See Richard Nixon, National Security Council, *National Security Decision Memorandum-242*, Policy for Planning the Employment of Nuclear Weapons, January 17, 1974 (Top Secret, declassified February 20, 1998). See also, Jimmy Carter,

That need is particularly important today because the contemporary threat environment can shift rapidly and surprisingly. In one crisis we may need one set of strategic capabilities to deter credibly, in a different crisis, a different set of strategic capabilities may be necessary; assuring allies credibly may necessitate still different types of strategic forces; and when an attack cannot be deterred, an altogether different set of forces may be necessary to defend.

If we want a credible deterrent across a spectrum of severe threats, including for example, nuclear and biological threats to our allies, our forces must have the quantity and diversity necessary to be flexible and resilient. The 2009 report by the bipartisan Strategic Posture Commission, America's Strategic Posture, emphasizes this contemporary U.S. requirement given the fluid threat environment.[2]

Understanding this requirement is the necessary starting point for any review of New START. The material question regarding verification and New START in general is whether the treaty is compatible with the flexibility and resilience essential to the credibility of U.S. forces over the long term—not simply whether we could retain an ''assured second-strike'' capability. Under New START, would the combination of U.S. force reductions and Russian force deployments (with or without Russian cheating) threaten the necessary flexibility and resilience of our forces? We must not allow enthusiasm for quantitative nuclear reductions to degrade the flexibility and resilience of our forces and return U.S. to old discarded standards of ''assured destruction.'' Our ability to deter and assure credibly would be undermined. Instead, as our force numbers move lower, we must be careful to advance the force flexibility and resilience that helps make them credible.

My conclusion is that New START raises some concerns in this regard.

For example, a recent administration report on verification apparently emphasizes that ''any'' Russian cheating ''would have little effect on the assured second-strike capabilities of U.S. strategic forces . . . ''[3] This claim suggests that an ''assured devastating second-strike capability'' is adequate for U.S. strategic forces, and therefore ''any'' Russian cheating could have no serious effect on our ability to deter or assure.[4] Yet, as noted, every Republican and Democratic administration since the 1960s has concluded that an ''assured destruction'' capability alone is inadequate because it requires little or none of the flexibility and resilience so important for credible deterrence and assurance.

The treaty would limit U.S. strategic force flexibility and resilience because it requires sizeable reductions in the number of U.S. strategic nuclear launchers, and would limit some types of strategic conventional forces for prompt global strike (PGS). Administration officials

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Presidential Directive/NSC–59, The White House, July 25, 1980 (Top Secret, Partially declassified August 20, 1996); Harold Brown, Department of Defense Annual Report Fiscal Year 1982 (Washington, DC: USGPO, 1981), p. 40.

[2] The Final Report of the Congressional Commission on the Strategic Posture of the United States, *America's Strategic Posture* (Washington, DC: USIP, 2009), pp. 23, 24–26.

[3] Unclassified potions of the report quoted by Chairman Carl Levin, Senate Armed Services Committee, *Hearing on the New Strategic Arms Reduction Treaty (START) Implementation*, July 20, 2010, CQ Congressional Transcript.

[4] 'Assured devastating second-strike capability'' is the descriptor used by Dr. James Miller in, Senate Armed Services Committee, *Hearing on the New Strategic Arms Reduction Treaty (START) Implementation*, July 20, 2010, CQ Congressional Transcript.

have said, ‘‘The treaty does not constrain our ability to develop and deploy non-nuclear prompt global strike capabilities.’’[5]

In fact, New START would restrict deployment of U.S. conventional PGS options based on existing ICBMs or sea-based ballistic missiles. These would be limited under New START's ceiling of 700 deployed launchers.[6] We would have to reduce our strategic nuclear force launchers below 700 on a 1:1 basis for each of these conventional PGS systems deployed. The treaty would thus limit our flexibility and resilience in this area. In general, a 1:1 replacement of nuclear forces by conventional forces has understandably and specifically been rejected for deterrence purposes by senior U.S. military leaders.[7]

Administration officials have said, nevertheless, that so limiting these conventional PGS options is acceptable assuming there is a need for only a small number of such systems.[8] Unfortunately, there can be no certainty behind that assumption given the many different and now-unknown threats that will arise in New START's 10–15 year timeframe. Perhaps the option of deploying many such conventional PGS systems will be critical for deterrence, assurance or defense. Under New START we would be mightily constrained from doing so because of the treaty's limits and its required 1:1 trade-off with our nuclear forces.

This problem might be mitigated with Senate guidance that there be no further negotiated restrictions on advanced U.S. non-nuclear PGS systems and a requirement for a firm commitment to the development and deployment, as soon as technically and operationally sound, of conventional PGS capabilities that are not limited by treaty.

In addition, New START's force limits do not allow ‘‘more [capability] than is needed’’ for deterrence under current planning.[9] Leaving little or no such margin may be risky when force flexibility and diversity is necessary to deter and assure across a range of threats.

Senior U.S. military leaders have noted in open testimony that New START would indeed allow sufficient U.S. strategic force flexibility.[10] The analysis behind this important conclusion reportedly was predicated on three key assumptions: (1) U.S. planning guidance for strategic forces would remain the same; (2) there would be no requests for an increase in forces; and (3) Russia would be compliant with New START.[11]

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[5] Dr. James Miller, Ibid. See also, Department of State, Bureau of Verification, Compliance, and Implementation, *Fact Sheet*, April 8, 2010, at http://www.state.gov/t/vci/rls/139899.htm.

[6] Under New START the number of deployed U.S. strategic launchers will have to be reduced from today's reported level of 880 launchers to a ceiling of 700 deployed launchers. Amy Woolf, *The New START Treaty: Central Limits and Key Provisions*, Congressional Research Service 7–5700 (June 18, 2010), p. 19.

[7] General Kevin Chilton, Senate Armed Services Committee, *Hearing to Receive Testimony on the Nuclear Posture Review*, April 22, 2010, pp. 24–25.

[8] Woolf, *The New START Treaty: Central Limits and Key Provisions*, pp. 17–18; also, Miller, Senate Armed Services Committee, *Hearing to Receive Testimony on the Nuclear Posture Review*, April 22, 2010, p. 24.

[9] General Kevin Chilton, Senate Foreign Relations Committee, *Hearing, The New START Treaty: Views From the Pentagon*, June 16, 2010, Federal News Service.

[10] General Kevin Chilton, Senate Armed Services Committee, *Hearing to Receive Testimony on the Nuclear Posture Review*, April 22, 2010 p. 14.

[11] General Kevin Chilton, Ibid, pp. 8, 13; and, House Armed Service Committee, *Hearing, U.S. Nuclear Weapons Policy and Force Structure*, April 15, 2010, p. 11.

Would the treaty allow sufficient U.S. flexibility and resilience to adjust as necessary for credible deterrence and assurance if one or all of those starting optimistic assumptions do not hold, as is plausible?

For example, what if Russia again decides to violate its treaty commitments? What if relations with China and Russia return to a crisis pitch, and they express more severe nuclear threats to our allies or to us? What if Iranian deployment of nuclear weapons and missiles throws the entire Middle East into an unprecedented security crisis? What if the apparent nuclear nexus of Burma, Iran, North Korea and Syria poses unprecedented threats to our allies or our forces abroad?[12] U.S. planning and force requirements might have to change with any and all of these unwanted developments that could arise during New START's tenure. What new quantitative or qualitative strategic force requirements might arise as a result for credible deterrence, assurance or defense, and would New START preserve the necessary U.S. force flexibility and resilience to meet those requirements? These are fundamental questions regarding the treaty and international security.

More simply, will the United States, at least, develop and deploy the diverse strategic force structure that remains possible under the treaty and could help preserve U.S. force flexibility and resilience? The traditional U.S. triad of bombers, ICBMs, and sea-based missiles—now buttressed by missile defenses and the potential for new non-nuclear PGS capabilities—can be extremely valuable in this regard because the diversity of offensive and defensive options helps provide the flexibility and resilience to adjust to a multitude of different threats and circumstances.

Fortunately, the Obama administration has expressed its intention to support the triad, missile defense deployment, and conventional PGS. At this point, however, there is no apparent, concrete administration commitment to advanced conventional PGS deployment or to replacing the aging ICBM and bomber legs of the triad, including the air-launched cruise missile. This fosters concern that enthusiasm for force reductions may come at the expense of the longstanding requirements for force diversity, flexibility, and resilience, and take refuge in old ''assured destruction'' thinking. If our numbers are to decline further, we must take care to ensure continued flexibility and resilience—whether through traditional means or innovations.

Bombers have great inherent flexibility and resilience, and the weapons counting rules for bombers under New START are extremely permissive. But these counting rules will be advantageous for U.S. only if we modernize our bomber force. While Russia has decided to build a new strategic bomber and apparently has a new long-range air-launched nuclear cruise missile near deployment,[13] the Obama administration plans to cut U.S. nuclear-capable bombers by more than one-third under New START and has made no apparent

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[12] See the discussion in, ''Article Sees Serious Implications for India From Burma's Purported Nuclear Plans,'' *The Tribune Online* (Chandigarth), July 17, 2010, SAP20100717534024.

[13] See ''Moscow Upgrades Strategic Bomber Fleet,'' *Air & Cosmos*,(Paris) January 8, 2010, pp. 34–35, EUP201001081; ''Russian Military Pundits Consider Recent Missile Launches, Prospects,'' *Mayak Radio*, (Moscow) August 8, 2001, CEP20070811950032.

commitment to replace the venerable B–52 or to a new air-launched cruise missile.[14] Similarly, the administration has announced that it will reduce the number of U.S. ICBM launchers by at least 30 under New START,[15] while Russia is deploying new MIRVed mobile ICBMs, and has decided for a new heavy MIRVED ICBM as is now permitted under New START.

Over time, this New START-inspired combination of U.S. ICBM launcher reductions and permitted Russian MIRVed heavy ICBMs could again challenge the survivability of the U.S. ICBM and bomber legs of the triad—a situation long-recognized as highly ''destabilizing.'' If their survivability is at risk, so will be much of the triad's flexibility and the credibility of U.S. forces to deter, assure and defend.

Hard decisions will need to be made during the life of this treaty if we are to advance flexible offensive and defensive capabilities and a resilient force structure. How much confidence can we have that the administration will take the necessary strategic modernization steps given its highest nuclear priority of non-proliferation and movement toward a nuclear free world, its commitment to further negotiations, and its presumption against any new nuclear warheads?[16] Credible assurances and the necessary strategic modernization budgets tied to New START would be helpful in this regard. A solid U.S. commitment to bomber and cruise missile modernization, Minuteman III replacement or life extension with enhanced survivability measures, and missile defenses of all ranges could help provide this confidence.

Concern about New START's reduction of U.S. force flexibility and resilience—however modest or significant—also might be eased if the treaty's ceilings on Russian forces actually would reduce the threats we might face. But, according to numerous Russian open sources, New START's ceilings are of little real consequence for Russia because Russia's aged Cold War strategic launchers already have been reduced below New START's ceilings, and will decline further with or without the treaty—and Russia's comprehensive post-Cold War nuclear modernization programs are moving forward slowly at this point. Aleksey Arbatov, the former Deputy Chairman of the Duma Defense Committee, notes, ''The new treaty is an agreement on reducing the American and not the Russian [strategic nuclear forces]. In fact, the latter will be reduced in any case because of the mass removal from the order of battle of obsolete arms and the one-at-a-time introduction of new systems.''[17] Prior to the New START negotiations, Russian open sources already projected that by 2012 Russian strategic nuclear forces could have as few as 406 launchers and fewer than 1,500 warheads—well below New

[14] White House Fact Sheet on the ''1251 report,'' May 13, 2010, available at www.whitehouse.gov/sites/default/files/New%20START%20section%201251%20fact%20sheet.pdf.

[15] Ibid.

[16] Department of Defense, *Nuclear Posture Review Report*, April 2010, p. vi; and, Testimony of Dr. James Miller, House Armed Service Committee, *Hearing, U.S. Nuclear Weapons Policy and Force Structure*, April 15, 2010, pp. 38, 41.

[17] ''Russia: Arbatov Critique of Khramchikhin Article on Poor State of RF Air Defense,'' *Nezavisimoye Obozreniye Online*, March 5, 2010, CEP20100305358011.

START ceilings using its counting rules.[18] The point was made most succinctly by Dr. Sergei Rogov, Director of the USA and Canada Institute in Moscow: ''We will not have to reduce anything prematurely. In effect, [with] the ceilings established by the new START Treaty. . . Only the United States will have to conduct reductions . . . ''[19]

New START's common ceilings essentially appear to require unilateral reductions by the United States. Russian officials and analysts have long celebrated this situation, while some U.S. officials and treaty proponents have acknowledged it only recently.[20] In this context, it is difficult to take seriously the notion that the treaty's supposed reductions for Russia justify its prospective limitations on U.S. flexibility and resilience.

Even though Russia's forces are declining dramatically with or without New START, does not the treaty provide solid barriers against the re-emergence of Russian strategic forces? Unfortunately, no. New START neither requires real Russian reductions nor does it provide hard limits on a renewed build up of Russian strategic nuclear forces. This is a troubling irony.

How can it be so? New START contains sufficient loopholes and permissive counting rules to allow Russia to deploy far beyond the treaty's 1,550 strategic nuclear warheads ceiling within the terms of the treaty if Russia finds the financial resources to do so. In fact, according to a report by the official news agency of the Russian Federation, RIA Novosti, Russia could deploy 2,100 strategic nuclear weapons under the treaty—well above the putative 1,550 warhead ceiling.[21] There are avenues that would allow Russia to deploy many more than 2,100 warheads under the treaty. This may be significant over time because Russia's highest defense procurement priority is the modernization of its strategic nuclear forces.[22] According to Russian open sources, Russia has a new strategic air-launched nuclear cruise missile near deployment, is MIRVing its new mobile ICBMs (the RS–24), and has committed to deploy at least one new strategic bomber, a new 5000 km-range submarine-launched cruise missile, and a new heavy ICBM. There also has been interest expressed in the Russian press for a new rail-mobile ICBM and a new air-launched ICBM—neither of which, according to some open Russian commentary, would necessarily have to be counted under the treaty's force ceilings.

The bottom line is that aging forces and Russia's production and financial problems are causing reductions in Russia's force numbers precipitously—with or without New START. But, if and when Russia has the necessary financial and production capacity, New START will not prevent Russia from deploying new forces well beyond New START's specified ceilings.

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[18] See, ''Russia: Strategic Missile Troops Chief, Aide Cited on 25 December RS–24 Test Launch,'' *NEWSru.com*, December 25, 2007, CEP20071227358002.

[19] Sergei Rogov, ''Attempt Number 6: the Balance of Achievements and Concessions. Only the United States Will Have to Reduce Its Strategic Forces,'' *Nezavisimoe Voennoe Obozrenie*, April 9, 2010, (In Russian), available at: http://nvo.ng.ru/concepts/2010–04–09/1—snv.html.

[20] See for example, Woolf, *The New START Treaty: Central Limits and Key Provisions*, p. 20.

[21] Ilya Kramnuk, ''New START Treaty based on Mutual Russian-U.S. Concessions,'' *RIA Novosti*, April 22, 2010, at http://en.rian.ru/analysis/20100409/158499862.html.

[22] As stated by the First Deputy Defense Minister, Col-Gen. Vladimir Popovkin in, Pavel Felgenhauer, ''Russia Seeks to Impose New ABM Treaty on the U.S. by Developing BMD,'' July 16, 2010, at georgiandaily.com.

In sum, force numbers and diversity do matter because flexibility and resilience are key contributors to the credibility of our forces. This was true in the past and is even more so now. New START's limits, including on some U.S. conventional PGS options, will require U.S. force reductions and constrain U.S. strategic force flexibility and diversity. The most important question in this regard is whether U.S. forces in the future will retain sufficient flexibility and resilience to be credible in conditions that are less optimistic than those assumed by the administration in its New START analyses. An important consideration in this regard is that the treaty's ceilings appear not to require real Russian nuclear force reductions in the near-term, and its loopholes and extreme permissiveness would not prevent the renewal of Russian strategic capabilities over time. A treaty that could reduce U.S. flexibility and resilience but not require real Russian cuts nor preclude a future Russian strategic renewal merits close Senate scrutiny.

There are some steps that might help to mitigate these risks posed by New START. They involve U.S. commitments, demonstrated by policy guidance and robust program budgets for advanced conventional PGS, missile defense, and innovative replacements for our aging ICBMs, bombers and air-launched missiles—modernization programs permitted under the treaty.

NEW START AND MISSILE DEFENSE

Many others have commented on New START's connections to missile defense. So, I will only summarize my own conclusions here. Senior administration officials have said about missile defense that, ''There are no constraints of any kind in the New START Treaty,''[23] and, ''The treaty does nothing to constrain missile defenses . . .there is no limit or constraint on what the United States can do with its missile defense systems.''[24] Such administration statements simply are false. New START includes limitations on U.S. missile defense options. Judgments may differ regarding the significance of these limitations, but there should be no further denials that New START includes them.

U.S. missile defense options may need to be protected, particularly given Russia's long-standing goal to veto U.S. missile defense and the administration's apparent commitment to further negotiations. Toward this end, the Senate could direct the President to make more clear to Russia than now is reflected in the pertinent U.S. Unilateral Statement that the United States recognizes no treaty limits on missile defense beyond those in Article 5, paragraph 3, and that the United States will not agree to any further negotiated limits of any kind on U.S. missile defense options. In addition, New START establishes the Bilateral Consultative Commission (BCC) and gives it broad authority to ''agree upon such additional measures as may be necessary to improve the viability and effectiveness of the Treaty.''[25] Missile defense

[23] Secretary Ellen Tauscher, House Armed Service Committee, *Hearing, U.S. Nuclear Weapons Policy and Force Structure*, April 15, 2010, p. 19.

[24] Secretary Ellen Tauscher, *Press Briefing*, ''New START Treaty and the Obama administration's Nonproliferation Agenda,'' March 29, 2010, available at, www.state.gov/t/us/139205.htm.

[25] New START Treaty, Protocol, Part 6, Section 1, paragraph b.

is part of the subject matter of the treaty and its protocol, and the BCC is authorized specifically to discuss the unique distinguishing features of missile defense launchers and interceptors and make ''viability and effectiveness'' changes in the treaty. These could be done in secret and without Senate advice and consent.[26] Such institutions are not supposed to make substantive changes in the terms of treaties. But, START I's Joint Compliance and Inspection Commission (JCIC) served with a more limited scope, and appears to have made significant changes in START's terms without Senate advice and consent. This past precedent is not comforting in this regard.

The Senate might find it particularly valuable to insist on continuous and complete visibility into the ongoing workings of the BCC. This could be particularly helpful to ensure that no new limits on missile defense emerge, without Senate advice and consent, from the BCC's potentially secret proceedings.

Thank you.

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The following entries provide excerpts relevant to nuclear weapons and missile defense policy from the Senate and the House versions of the National Defense Authorization Act (NDAA). The NDAA is perhaps the most important regularly passed law with far-reaching implications for defense and national security policy. Both versions signal congressional concerns over the deteriorating strategic environment, bipartisan support for nuclear weapons modernization, and the importance of regional missile defenses.

Document No. 3. FY 2024 National Defense Authorization Act Passed by the U.S. House of Representatives, Select Excerpts.

SEC. 1234. PROHIBITION ON NEW START TREATY INFORMATION SHARING.

(a) PROHIBITION.—None of the funds authorized to be appropriated by this Act or otherwise made available for fiscal year 2024 for the Department of Defense may be used to provide the Russian Federation with notifications as required by the New START Treaty.

(b) WAIVER.—The Secretary of Defense may waive the prohibition in subsection (a) on a case-by-case basis if the Secretary of Defense certifies to the appropriate congressional committees in writing, 30 days in advance of exercising such a waiver, that—

(1) the waiver is in the national security interest of the United States; and

(2) the Russian Federation is providing similar information to the United States as required by the New START Treaty.

[26] New START Treaty, Article XV, paragraph 2; New START Treaty, Protocol, Part 6, Section 5.

SEC. 1631. ESTABLISHMENT OF MAJOR FORCE PROGRAM FOR NUCLEAR COMMAND, CONTROL, AND COMMUNICATIONS PROGRAMS.

Chapter 9 of title 10, United States Code, is amended by adding at the end the following new section:

''§ 239e. Nuclear command, control, and communications: major force program and budget assessment

(a) ESTABLISHMENT OF MAJOR FORCE PROGRAM.

The Secretary of Defense shall establish a unified major force program for nuclear command, control, and communications programs pursuant to section 222(b) of this title to prioritize such programs in accordance with the requirements of the Department of Defense and national security.

SEC. 1632. REPEAL OF REQUIREMENT FOR REVIEW OF NUCLEAR DETERRENCE POSTURES.

Section 1753 of the National Defense Authorization Act for Fiscal Year 2020 (Public Law 116–92; 133 Stat. 1852) is repealed.

SEC. 1633. RETENTION OF CAPABILITY TO REDEPLOY MULTIPLE INDEPENDENTLY TARGETABLE REENTRY VEHICLES.

Section 1057 of the National Defense Authorization Act for Fiscal Year 2014 (Public Law 113–66; 10 U.S.C. 495 note) is amended by inserting ''and Sentinel'' after ''Minuteman III'' both places it appears.

SEC. 1634. PILOT PROGRAM ON DEVELOPMENT OF REENTRY VEHICLES AND RELATED SYSTEMS.

(a) IN GENERAL.—The Secretary of the Air Force may carry out a pilot program, to be known as the ''Reentry Vehicle Flight Test Bed Program'', to assess the feasibility of providing regular flight test opportunities that support the development of reentry vehicles to—

(1) facilitate technology upgrades tested in a realistic flight environment;

(2) provide an enduring, high-cadence test bed to mature technologies for planned reentry vehicles; and

(3) transition technologies developed under other programs, prototype projects, or research and development programs related to long-range ballistic or hypersonic strike missiles.

SEC. 1635. INTEGRATED MASTER SCHEDULE FOR THE SENTINEL MISSILE PROGRAM OF THE AIR FORCE.

(a) DOCUMENTATION REQUIRED.—Not later than 30 days after the date of the enactment of this Act, the Under Secretary of Defense for Acquisition and Sustainment, acting through the Assistant Secretary of the Air Force for Acquisition, Technology, and

Logistics, shall submit to the congressional defense committees an approved integrated master schedule for the Sentinel missile program of the Air Force.

(b) QUARTERLY BRIEFINGS.—Not later than 180 days after the date of the enactment of this Act, an on a quarterly basis thereafter until January 1, 2029, the Secretary of the Air Force shall provide to the congressional defense committees a briefing on the progress of the Sentinel missile program.

(c) NOTIFICATION.—Not later than 30 days after the Secretary of the Air Force becomes aware of an event that is expected to delay, by more than one fiscal quarter, the date on which Sentinel missile achieves initial operational capability (as set forth in the integrated master schedule submitted under subsection (a)), the Secretary shall—

(1) submit notice of such delay to the congressional defense committees; and

(2) include with such notice—

(A) an explanation of the factors causing such delay; and

(B) a plan to prevent or minimize the duration of such delay.

SEC. 1637. NOTIFICATION OF DECISION TO DELAY STRATEGIC DELIVERY SYSTEM TEST EVENT.

(a) NOTIFICATION AND REPORT.—Not later than five days after the Secretary of Defense makes a decision to delay a scheduled test event for a strategic delivery system, the Secretary shall submit to the congressional defense committees written notice of such decision together with a report on the decision.

SEC. 1638. PROHIBITION ON REDUCTION OF THE INTERCONTINENTAL BALLISTIC MISSILES OF THE UNITED STATES.

(a) PROHIBITION.—Except as provided in subsection (b), none of the funds authorized to be appropriated by this Act or otherwise made available for fiscal year 2024 for the Department of Defense may be obligated or expended for the following, and the Department may not otherwise take any action to do the following:

(1) Reduce, or prepare to reduce, the responsiveness or alert level of the intercontinental ballistic missiles of the United States.

(2) Reduce, or prepare to reduce, the quantity of deployed intercontinental ballistic missiles of the United States to a number less than 400.

(b) EXCEPTION.—The prohibition in subsection (a) shall not apply to any of the following activities:

(1) The maintenance or sustainment of intercontinental ballistic missiles.

(2) Ensuring the safety, security, or reliability of intercontinental ballistic missiles.

(3) Facilitating the transition from the Minuteman III intercontinental ballistic missile to the Sentinel intercontinental ballistic missile (previously referred to as the ‘‘ground-based strategic deterrent weapon’’).

SEC. 1639. LIMITATION ON AVAILABILITY OF FUNDS FOR RETIREMENT OF B83–1 NUCLEAR GRAVITY BOMBS.

(a) LIMITATION ON USE OF FUNDS.—Except as provided by subsection (b), none of the funds authorized to be appropriated by this Act or otherwise made available for fiscal year 2024 for the Department of Defense or the Department of Energy for the deactivation, dismantlement, or retirement of the B83–1 nuclear gravity bomb may be obligated or expended to deactivate, dismantle, or retire more than 25 percent of the B83–1 nuclear gravity bombs that were in the active stockpile as of September 30, 2022, until a period of 90 days has elapsed following the date on which the Secretary of Defense submits to the Committees on Armed Services of the Senate and the House of Representatives the study required under section 1674(a) of the James M. Inhofe National Defense Authorization Act for Fiscal Year 2023 (Public Law 117–263).

(b) EXCEPTION.—The limitation on the use of funds under subsection (a) shall not apply to the deactivation, dismantling, or retirement of B83–1 nuclear gravity bombs for the purpose of supporting safety and surveillance, sustainment, life extension, or modification programs for the B83–1 or other weapons currently in, or planned to become part of, the nuclear weapons stockpile of the United States.

SEC. 1641. ESTABLISHMENT OF NUCLEAR SEA-LAUNCHED CRUISE MISSILE PROGRAM.

(a) ESTABLISHMENT.—Not later than 30 days after the date of the enactment of this Act, the Secretary of Defense shall establish and commence implementation of a nuclear sea-launched cruise missile program (referred to in this section as the ''SLCM-N Program'').

(b) P URPOSES.—The purposes of the SLCM-N Program shall be—

(1) to provide the United States with a needed nonstrategic nuclear capability and make that capability available to the Department of Defense;

(2) to strengthen tailored deterrence of regional adversaries; and

(3) to assure allies and partners of the United States of the Nation's commitment to their defense.

(c) ACTIVITIES.—Under the SLCM-N Program, the Secretary of Defense shall—

(1) accelerate and conclude research and development activities for nuclear sea-launched cruise missiles and transition such missiles to the procurement and fielding phases;

(2) conduct a concept of operations study to inform the fielding of nuclear sea-launched cruise missiles aboard platforms identified by the Navy, including the Virginia class submarine;

(3) designate the nuclear sea-launched cruise missile as an Acquisition Category ID (ACAT ID) program in accordance with Department of Defense Instruction 5000.85, titled ''Major Capability Acquisition'', dated November 4, 2021; and

(4) ensure that the missiles developed under the program achieve initial operational capability not later than September 30, 2031.

(d) WARHEAD DEVELOPMENT.—Not later than 30 days after the date of enactment of this Act, the Administrator for Nuclear Security shall initiate phase 6.2 of the nuclear sea-launched cruise missile warhead designated W80–4 ALT.

(e) RULE OF CONSTRUCTION.—Nothing in this section shall be construed to supersede or otherwise alter the organizational relationships and responsibilities of departments and agencies of the Federal Government regarding oversight and management of ongoing activities relating to the nuclear sea-launched cruise missile.

SEC. 1642. QUARTERLY REPORTS ON PROGRESS OF SEA-LAUNCHED CRUISE MISSILE–NUCLEAR PROGRAM.

(a) IN GENERAL.—Not later than 15 days after the last day of each fiscal quarter until the termination date specified in subsection (c)—

(1) the Secretary of the Navy shall submit to the congressional defense committees a report on the execution of funding appropriated for the Sea-Launched Cruise Missile–Nuclear program; and

(2) the Administrator for Nuclear Security shall submit to the congressional defense committees a report on the execution of funding appropriated for the W80-4 nuclear warhead variant under development for such program.

SEC. 1643. CONGRESSIONAL NOTIFICATION OF NUCLEAR COOPERATION BETWEEN RUSSIA AND CHINA.

If the Commander of United States Strategic Command determines, after consultation with the Director of the Defense Intelligence Agency, that militarily significant cooperation between the Russian Federation and the People's Republic of China related to nuclear or strategic capabilities is likely to occur or has likely occurred, the Commander shall submit to the congressional defense committees a notification of such determination that includes—

(1) a description of the military significant cooperation; and

(2) an assessment of the implication of such cooperation for the United States with respect to nuclear deterrence, extended deterrence, assurance, and defense.

SEC. 1644. REPORT ON ACCELERATION OF NUCLEAR MODERNIZATION PRIORITIES.

The Under Secretary of Defense for Acquisition and Sustainment shall submit to the congressional defense committees a report that includes an identification of any additional authorities and reforms necessary to allow the Department of Defense to accelerate its current nuclear modernization priorities.

SEC. 1662. NATIONAL MISSILE DEFENSE POLICY.

Subsection (a) of section 1681 of the National Defense Authorization Act for Fiscal Year 2017 (Public Law 114–328; 10 U.S.C. 4205 note) is amended to read as follows:

(a) POLICY.—It is the policy of the United States—

(1) to research, develop, test, procure, deploy, and sustain, with funding subject to the annual authorization of appropriations for National Missile Defense, systems that

provide effective, layered missile defense capabilities to defeat increasingly complex missile threats in all phases of flight; and

(2) to maintain a credible nuclear capability as the foundation of strategic deterrence.''.

SEC. 1663. PROGRAMS TO ACHIEVE INITIAL AND FULL OPERATIONAL CAPABILITIES FOR THE GLIDE PHASE INTERCEPTOR PROGRAM.

(a) PROGRAM TO ACHIEVE INITIAL OPERATIONAL CAPABILITY .—

(1) IN GENERAL.—The Secretary of Defense, acting through the Director of the Missile Defense Agency and in coordination with the officials specified in subsection (d), shall carry out a program to achieve, by not later than December 31, 2029, an initial operational capability for the Glide Phase Interceptor as described in paragraph (2).

(2) REQUIRED CAPABILITIES.—For purposes of paragraph (1), the Glide Phase Interceptor program shall be considered to have achieved initial operational capability if—

(A) the Glide Phase Interceptor is capable of defeating, in the glide phase, any endo-atmospheric hypersonic vehicles that are known to the Department of Defense and fielded as of the date of the enactment of this Act; and

(B) not fewer than 12 Glide Phase Interceptor missiles have been fielded.

(b) PROGRAM TO ACHIEVE FULL OPERATIONAL CAPABILITY.—

(1) PROGRAM REQUIRED.—The Secretary of Defense, acting through the Director of the Missile Defense Agency and in coordination with the officials specified in subsection (d), shall carry out a program to achieve, by not later than December 31, 2032, full operational capability for the Glide Phase Interceptor as described in paragraph (2).

(2) REQUIRED CAPABILITIES.—For purposes of paragraph (1), the Glide Phase Interceptor program shall be considered to have achieved full operational capability if—

(A) the Glide Phase Interceptor is capable of defeating, in the glide phase, any endo-atmospheric hypersonic vehicles—

(i) that are known to the Department of Defense and fielded as of the date of the enactment of this Act; and

(ii) that the Department of Defense expects to be fielded before the end of 2040;

(B) not fewer than 24 Glide Phase Interceptor missiles have been fielded; and

(C) the Glide Phase Interceptor has the ability to be operated collaboratively with space-based or terrestrial sensors that the Department of Defense expects to be deployed before the end of 2032.

SEC. 1664. RESEARCH AND ANALYSIS ON MULTIPOLAR DETERRENCE AND ESCALATION DYNAMICS.

(a) IN GENERAL.—Not later than 90 days after the date of the enactment of this Act, the Secretary of Defense shall seek to enter into an agreement with a university affiliated research center with expertise in strategic deterrence to conduct research and analysis on multipolar deterrence and escalation dynamics.

(b) ELEMENTS.—The research and analysis conducted under subsection (a) shall include assessment of the following:

(1) Implications for strategic deterrence and allied assurance given the emergence of a second near-peer nuclear power.

(2) Potential alternative conventional, strategic, and nuclear force structures to optimize deterrence of two near-peer nuclear powers.

(3) The contribution made by countervailing nonstrategic capabilities to strategic deterrence.

(4) Escalation patterns arising from Russia's Strategic Operations to Destroy Critically Important Targets operational concept and response options for the United States.

(5) Multilateral efforts that could contribute to multipolar strategic deterrence and escalation dynamics.

(6) Capabilities and operations sufficient to assure European and Pacific allies.

SEC. 1665. LIMITATION ON USE OF FUNDS PENDING SUBMISSION OF REPORT ON MISSILE DEFENSE INTERCEPTOR SITE.

Of the funds authorized to be appropriated by this Act for fiscal year 2024 for the Office of the Under Secretary of Defense for Policy, for travel, not more than 80 percent may be obligated or expended until the date on which the Secretary of Defense submits to the congressional defense committees the report on the requirement for a missile defense interceptor site in the contiguous United States required by section 1665 of the James M. Inhofe National Defense Authorization Act for Fiscal Year 2023 (Public Law 117– 263).

SEC. 1666. REPORT ON HAWAII MISSILE DEFENSE.

(a) FINDINGS.—Congress makes the following findings:

(1) The budget justification materials submitted by the Secretary of Defense support of the budget of the President for fiscal year 2023 effectively cancelled all activities for the Homeland Defense Radar—Hawaii due to ongoing reevaluation of the missile defense posture and sensor architecture in the area of responsibility of the United States Indo-Pacific Command.

(2) The budget justification materials submitted by the Secretary of Defense support of the budget of the President for fiscal year 2024 include $40,000,000 for the Hawaii Air Route Surveillance Radar Version 4 (ARSR-4), which is intended to ''address Department of Defense capability gaps driven by new threats and provide dual use for Hawaii for Air Traffic Control and weather monitoring''.

(3) Briefings provided by the Department of Defense indicated a very limited viewing area for this proposed radar, which does not support adequate warning or discrimination of threats, and the request for ARSR-4 does not include any effort associated with integrating the radar to the overall missile defense sensor architecture to support increased defensive capabilities for Hawaii.

(b) REPORT.—Not later than 90 days after the date of the enactment of this Act, the Secretary of Defense shall submit to the congressional defense committees a report on

the findings of the review conducted by the Secretary of the integrated air and missile defense sensor architecture of the United States Indo-Pacific Command, and specific programs of record which support additional sensor coverage for the state of Hawaii. Such report shall include an identification of—

(1) the investments that should be made to increase the detection of nonballistic threats and improve the discrimination of ballistic missile threats, particularly with regards to Hawaii; and

(2) investments to integrate any sensors into the missile defense system to assist with protection of the State.

SEC. 1667. REPORT ON POTENTIAL ENHANCEMENTS TO AEGIS ASHORE SITES IN POLAND AND ROMANIA.

(a) IN GENERAL.—Not later than 180 days after the date of the enactment of this Act, the Director of the Missile Defense Agency shall submit to the congressional defense committees a report on potential enhancements to Aegis Ashore sites in Poland and Romania.

(b) ELEMENTS.—The report required by subsection (a) shall include—

(1) an assessment of the feasibility and advisability of—

(A) enhancing associated sensor systems to detect a broader array of missile threats;

(B) fielding a mixed fleet of defensive interceptor systems; and

(C) physical hardening of the facilities;

(2) a funding profile, by year, detailing the complete costs associated with any options assessed under paragraph (1); and

(3) such other information as the Director considers appropriate.

SEC. 1669. POLICY AND REPORT ON NORTH ATLANTIC TREATY ORGANIZATION EFFECTIVE INTEGRATED AIR AND MISSILE DEFENSE CAPABILITIES IN EUROPE.

(a) POLICY.—It is the policy of the United States to contribute integrated air and missile defense capabilities, such as forward deployed AN/TPY-2 radars and Aegis Ashore sites, to the North Atlantic Treaty Organization to defeat increasingly complex threats to the United States Armed Forces and the military forces of member countries of the North Atlantic Treaty Organization in Europe.

(b) REPORT.—

(1) NATO REPORT.—Not later than 270 days after the date of the enactment of this Act, the Secretary of Defense shall provide to the North Atlantic Treaty Organization Conference of National Armaments Directors for Ballistic Missile Defense a report containing options to improve the existing integrated air and missile defense architecture to detect, track, and defend against increasingly complex adversarial missile threats to the territory of member countries of the North Atlantic Treaty Organization and deployed members of the United States Armed Forces.

SEC. 1670. INDEPENDENT ANALYSIS OF SPACE-BASED MISSILE DEFENSE CAPABILITY.

(a) IN GENERAL.—Not later than 90 days after the date of the enactment of this Act, the Secretary of Defense, acting through the Director of the Missile Defense Agency, shall seek to enter into an arrangement with an appropriate federally funded research and development center to update the study referred to in subsection (c).

(b) ELEMENTS.—The assessment conducted for purposes of updating the study shall, at a minimum, include analysis of the following matters:

(1) The extent to which space-based capabilities would address current and evolving missile threats to the United States and United States deployed forces.

(2) The maturity levels of technologies necessary for an operational space-based missile defense capability.

(3) Potential options for developing, fielding, operating, and sustaining a space-based missile defense capability, including estimations of cost and assessments of effectiveness for different architectures.

(4) The technical risks, knowledge gaps, or other challenges associated with the development and operation of space-based interceptor capabilities.

(5) Estimated costs for developing and deploying such capability.

(6) The ability of the Department of Defense to protect and defend on-orbit space-based missile defense capabilities, including any recommendations for resiliency requirements that would be needed to ensure the effectiveness of such capabilities.

SEC. 3118. INTEGRATED MASTER SCHEDULE FOR THE FUTURE-YEARS NUCLEAR SECURITY PROGRAM.

(a) IN GENERAL.—Not later than March 31, 2024, the Administrator for Nuclear Security shall develop an integrated master schedule for the future-years nuclear security program that incorporates all programs of record for nuclear warhead development, including pit production activities, production, and sustainment at the National Nuclear Security Administration.

SEC. 3119. PROHIBITION ON AVAILABILITY OF FUNDS TO RECONVERT OR RETIRE W76–2 WARHEADS.

(a) PROHIBITION.—Except as provided in subsection (b), none of the funds authorized to be appropriated by this Act or otherwise made available for fiscal year 2024 for the National Nuclear Security Administration may be obligated or expended to reconvert or retire a W76–2 warhead.

(b) WAIVER.—The Administrator for Nuclear Security may waive the prohibition under subsection (a) if the Administrator, in consultation with the Secretary of Defense and the Chairman of the Joint Chiefs of Staff, certifies in writing to the congressional defense committees that—

(1) Russia and China do not possess naval capabilities similar to the W76–2 warhead in the active stockpiles of the respective countries; and

(2) the Department of Defense does not have a valid military requirement for the W76–2 warhead.

SEC. 3132. PLAN FOR DOMESTIC ENRICHMENT CAPABILITY TO SATISFY DEPARTMENT OF DEFENSE URANIUM REQUIREMENTS.

(a) REPORT.—Not later than 120 days after the date of the enactment of this Act, the Administrator of the National Nuclear Security Administration shall submit to the congressional defense committees a report that contains a plan to establish a domestic enrichment capability dedicated to solely satisfying the requirements of the Department of Defense for highly enriched uranium, high-assay low enriched uranium, low enriched uranium, and depleted uranium. Such plan shall include—

(1) a description of mixes and amounts of enriched uranium expected to be necessary between the date of the enactment of this Act and 2060 to meet the requirements of the Department of Defense;

(2) key milestones, steps, and policy decisions required to achieve the domestic defense enrichment capability;

(3) the dates by which such key milestones need to be achieved;

(4) a funding profile, broken down by project and sub-project, for obtaining such capability;

(5) a cost profile to establish such capability by the date that is two years before the date on which such capacity is needed;

(6) a plan for any changes to the workforce of the Administration that are necessary to establish such capability;

(7) a description of any changes in the requirement of the Department of Defense for highly enriched uranium due to AUKUS; and

(8) any other elements or information the Administrator determines appropriate.

(b) ANNUAL CERTIFICATION REQUIREMENT.—

(1) IN GENERAL.—Not later than February 1 of each year after the year during which the report required by subsection (a) is submitted until the date specified in paragraph (2), the Administrator shall submit to the congressional defense committees a certification that—

(A) the Administration is in compliance with the plan and milestones contained in the report; or

(B) the Administration is not in compliance with such plan or milestones, together with—

(i) a description of the nature of the non-compliance;

(ii) the reasons for the non-compliance; and

(iii) a plan to achieve compliance.

SEC. 3133. INDEPENDENT ASSESSMENT OF PLUTONIUM PIT AGING MILESTONES AND PROGRESS.

(a) IN GENERAL.—The Administrator for Nuclear Security shall seek to enter into an arrangement with the scientific advisory group known as JASON to conduct an assessment of the report entitled ''Research Program Plan for Plutonium and Pit Aging'', published by the National Nuclear Security Administration in September 2021, and the work undertaken as a result of such report.

(b) ELEMENTS.—The assessment required under subsection (a) shall contain the following:

(1) A determination regarding whether the report referred to in such subsection meets the criteria
for appropriate pit aging research described by JASON in its 2019 Pit Aging Letter Report (JSR-19-2A).

(2) Information relating to any improvements or additions to such report.

(3) A review of initial data collected by the National Laboratories included in such report to determine the possibility of updating the expected lifetimes of plutonium pits, including, if such updates are not possible, an estimate of when such a updates would be possible.

Document No. 4. FY 2024 National Defense Authorization Act Passed by the U.S. Senate, Select Excerpts.

SEC. 1250. STRATEGY FOR IMPROVING POSTURE OF GROUND-BASED THEATER-RANGE MISSILES IN INDO-PACIFIC REGION

(a) IN GENERAL.—Not later than 180 days after the date of the enactment of this Act, the Secretary of Defense shall submit to the congressional defense committees a strategy for improving the posture of ground-based theater-range missile capabilities in the Indo-Pacific region.

(b) ELEMENTS.—The strategy required by subsection (a) shall include the following:

(1) An assessment of gaps in conventional ground-based theater-range precision strike capabilities in the area of responsibility of the United States Indo-Pacific Command.

(2) An identification of military requirements for conventional ground-based theater-range missile systems, including range, propulsion, payload, launch platform, weapon effects, and other operationally relevant factors in the Indo-Pacific region.

(3) An identification of prospective basing locations in the area of responsibility of the United States Indo-Pacific Command, including an articulation of the bilateral agreements necessary to support such deployments.

(4) A description of operational concepts for employment, including integration with short-range and multi-domain fires, in denial operations in the Western Pacific.

(5) An identification of prospective foreign partners and institutional mechanisms for co-development and co-production of new theater-range conventional missiles.

(6) An assessment of the cost and schedule of developmental ground-based theater-range missiles programs, including any potential cost-sharing arrangements with foreign partners through existing institutional mechanisms.
(7) The designation of a theater component commander or joint task force commander within the United States Indo-Pacific Command responsible for developing a theater missile strategy.
(8) Any other matter the Secretary considers relevant.

SEC. 1511. PROHIBITION ON REDUCTION OF THE INTER-CONTINENTAL BALLISTIC MISSILES OF THE UNITED STATES.

(a) PROHIBITION.—Except as provided in subsection (b), none of the funds authorized to be appropriated by this Act for fiscal year 2024 for the Department of Defense may be obligated or expended for the following, and the Department may not otherwise take any action to do the following:
(1) Reduce, or prepare to reduce, the responsiveness or alert level of the intercontinental ballistic missiles of the United States
(2) Reduce, or prepare to reduce, the quantity of deployed intercontinental ballistic missiles of the United States to a number less than 400.
(b) EXCEPTION .—The prohibition in subsection (a) shall not apply to any of the following activities:
(1) The maintenance, sustainment, or replacement of intercontinental ballistic missiles.
(2) Ensuring the safety, security, or reliability of intercontinental ballistic missiles.

SEC. 1512. SENTINEL INTERCONTINENTAL BALLISTIC MISSILE PROGRAM SILO ACTIVITY.

The LGM–35A Sentinel intercontinental ballistic missile program shall refurbish and make operable not fewer than 150 silos for intercontinental ballistic missiles at each of the following locations:
(1) Francis E. Warren Air Force Base, Laramie County, Wyoming.
(2) Malmstrom Air Force Base, Cascade County, Montana.
(3) Minot Air Force Base, Ward County, North Dakota.

SEC. 1513. MATTERS RELATING TO THE ACQUISITION AND DEPLOYMENT OF THE SENTINEL INTERCONTINENTAL BALLISTIC MISSILE WEAPON SYSTEM.

(a) AUTHORITY FOR MULTI -YEAR PROCUREMENT.—
(b) Subject to section 3501 of title 10, United States Code, the Secretary of the Air Force may enter into one or more multi-year contracts for the procurement of up to 659 Sentinel intercontinental ballistic missiles and for sub-systems associated with such missiles.
(c) AUTHORITY FOR ADVANCE PROCUREMENT.—The Secretary of the Air Force may enter into one or more contracts, beginning in fiscal year 2024, for advance procurement associated with the Sentinel intercontinental ballistic missiles for which authorization to

enter into a multi-year procurement contract is provided under subsection (a), and for subsystems associated with such missiles in economic order quantities when cost savings are achievable.

(d) CONDITION FOR OUT-YEAR CONTRACT PAYMENTS.—A contract entered into under subsection (a) shall provide that any obligation of the United States to make a payment under the contract for a fiscal year after fiscal year 2024 is subject to the availability of appropriations or funds for that purpose for such later fiscal year.

SEC. 1514. PLAN FOR DECREASING THE TIME TO UPLOAD ADDITIONAL WARHEADS TO THE INTERCONTINENTAL BALLISTIC MISSILE FLEET.

(a) IN GENERAL.—The Secretary of the Air Force, in coordination with the Commander of the United States Strategic Command, shall develop a plan to decrease the amount of time required to upload additional warheads to the intercontinental ballistic missile force.

(b) ELEMENTS.—The plan required by subsection (a) shall include the following:

(1) An assessment of the storage capacity of weapons storage areas and any weapons generation facilities at covered bases, including the capacity of each covered base to store additional warheads.

(2) An assessment of the current nuclear warhead transportation capacity of the National Nuclear Security Administration and associated timelines for transporting additional nuclear warheads to covered bases.

(3) An evaluation of the capacity of the maintenance squadrons and security forces at covered bases and the associated timelines for adding warheads to the intercontinental ballistic missile force.

(4) An identification of actions that would address any identified limitations and increase the readiness of the intercontinental ballistic missile force to upload additional warheads.

(5) An evaluation of courses of actions to upload additional warheads to a portion of the intercontinental ballistic missile force.

(6) An assessment of the feasibility and advisability of initiating immediate deployment of W78 warheads to a single wing of the intercontinental ballistic missile force as a hedge against delay of the LGM-35A Sentinel intercontinental ballistic missile.

(7) A funding plan for carrying out actions identified in paragraphs (4) and (5).

SEC. 1516. LONG-TERM SUSTAINMENT OF SENTINEL ICBM GUIDANCE SYSTEM.

(a) IN GENERAL.—Prior to issuing a Milestone C decision for the program to develop the LGM–35A Sentinel intercontinental ballistic missile system (referred to in this section as the ‘‘Sentinel’’), the Under Secretary of Defense for Acquisition and Sustainment shall certify to the congressional defense committees that there is a long-term capability in place to maintain and modernize the guidance system of the Sentinel over the full life cycle of the Sentinel.

(b) CERTIFICATION ELEMENTS.—The certification described in subsection (a) shall include a list of capabilities to maintain and advance—

(1) accelerometers;

(2) gyroscopes;

(3) guidance computers;

(4) specialized mechanical and retaining assemblies;

(5) test equipment; and

(6) such other components to ensure the guidance system will be maintained and modernized over the life of the Sentinel.

SEC. 1518. MATTERS RELATING TO THE NUCLEAR-ARMED SEA-LAUNCHED CRUISE MISSILE.

(a) PROGRAM TREATMENT.—Not later than 90 days after the date of the enactment of this Act, the Under Secretary of Defense for Acquisition and Sustainment shall—

(1) establish a program for the development of a nuclear-armed, sea-launched cruise missile capability;

(2) designate such program as an acquisition category 1D program, to be managed consistent with the provisions of Department of Defense Instruction 5000.85 (relating to major capability acquisition);

(3) initiate a nuclear weapon project for the W80-4 ALT warhead, at phase 6.2 of the phase 6.X process (relating to feasibility study and down select), to align with the program described in paragraph (1);

(4) submit to the National Nuclear Security Administration a formal request, through the Nuclear Weapons Council, for participation in and support for the W80-4 ALT warhead project; and

(5) designate the Department of the Navy as the military department to lead the W80-4 ALT nuclear weapon program for the Department of Defense.

(b) INITIAL OPERATIONAL CAPABILITY.—The Secretary of Defense and the Administrator for Nuclear Security shall take such actions as necessary to ensure the program described in subsection (a) achieves initial operational capability, as defined jointly by the Secretary of the Navy and the Commander of United States Strategic Command, by not later than fiscal year 2035.

(c) LIMITATION.—The Under Secretary of Defense for Acquisition and Sustainment may not approve a Full Rate Production Decision or authorize Full Scale Production (as those terms are defined in the memorandum of the Nuclear Weapons Council entitled ''Procedural Guidelines for the Phase 6.X Process'' and dated April 19, 2000), for the W80-4 ALT program.

SEC. 1519. OPERATIONAL TIMELINE FOR STRATEGIC AUTOMATED COMMAND AND CONTROL SYSTEM.

(a) IN GENERAL.—The Secretary of the Air Force shall develop a replacement of the Strategic Automated Command and Control System (SACCS) by not later than the date

that the LGM–35A Sentinel intercontinental ballistic missile program reaches initial operational capability.

SEC. 1520. AMENDMENT TO ANNUAL REPORT ON THE PLAN FOR THE NUCLEAR WEAPONS STOCKPILE, NUCLEAR WEAPONS COMPLEX, NUCLEAR WEAPONS DELIVERY SYSTEMS, AND NUCLEAR WEAPONS COMMAND AND CONTROL SYSTEMS.

Section 492a of title 10, United States Code, is amended by adding at the end the following new subsection:

(d) INDEPENDENT ASSESSMENT BY UNITED STATES STRATEGIC COMMAND.—

(1) IN GENERAL .—Not later than 150 days after the submission to Congress of the budget of the President under section 1105(a) of title 31, United States Code, the Commander of United States Strategic Command shall complete an independent assessment of the sufficiency of the execution of acquisition, construction, and recapitalization programs of the Department of Defense and the National Nuclear Security Administration to modernize the nuclear forces of the United States and meet current and future deterrence requirements.

(2) CONTENTS.—The assessment required under paragraph (1) shall evaluate the ongoing execution of modernization programs associated with—

(A) the nuclear weapons design, production, and sustainment infrastructure;

(B) the nuclear weapons stockpile;

(C) the delivery systems for nuclear weapons; and

(D) the nuclear command, control, and communications system.

SEC. 1537. INTEGRATED AIR AND MISSILE DEFENSE ARCHITECTURE FOR THE INDO-PACIFIC REGION.

(a) STRATEGY REQUIRED.—The Commander of United States Indo-Pacific Command shall, in coordination with the Under Secretary of Defense for Acquisition and Sustainment, the Commander of United States Northern Command, the Director of the Missile Defense Agency, and the Director of the Joint Integrated Air and Missile Defense Organization, develop a comprehensive strategy for developing, acquiring, and operationally establishing an integrated air and missile defense architecture for the United States Indo-Pacific Command area of responsibility.

(b) STRATEGY COMPONENTS.—At a minimum, the strategy required by subsection (a) shall address the following:

(1) The sensing, tracking, and intercepting capabilities required to address the full range of credible missile threats to—

(A) the Hawaiian Islands;

(B) the island of Guam and other islands in the greater Marianas region, as determined necessary by the Commander of United States Indo-Pacific Command;

(C) other United States territories within the area of responsibility of United States Indo-Pacific Command; and

(D) United States forces deployed within the territories of other nations within such area of responsibility.

(2) The appropriate balance of missile detection, tracking, defense, and defeat capabilities within such area of responsibility.

(3) A command and control network for integrating missile detection, tracking, defense, and defeat capabilities across such area of responsibility.

(4) A time-phased scheduling construct for fielding the constituent systems that will comprise the integrated air and missile defense architecture for such area of responsibility.

(c) ANNUAL REPORT.—

(1) IN GENERAL .—Not later than March 15, 2024, and not less frequently than once each year thereafter, the Commander of United States Indo-Pacific Command shall, in coordination with the Under Secretary of Defense for Acquisition and Sustainment, the Commander of United States Northern Command, the Director of the Missile Defense Agency, and the Director of the Joint Integrated Air and Missile Defense Organization, submit to the congressional defense committees an annual report outlining the following with regard to the strategy developed pursuant to subsection (a):

(A) The activities conducted and progress made in developing and implementing the strategy over the previous calendar year.

(B) The planned activities for developing and implementing the strategy in the upcoming year.

(C) A description of likely risks and impediments to the successful implementation of the strategy.

SEC. 1538. MODIFICATION OF NATIONAL MISSILE DEFENSE POLICY.

Section 1681(a) of the of the National Defense Authorization Act for fiscal year 2017 (Public Law 114–328; 10 U.S.C. 4205 note) is amended to read as follows:

(a) POLICY.—It is the policy of the United States to—

(1) maintain and improve, with funding subject to the annual authorization of appropriations and the annual appropriation of funds for National Missile Defense—

(A) an effective, layered missile defense system capable of defending the territory of the United States against the developing and increasingly complex missile threat; and

(B) an effective regional missile defense system capable of defending the allies, partners, and deployed forces of the United States against increasingly complex missile threats; and

(2) rely on nuclear deterrence to address more sophisticated and larger quantity near-peer intercontinental missile threats to the homeland of the United States.''.

SEC. 1617. SECURITY ENHANCEMENTS FOR THE NUCLEAR COMMAND, CONTROL, AND COMMUNICATIONS NETWORK.

(a) REQUIRED ESTABLISHMENT OF CROSS-FUNCTIONAL TEAM.—

(1) IN GENERAL.—Not later than 180 days after the date of the enactment of this Act, the Secretary of Defense shall establish a cross-functional team, in accordance with section 911(c) of the National Defense Authorization Act for Fiscal Year 2017 (Public Law 114–328; 10 U.S.C. 111 note), to develop and direct the implementation of a threat-driven cyber defense construct for systems and networks that support the nuclear command, control, and communications (commonly referred to as ''NC3'') mission.

(2) PARTICIPATION IN THE CROSS-FUNCTIONAL TEAM.—The Secretary shall ensure that each of the military departments, the Defense Information Systems Agency, the National Security Agency, United States Cyber Command, and the Nuclear Command, Control, and Communications Enterprise Center of United States Strategic Command provide staff for the cross-functional team.

(3) SCOPE.—The cross-functional team shall work to enhance the cyber defense of the nuclear command, control, and communications network during the period beginning on the date of the enactment of this Act and ending on October 31, 2028, or a subsequent date as the Secretary may determine.

(b) REQUIRED CONSTRUCT AND PLAN OF ACTION AND MILESTONES .—Not later than one year after the date of the enactment of this Act, the head of the cross-functional team established pursuant to subsection (a)(1) shall develop a cyber defense construct and associated plans of actions and milestones to enhance the security of the systems and networks that support the nuclear command, control, and communications mission that are based on—

(1) the application of the principles of the Zero Trust Architecture approach to security;

(2) analysis of appropriately comprehensive endpoint and network telemetry data; and

(3) control capabilities enabling rapid investigation and remediation of indicators of compromise and threats to mission execution.

SEC. 3112. PROHIBITION ON ARIES EXPANSION BEFORE REALIZATION OF 30 PIT PER YEAR BASE CAPABILITY.

Section 4219 of the Atomic Energy Defense Act (5022 U.S.C. 2538a) is amended by—

(a) redesignating subsection (f) as subsection (g); and

(b) inserting after subsection (e) the following new subsection (f):

(f) PROHIBITION ON ARIES EXPANSION BEFORE REALIZATION OF 30 PIT PER YEAR BASE CAPABILITY.—

(1) IN GENERAL.—Unless the Administrator certifies to the congressional defense committees that the base capability to produce 30 plutonium pits per year has been established at Los Alamos National Laboratory, the Advanced Recovery and Integrated Extraction System (commonly known as 'ARIES') spaces at the Plutonium Facility at Technical Area 55 (commonly known as 'PF–4') may not be modified, including by installing additional equipment.

(2) EXCEPTIONS.—Paragraph (1) shall not apply with respect to—

(A) the planning and design of an additional ARIES capability; or

(B) the transfer of the ARIES capability to a location other than PF–4.''.

SEC. 3120. ANALYSES OF NUCLEAR PROGRAMS OF FOREIGN COUNTRIES.

(a) CAPABILITY TO CONDUCT ANALYSES OF NUCLEAR PROGRAMS.—The Secretary of Energy shall, using existing authorities of the Secretary, take such actions as are necessary to improve the ability of the Department of Energy to conduct comprehensive, integrated analyses of the nuclear programs of foreign countries.

(b) ADDITIONAL ANALYSES REQUIRED.—The Secretary shall conduct analyses of—

(1) countries that may pursue nuclear weapons programs in the future;

(2) developing technologies that make it easier for the governments of countries or for non-state actors to acquire nuclear weapons; and

(3) entities that may be developing the ability to supply sensitive nuclear technologies but may not yet have effective programs in place to ensure compliance with export controls.

The featured article for this issue's "From the Archive" section is Herman Kahn's article titled "Arms Control Through Defense." Kahn makes an argument that defenses need not be incompatible with arms control and can play a role in Type I, II, and Graduated Deterrence. The first refers to "the deterrence of a direct attack," the second to "using strategic threats to deter an enemy from engaging in very provocative acts, other than a direct attack on the United States itself," and the third to "acts that are deterred because the potential aggressor is afraid that the defender or others will then take limited actions, military of nonmilitary, that will make the aggression unprofitable."† Despite the contemporary, and still very much current, notions that defenses are destabilizing and anathema to arms control, Kahn convincingly demonstrated the moral, prudential, and national interest superiority of a posture that emphasizes defenses as an important enabler of limits on strategic offensive arms.

ARMS CONTROL THROUGH DEFENSE

Herman Kahn, Hudson Institute, April 1983

Preface

In a televised interview on March 23, 1983, President Reagan made the following announcement:

> I am directing a comprehensive and intensive effort to define a long-term research and development program to begin to achieve our ultimate goal of eliminating the threat posed by strategic nuclear missiles. This could pave the way for arms control measures to eliminate the weapons themselves… Our only purpose—one all people share—is to search for ways to reduce the danger of nuclear war.

The President's coupling of the need for ballistic missile defense (BMD) with the need for negotiated reductions in U.S. and Soviet strategic offensive forces is very similar to an "alternate central war posture" conceptualized at the Hudson Institute in the early 1960s. Labeled "Arms Control Through Defense" (ACD), this posture was the subject of a number of papers written by several Hudson staff members during the following decade. I myself have felt for some twenty years that ACD may be the most desirable set of nuclear weapon policies and programs for the United States to adopt. On political, military, and especially moral grounds, ACD is superior to a range of "deterrence only" and (non-ACD) "war-fighting" postures.

To encourage an informed public discussion of the synergisms between strategic defense and arms control, I decided to reissue (with only minor editing) part of the report* written

† Herman Kahn, *On Thermonuclear War* (Princeton, NJ: Princeton University Press, 1960), p. 126.

* Herman Kahn, *A Paradigm for the 1965-1975 Strategic Debate*, H1-202-FR (Harmon-on-Hudson, N.Y.: Hudson Institute,

by the Hudson staff in 1963, which explains the basic characteristics of the ACD central-war posture. The excerpt from the report is contained in the following pages.

I. Arms Control Through Defense (ACD): Overview

This posture could just as easily be called Defense Through Arms Control. That is to say, one can emphasize that arms control can be made to work because each side procures very adequate active and passive defenses and therefore is willing to trust control measures on strategic offensive forces, or one can emphasize that defense can be made to work because of the limitation on the strategic offensive forces (i.e., defense through arms control). ACD might easily be the most feasible and perhaps the most desirable form of serious arms limitation. As far as the United States and Soviet Union are concerned, if the other side has not cheated in offensive forces one does not really care about its capabilities in the civil defense and active defense fields. Neither national can hurt the other with strategic defenses. If, however, one side or the other cheats, then it is exactly at this point that these active and passive defense programs become essential; because they make the cheating less consequential.

Thus Arms Control Through Defense tries to make arms control more palatable by limiting the risks, and this is accomplished by increasing the defense capability, presumably on both sides. To give an example, one could imagine 100 missiles on a side and very elaborate active and passive defenses. Under this situation, the two countries would not worry much if one side or the other cheated because the treat from 200 missiles is not much greater than from 100 missiles, and, in fact, on paper the active and passive defenses might be able to degrade both attacks to "acceptable" limits. However, neither side can be so certain of its defenses that it is likely to risk provoking the other side. The Arms Control Through Defense has another great advantage in that it is net naked to third, fourth, and fifth powers. It could also have a capability to significantly increase its offensive forces if this becomes necessary.

Furthermore, ACD does not encourage any of the Nth powers to "cheat," or even compete, because even if these Nth powers get quite large offensive capabilities they cannot really challenge super-nations which possess elaborate active and passive defense systems. ACD acts, in other words, as a damper on the arms competition generally, and does so specifically because it emphasizes that the big and small powers are not equal. A nuclear world is not like the Wild West and it takes more than just a six-gun to be able to play the game. Their defensive capability in turn further reassures the great powers as to the safety and desirability of accepting limitations on their offensive forces.

So far as Type I Deterrence is concerned, the strategy is probably at least "workable" if not "adequate." If there is a countervalue retaliatory attack the active and passive defense systems, even if they work quite well, will not prevent a great deal of property from being

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Inc., November 22, 1963).

destroyed.[1] Many lives will also be lost and there will always be the possibility that the defenses will work badly: i.e., ACD has many of the advantages of Minimum Deterrence and Finite Deterrence without the disadvantages of forcing one's people to be stark hostages.

There is also some possibility that each side will have a fair amount of Type II Deterrence, just because thermonuclear war is indeed more feasible. In other words, some ACD postures are multistable—a situation, by and large, which many analysts, including the author, find preferable to the ordinary stable deterrent position.

An ACD policy can be a parity policy or not, depending upon the details. There may be lack of parity either by agreement, because one side is simply much more competent than the other side technically, operationally, or strategically, or because one side or the other puts more effort into uncontrolled parts of the posture. (There may only be limits on offensive forces, and each side may be encouraged to do what it wants to and can in the active and passive defense fields.) ACD may not only be feasible and desirable, it is also conceptually important because it indicates that the usual notions that active and passive defenses are always destabilizing and somehow bad from the arms control point of view are not necessarily correct—it would be rather strange if they were. Somehow the emphasizing of the use of one's own civilians as hostages does not really seem to be so obviously moral, prudential, and in the national interest as so many seem to think. It is true that in ancient times great kings and emperors did exchange members of their family as hostages, but the policy even then looked bad from both the human and national interest points of view. Also, ACD looks like a possible transitional strategy to an arms control world.

II. Arms Control Through Defense: Explication

A. Introductory Comments

This strategy tries to avoid some of the difficulties of arms control agreements to limit offensive capability by permitting or encouraging both sides to have highly effective active and passive defense. One purpose is to guarantee each side that if the other side cheats, it will not gain an overwhelming advantage. Another purpose is protection against Nth countries. A third is to get the country out of the business of offering its population as (involuntary?) hostages.

[1] If both the Soviet Union and the United States had an ability to protect every citizen and an assured recuperation capability, both nations would still possess adequate Type I Deterrence. Neither national would be willing, under almost any plausible circumstances, to risk losing the buildings and facilities in their great cities—so valuable in economic terms and so rich in historical, sentimental, and cultural value. And in practice neither nation could be certain that its protection and recuperation plans would work. Finally, one would judge that the above deterrent is only "adequate." It is not "approaching absolute" or even "reliable." Therefore both nations will have a good deal of Type II Deterrence as well (i.e., the situation is multistable).

B. National Goals

Arms control of some sort is essential. This form is relatively safe and may have a large number of adherents in both the Western and Eastern blocs. ACD may preserve the possibilities of war or an accelerated arms race as usable but unlikely instruments of policy. It also makes available most of the options on the escalation ladder but in somewhat safer form (i.e., it restores the possibility of having a war or escalation with non-bizarre tactics). It also seems to fit in with most other U.S. goals—except possibly some alliance requirements, which, however, are presumably limited in an environment in which ACD is acceptable.

C. Political-Military Analysis

1. Efficient Use of National Resources: Because of the large requirements for active and passive defense this strategy could be relatively expensive in dollars at least in the initial stages. However, it does not make any extraordinary requirements in leadership, intellect, organizing ability, etc., except that we stay competent about defense even in a détente atmosphere.

2. Escalation Adequacy: Because of the arms control agreement both sides can only make symmetrical threats against one another. Because of the limited number of weapons, the threats and warnings that can be exchanged must be limited and because of the active and passive defenses, the feat of an eruption is greatly lessened. (Depending on the issue involved and the degree of disarmament, the *probability* of eruption may or may not be lessened.) It is not likely that there will be anything like massive retaliation in this strategy, because the cities are so well protected, and there would be a certain reluctance to expend a large fraction of a limited force of missiles against BMD. Nuclear reprisals, if they occur at all, are likely to involve relatively innocuous targets or property in cities.

3. Assurance: This strategy provides a great deal of assurance since it promises to control the arms competition, is defensive, protects against all-out escalation, and may retain reasonable Type I and even Type II Deterrence.

4. Alliance Cohesion: Very probably the arms control agreement would involve some sort of political settlement with the Soviet Union. Excepting this, the strategy is compatible with a number of considerations in alliance cohesion. However, the weakened Type II Deterrent or the lessened sense of threat that the agreement is likely to bring may lead to disintegration of the alliance, or at least the weakening of ties, a consideration that may have advantages and disadvantages.

5. Stability to External Shocks: Except during the transition to this strategy, ACD is not particularly dependent on any particular configuration, military, political or otherwise, and since it has a high degree of technical safety, it is satisfactory in this respect. The reduction of force need not reduce stability—the difference between 200 and 400 missiles, for

instance, is not likely to lessen deterrence, particularly. When the offensive force comprises much less than 50-100 missiles, the balance of nonnuclear forces becomes important and stability will depend greatly on them. If there is a reduction of force to such small levels, there will be a period of instability in the transition during which other political-military factors will be critical. A miscalculation (or even a correct calculation) may show that war is advantageous to one side or the other if the transition period is not carefully arranged and if it is not sufficiently short to be substantially free of tensions.

6. Arms Competition Deceleration: Since there is always a possibility for a breakthrough in defense or offense which will give one side or the other extreme confidence in its capabilities, there is likely to be extensive research and development, unless this could also be controlled under the agreement. Since both sides are far from over-kill capability, an increase in the defensive capability or the penetration capability by a factor of 2, would double or halve the threats on one side or the other. Thus increased knowledge or technical ability may be worth a great deal if the offensive forces are not below the threshold at which defenses become clearly dominant and immune to reasonable changes in the threat. In any case, there is no longer a race in numbers. Such an agreement might also set a precedent in establishing active and passive defenses as an important element in nuclear strategy which would be followed by future nuclear powers.

7. Specific Arms Control Measures: This strategy is compatible with a very large number of measures short of total disarmament and even with total disarmament—since in a limiting case which may be of theoretical interest only defense will tend to atrophy after offense is eliminated.

8. Capability Against Unorthodox Opponents: The strategy in some forms includes this to a high degree since it attempts to preserve a war surviving capability against all kinds of attacks, making it less vulnerable to Nth country opponents, blackmail tactics, and the like.

9. Political Acceptability: Very high, since it doesn't require or make any special demands on any internal or external institutions if the understanding arrived at regarding Europe continues to be acceptable to those involved.

D. Central War Purposes

1. Type I Deterrence: This strategy accepts the possibility that there could be very little retaliation if the enemy's defense system were unexpectedly efficient. It assumes that reasonably assured severe damage to (and possibly destruction of) several cities (5 to 10 cities, say) plus the possibility of even greater destruction, should be adequate to achieve acceptable Type Deterrence. The expectation of damage can vary greatly depending on the type of restraints for offensive weapons. Assuming there is no change in the world political system, world-order will tend to be a product of multistability. The fear of war will not deter so much, but the total power realities will play a far greater part in political arrangements.

2. Improved War Outcome: This strategy imputes a high value to this purpose and for this reason has limited the number of nuclear forces on each side and included an adequate active and passive defense system.

3. Preventive War Potential: Under the arms control agreement outlined this capability is less needed, but may remain to some degree—particularly against Nth countries.

4. Type II Deterrence: As above, the necessity for this capability is decreased by the arms control agreement, but some capacity still remains (i.e., multistable deterrence).

5. Graduated Deterrence: Under certain circumstances this capability would be included but again need for maintaining this type of deterrence would be decreased by the political agreements.

6. Threatened Inadvertent Eruption: It can very much afford to do this because of its strong position in Improved War Outcome; but, at the same time it would not be as effective as with some other strategies because of the high defense capabilities.

7. Adaptability: This is one of the most important qualities of this strategy. Because the agreement has only reduced the number of missiles and made it symmetrical, retaining the war-fighting capability, the nation could adjust rapidly to changing conditions.

8. Technical Safety: Because the forces are relatively invulnerable to attack, neither side would be trigger-happy. The large amount of passive and active defense of both sides make each side competent to handle accidentally fired missiles.

E. Typical Capabilities

1. Offensive Weapons: As described, a limited force that could be protected by hardness, mobility or active defense.

2. Active and Passive Defenses: A very extensive network of civil, ballistic missile, and air defenses. These defenses should be effective enough to reduce dramatically the consequences (in terms of potential war damage) if the other side cheats on the arms control agreement. Spending for strategic defenses would approximate and then exceed expenditures devoted to offensive forces.

3. Intelligence: This would be supplied by national technical means or inspection under the arms control agreement.

4. Command and Control: About the same as in other war-fighting strategies. There might be more elaborate provisions for communication between the two opponents; indeed, provisions for such communication are likely to be part of the arms control agreement.

5. Operational Capabilities of Above: Same requirements as for any war-fighting systems.

6. Tactical and Strategic Skill: This strategy is compatible with a simple spasm-response doctrine or the most complicated of the controlled calculating responses.

G. Likely Tactics

Tactics may vary as in other war-fighting strategies.

H. Other Comments

One argument would be directed against what seems to be too sanguine an assumption that this type of strategy would alleviate Nth country problems. On the contrary this might seem an opportunity for smaller countries to gain superiority if the forces of the great nations decay too far.

In its more extreme forms ACD is an avant garde strategy which may find acceptance only under special circumstances, and then only in the wake of careful educational programs for the benefit of intellectuals. The economical and technical feasibility of ACD will vary with changes in R&D results. It may founder or succeed as a result of self-fulfilling prophecies that emphasize or de-emphasize defense R&D procurement.

Superficial Summary of the Characteristics of the Arms Control Through Defense Posture

Variable	ACD "Rating"
Military Systems	Reasonable
Technical Feasibility	High
Dollar Cost	Medium to High
Immediate Effect on Arms Competition	Mostly Slowed Down
Long-run Effect on Arms Competition	Slowed Down
U.S. Image	Peaceful vis-à-vis S.U.
Domestic Political Feasibility	Relatively Feasible
Deterrence of Surprise Attack	Reasonably High
Stability Against "Reciprocal Fear of Surprise Attack"	High
Alliance Problems	Intermediate
Capability Against Unorthodox Opponents	Reasonable
Escalation Dominance	Reasonable
Aftereffects of Controlled War	Minimum Damage Likely
Aftereffects of Uncontrolled War	Minimum Damage